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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### <u>Course outcomes for M.Tech – Power System Automation and</u> <u>Control (45) for the year 2015-16</u>

Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:			
Outcome	I/I Sem	Advanced Power System Analysis (A953101)	3			
	n of this course, the student	s should be able to	5			
1	Identify the methods and assumptions in modeling of machines.					
2	Recognize the different frames for modeling of AC machines.					
3		ge and torque equations in state space form for c	lifferent machines			
4	Develop the mathematical models of various machines like, induction motor and					
	-	Synchronous machines using modeling equations.				
5		oped models in various reference frames				
6		e dynamics in various operating conditions				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:			
Outcome	I/I Sem	Advanced Power System Protection (A953102)	3			
After the completio	n of this course, the student	s should be able to				
1	Understand the ba	sic function of a circuit breaker, all kinds of circ	uit breakers and			
	relays					
2		and circuit breakers under fault condition				
3	Learn construction	hal details of static relays and importance of dual	ity of comparators			
	in them.					
4		n of static relay applied for over current protecti				
5	Able to apply stati	ic relay for transformer and transmission line pre-	otection			
6	Basic principle of	operation and application of microprocessor bas				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:			
Outcome	I/I Sem	Modern Control Theory (A953103)	4			
After the completio	n of this course, the student		1			
1		basic and modern control system for the rea	I time analysis and			
	design of control					
2		variables analysis for any real time system.				
3		t of optimal control to any system.				
4		a system for its stability, controllability and obse	· ·			
5		principles and techniques in designing linear con	-			
6		lve deterministic optimal control problems in te	rms of performance			
	indices.	Cubicat Name (Cubicat Code)				
Course	Year / semester	Subject Name (Subject Code) EHV AC Transmission (A953104)	L: 4 T: 0 P: 0 C:			
Outcome	I/I Sem		4			
After the completio	n of this course, the student		Francomission			
2	•	ent aspects of Extra High Voltage A.C and D.C.				
2		AC transmission system components, protectio	ii and insulation			
2	level for over volt	0	nainaanina			
3		stical procedures for line designs, scientific and e	engineering			
A	Principles in powe					
4	Power Frequency	Voltage control and over-voltages in EHV lines				



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5	Study the concept	of Corona in E.H.V. lines and impact of RI in E	HV lines	
6		cables and study their charcteristics		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0	
Outcome	I/I Sem	High Voltage Engineering (A953105)	C:3	
	on of this course, the student		0.0	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/I Sem	Advanced Digital Signal Processing	3	
outcome		(A953106)		
After the completic	on of this course, the student		•	
1		nderstanding of using advanced controllers in me	easurement and	
		ontrol instrumentation.		
2	Illustrate about data acquisition - process of collecting information from field			
	instruments.			
3	Analyze Program	mable Logic Controller (PLC), IO Modules and	internal features.	
4	Comprehend Prog	gramming in Ladder Logic, addressing of I/O.		
5	Apply PID and its	s Tuning.		
6	Development of la	adder logic programming for simple process		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Outcome	I/I Sem	Power Quality (A953107)	4	
After the completic	on of this course, the student			
1	To relate the basic	e architecture and addressing modes of a microco	ontroller.	
2	Distinguish types	of computers & microcontrollers and explain the	e principles of top	
	down design to m	icrocontroller software development		
3	demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit			
	Microcontroller, assembly language code for high-level language structures such as			
	IF-THENELSE ar	nd DO-WHILE		
4				
4 5	analyze a typical I	/O interface and to discuss timing issues	te RTOS for	
	analyze a typical I		te RTOS for	
	analyze a typical I Develop Real time Microcontrollers.	VO interface and to discuss timing issues e Applications of Microcontrollers & Demonstra	te RTOS for	
5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	/O interface and to discuss timing issues		
5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester	O interface and to discuss timing issues Applications of Microcontrollers & Demonstra re applications using Microcontrollers.	L: 3 T: 0 P: 0 C:	
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>		
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>	L: 3 T: 0 P: 0 C: 3	
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> </ul>	L: 3 T: 0 P: 0 C: 3	
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcomplexity</li> </ul>	L: 3 T: 0 P: 0 C: 3	
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to mi	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>es should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top	
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit	
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types down design to midemonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit	
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit	
5 Course Outcome After the completion 1 2 3 4	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem of this course, the student To relate the basic Distinguish types down design to mid demonstrate assen Microcontroller, a IF-THENELSE an analyze a typical I	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as	
5 6 Course Outcome After the completion 1 2 3	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to midemonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as	
5 6 Course Outcome After the completion 1 2 3 4 5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assen Microcontroller, a IF-THENELSE ar analyze a typical I Develop Real time Microcontrollers.	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as	
5 6 Course Outcome After the completion 1 2 3 4 5 6	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for	
5 6 Course Outcome After the completion 1 2 3 4 5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>architecture and addressing modes of a microcontroller software development</li> <li>and applications for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for L: 3 T: 0 P: 0 C:	
5 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>//O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Distribution Automation (A953109)</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for	



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<u> </u>		hybrid energy systems such as geothermal and f of various renewable energy sources on environr			
5	Know the need of	hybrid energy systems such as geothermal and f	uel cells		
	conversion scheme				
4		ave energy conversion machines - Ocean Thern			
3		f wind energy conversion systems and bio-mass			
2		pristics of PV cell- photo voltaic modules and its			
1		enewable energy sources to produce electrical en	ergy		
Outcome	I/I Sem on of this course, the student		3		
Course	Year / semester	Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:		
6		Z-plane analysis of discrete time control system Subject Name (Subject Code)			
5		ntional control system with Digital control syste			
4		nd reconstruction, Z -transforms.			
3		e of mathematics, Z-plane analysis to discrete tin	ie control systems.		
2		oundation in sampling and reconstruction Z-tran			
$\frac{1}{2}$		l system to block diagram for various analysis	oforma		
	on of this course, the student				
Outcome	I/I Sem	Digital control systems (A953111)	3		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
6		tations in these techniques			
	travelling salesma				
5		iques to real world problems such as transportation	on problem,		
4	-	odern intelligent optimisation techniques			
3		e the problem with constrained and unconstraine	d cases		
2	Learn the conventional or classical optimisation techniques				
1		optimisation in electrical engineering problems			
After the completion	on of this course, the student				
Outcome	I/I Sem	Optimization Techniques (A953110)	4		
Course	Year / semester Subject Name (Subject Code) L: 4 T: 0 P: 0 C:				
6	Know the control schemes of distribution automation and substation automation				
5	Learn the architecture of PLC and its application in power system automation				
4	Learn the importance of EMS in power system operation.				
	Learn to implement power system automation and protection using SCADA.				
3	Classify various power system automation schemes				



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After the completio	on of this course, the student	s should be able to			
1	Understand the	characteristics and principle of operation	of modern power		
	semiconductor de	vices.	_		
2	Comprehend the concepts of different power converters and their applications				
3		an switched mode regulators for various industria			
4		rious converter topologies	11		
5	Ŭ	te device for a particular converter topology.			
6		ronic simulation packages for analyzing and	designing power		
0	converters.				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	Embedded Systems (A953115)	3		
	on of this course, the student	s should be able to	0		
1		sics of an embedded system			
2		of designing an embedded system for any type o	f applications		
3		perating systems concepts, types and choosing RT	11		
4		it and test an embedded system			
5		of memory and interacting to external world			
6	• •	irmware design approaches			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:		
	I/I Sem	Power Systems Lab-I (A953116)			
Outcome	n of this course, the student	-	2		
1		ate the symmetrical and unsymmetrical fault in the	e generator		
2		ti effect in the transmission line and implement f	-		
2		t operation by constructing the circuits	ecuci protection		
3			voltage condition		
4		on various static relays for over current and over			
		rential protection of transformer for external and Subject Name (Subject Code)			
Course	Year/Semester	Power System Dynamics (A953201)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem		3		
1		f system dynamics and able to analyse steady sta	te stability and		
T	transient stability	r system dynamics and dole to analyse steady sta	at stating and		
2	2	chronous machine to analyse steady state operat	ion analyse its		
2	dynamics of opera		ion analyse us		
3		on system analyse the dynamics of the synchron	oue machina		
3	connected to infin		ous machine		
1					
4		l signal stability of the system using Routh's Hu	witz criterion		
5		PSS in control signals	•.1 •		
6	Dynamic compense without PSS.	sator analysis of single machine infinite bus syste	em with and		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Flexible AC Transmission Systems (FACTS)	4		
		(A953202)			
	on of this course, the student				
1		s and types of FACTS controllers			
2	Learn various converters employed for FACTS controllers				
3		of FACTS devices in the power flow in the AC s			



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4	Learn various shu	nt compensation using SVC and STATCOM			
5	Learn various series compensators such as TCSC, TSSC				
6	Explore the concept of UPFC and its application.				
Course	Year / semester				
Outcome	I/II Sem	Power System Operation and Deregulation	4		
		(A953203)	-		
	n of this course, the student		1 . 1 1		
1		wledge on restructuring of power industry and r			
2	1 0	on fundamental concepts of congestion manage	ement		
3		ious ancillary service providers			
4		nternational Transmission pricing paradigms			
5		k of Indian power sector and its initiatives			
6	The reforms in Inc	lian power sector			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Gas Insulated Systems(GIS) (A953204)	4		
	n of this course, the student	s should be able to Subject Name (Subject Code)	L: 4 T: 0 P: 0		
Course	Year / semester	Programmable Logic Controllers and their			
Outcome	I/II Sem	Applications (A953205)	C:4		
After the completio	n of this course, the student				
1	Gain Comprehens	ive knowledge of using advanced controllers in	measurement and		
	control instrument	ation.			
2	Illustrate about da	ata acquisition - process of collecting informatio	on from field		
	instruments.				
3	Analyze Programm	nable Logic Controller (PLC), IO Modules and	internal features.		
4	Comprehend Prog	ramming in Ladder Logic, addressing of I/O.			
5	Apply PID and its	s Tuning.			
6	Develop ladder log	gic programming for simple process			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	High frequency magnetic components	3		
<u> </u>		(A953206)			
After the completio	n of this course, the student	entals of magnetic devices			
2		rties of magnetic core materials			
3		effects that exists the round conductor carrying	AC currents		
4		y stored in coupled inductors of transformers	AC currents		
5	-	mers for fly-back converters in CCM			
	-	•	ionay applications		
<u>6</u>	Year / semester	ted inductors and self capacitance for high frequencies (Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Course		Reactive Power Compensation and			
Outcome	I/II Sem	Management (A953207)	4		
After the completio	n of this course, the student				
1	Identify the necess	sity of reactive power compensation			
2	Describe load com				
3	Select various type	es of reactive power compensation in transmissi	on systems		
	Characterize distribution side and utility side reactive power.				
4	Characterize distri	bution side and utility side reactive power.			



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6	Detect reactive po	wer compensation techniques & their practical in	mportance
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power System Reliability (A953208)	L: 3 T: 0 P: 0 C: 3
After the completio	n of this course, the student		
1	To identify the get	neration system model and recursive relation for	capacitive model
	building		
2	calculate the equiv	valent transitional rates, cumulative probability a	nd cumulative
	frequency		
3	Evaluate cumulat	ive probability and cumulative frequency of non	-identical
	generating units an	nd merging generation and load	
4	Distinguish various approaches to evaluate operating reserves and bulk pow		
	generation reserve		-
5	Analyse the reliab	ility indices on radial and weakly meshed distrib	oution networks
6		f short circuits in substation and switching station	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Voltage Stability (A953209)	3
	n of this course, the student	s should be able to	U
1		sity of reactive power compensation	
2	Describe load con		
3		es of reactive power compensation in transmission	on systems
4		bution side and utility side reactive power.	511 0 9 000 1110
5		related to power system stability and control.	
6		wer compensation techniques & their practical i	mnortance
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Instrumentation & Control (A953210)	
After the completio	n of this course, the student		
	с ·		
1		ethods of power generation	
1 2	Understand the im	portance of instrumentation in power generation	
1	Understand the im Explore various m	portance of instrumentation in power generation easuring and supervising systems involved in th	
1 2 3	Understand the im Explore various m processes such as	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units	
1 2 3 4	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler	
1 2 3	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units	
1 2 3 4	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation	
1 2 3 4 5	Understand the im Explore various m processes such as Understand variou Explore the tempe	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	ermal power plant
1 2 3 4 5 6 <b>Course</b> Outcome	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211)	ermal power plant
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b>	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to	ermal power plant
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control	ermal power plant L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod	ermal power plant L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control	ermal power plant L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod	ermal power plant L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2 3	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations.	ermal power plant L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completion 1 2 3 4	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem nof this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. prithm for various optimisation problems	ermal power plant L: 3 T: 0 P: 0 C: 3 el
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completion 1 2 3 4 5 6	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem nof this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. Drithm for various optimisation problems I different system with fuzzy logic controller Dwer system problem and apply GA, NN and Fu Subject Name (Subject Code)	ermal power plant L: 3 T: 0 P: 0 C: 3 el zzy controller
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       Course \\       Outcome \\       After the completioo \\       1 \\       2 \\       3 \\       4 \\       5 \\       5   \end{array} $	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. Drithm for various optimisation problems I different system with fuzzy logic controller ower system problem and apply GA, NN and Fu	ermal power plant L: 3 T: 0 P: 0 C: 3 el



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6 Course	Year / semester	Subject Name (Subject Code) Power Systems Lab-II (A953216)	L: 0 T: 0 P: 4 C:				
6	Determine Day Day						
	· · ·	ck periods for energy saving equipment.					
5		r factor and to design a good illumination system	m				
4		s of carrying out energy audits.					
3		rs to increase the efficiency of electrical equipn	nent				
2		thods of energy management					
1		y of conservation of energy					
After the completio	n of this course, the student						
Outcome	I/II Sem	Management (A953215)	3				
Course	Year / semester	Energy Auditing, Conservation &	L: 3 T: 0 P: 0 C:				
6		f short circuits in substation and switching static Subject Name (Subject Code)					
		ility indices on radial and weakly meshed distri					
5	generation reserve		hution naturates				
4	-		i ouik powei				
4		is approaches to evaluate operating reserves and	hulk nower				
5		nd merging generation and load					
3	· · ·	ive probability and cumulative frequency of nor	n-identical				
2	frequency	valent transitional rates, cumulative probability					
2		valent transitional rates, cumulative probability	and cumulative				
1	building	neration system moder and recursive relation to					
Alter the completion		neration system model and recursive relation fo	r canacitive model				
Outcome	I/II Sem		3				
Course		Reliability Engineering (A953214)					
	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:				
<u> </u>		bility using AI techniques	a wenniques				
5		ower system problems which can utilize these A					
4		knowledge on genetic algorithm including thr	ee genetic operators				
3	-	zy logic control and to design the fuzzy rules					
		f fuzziness involved in various systems and com					
2		s of feed forward neural networks and feedback	neural networks.				
1	_	enetic Algorithms.	7				
		on soft computing techniques such as artificial n	eural networks,				
After the completio	n of this course, the student		<u> </u>				
Outcome	I/II Sem	(A953213)	3				
Course	Year / semester	Subject Name (Subject Code) AI Techniques in Electrical Engineering	L: 3 T: 0 P: 0 C:				
	conditions.						
6	Recite the structure of an electricity market in either regulated or deregulated market						
5	Analyze the development of smart and intelligent domestic systems.						
~		renewable, demand-side resources, etc) in electricity markets.					
4		ous investment options (e.g. generation capa	cities, transmission				
4	system.		•,• , • •				
3		trade-off between economics and reliability of	or an electric power				
			<u> </u>				
	distribution						
2	Understand the	advantages of DC distribution and develop	ing technologies in				



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Outcome	I/II Sem		2			
After the completion	fter the completion of this course, the students should be able to					
1	Study the characte	Study the characteristics of microprocessor based relays				
2	Able to protect the	Able to protect the feeder from faulty condition using over current relay operation				
3	Study the Characteristics of IDMT Electromagnetic Over Current Relay					
4	Study the phase failure and phase reversal protection with static negative sequence relay					
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code)L: 0 T: 0 P: 4Seminar-II (A953217)C:2				

#### Vaagdevi College of Engineering-Autonomous Bollikunta, Warangal-506005 Department Of MBA MBA R18 COURSE OUTCOMES

		I/I SEM		
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	I/I Sem.	<b>Business Environment</b>	L:4 T:0 P:0	4
		( <b>M18MB01</b> )		
On successful	ul completion of this	s course, student should be able to:		
1		ot of BE and different techniques of er		ing process.
2	Describes economic	c systems, GATT, WTO, Fiscal and m	onitory policies	
3		ustrial Policy and regulatory structure		
4	Explains socio politi			
5		le policy, EXIM Policies and FEMA.		
Course out	Year/ Semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem	Managerial Economics	L:4 T:0 P:0	
		(M18 MB02)		
On successfu		s course, student should be able to:		
1		ed by the business organization		
2		techniques in real business situations.		
3	-	action factors and returns		
4	analyse the differen			
5		pricing strategies and profit policies	•	1
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem.	Management and Organization	L:4 T:0 P:0	
		Behaviour (M18MB03)		
		s course, student should be able to:		
1	Ū	nce of fundamentals of Management and		
2		g process and types of plans in dynam		evelop the
		les in various situations in organization		
3		ganization structures with its merits ar		
		d influence, Asses the significance of		
4 5		l and group behavior in an organizatio		
5		gers apply different leadership styles a	nd motivation theo	ories in an
<u> </u>	organization.			
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/I Sem.	Accounting for Management	L:4 T:0 P:0	
On autocoa-f	l	(M18MB04)		
UN SUCCESSI		s course, student should be able to:		
2	Explain the importa		ta of the company	
$\frac{2}{3}$		g cycle in preparing financial statemen		
3	Plan the process of issue of shares and debentures for raising capital by the company.			

4	A		······································	V
4		ret financial position of the company u	ising ratio analysis	, vertical
5	and Horizontal anal			
Course out	Year/semester:	flow statements in the company.	No. of Hours	Credits: 4
	I/I Sem.	Subject name code: Statistics for Management	L:4 T:0 P:0	Creans: 4
come	1/1 Sem.	(M18MB05)	L:4 1:0 P:0	
On successfi	ul completion of this	s course, student should be able to:		
1		statistics and statistical techniques in	management dec	ision making
1	1	riate measures of central tendency and	0	ision making
2		and also measure the degree of corr		variables and
_		nship between independent and depen		
	lines.	ising convert independent and depen		
3		n parametric and non-parametric test.		
4		othesis and alternative Hypothesis,	hypothesis testing	for making
	decisions using stud		51	6
5	<u> </u>	y and two-way classification of ANOV	A and examine go	odness of fit
	by using Chi-square		C	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/I sem	<b>Business Communication</b>	L:4 T:0 P:0	
		(M18MB06)		
On successfu	ul completion of this	s course, student should be able to:		
1		ance of written communication skills a	ppropriate for bus	iness
	situations.			
2		ident effectively deliver on oral preser		
3		ts report writing skills and develop the	e positive writing s	skills.
4		s of communication		
5		nt negative attitudes towards the verba	al and nonverbal	
	communication		1	T
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:3
come	I/I sem	Information Technology Lab	L:0 T:0 P:3	
0		(M18MB07)		
On successfu		s course, student should be able to:	1 '1	
1		about MS-word, creation of document and	č	
2	-	adsheets and data analysis with statistical	tools.	
3	<b>v</b>	Database & data mining.		
4	creation	e of mail merge and build the presentation	i graphics through p	ower point
	creation	I/II Com		
0	<b>X</b> 7 / /	I/II Sem	NT CTT	
Course	Year/ semester:	Subject name code:	No. of Hours	Credits:4
out come	I/II Sem.	Marketing Management	L:4 T:0 P:0	
On queses	l al completion of this	(M18MB08)		<u> </u>
1		s course, student should be able to: I functions of marketing.		
2			mont	
3		strate the nature of marketing environ research project/process.		
J		research project/process.		

Make use of PLC fo	or framing marketing strategies and ar	praise the import	ance of	
	or manning marketing strategies and up	pruise the import		
			Credits: 4	
	0			
	0			
l completion of this				
Illustrate the techni	ques and tools for training and Develo	pment, performan	ce appraisal.	
	-			
settlements.	-			
Recommend and ap	praise the contemporary issues related	l to HR practices i	n Global	
perspective.		_		
Year/ semester:	Subject name code:	No. of Hours	Credits:4	
I/II sem	<b>Financial Management</b>	L:4 T:0 P:0		
	( <b>18MBA10</b> )			
· · ·	* ·			
	nniques for investment decision proce	ss and measuring	the cost of	
*				
· · ·				
		on		
		1	-	
	0		Credits:4	
I/II sem		L:4 T:0 P:0		
		uld be able to:		
	-			
<u> </u>		1		
Importance of resea				
Influence of researc	h reference			
Influence of researce Year/ semester:	th reference Subject name code:	No. of Hours	Credits:4	
Influence of researc	th reference Subject name code: Quantitative Analysis for	No. of Hours L:4 T:0 P:0	Credits:4	
Influence of researc Year/ semester: I/II Sem.	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12)		Credits:4	
Influence of researc Year/ semester: I/II Sem.	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to:		Credits:4	
Influence of researc Year/ semester: I/II Sem. Il completion of this Define OR and OR	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model.		Credits:4	
Influence of researc Year/ semester: I/II Sem. Il completion of this Define OR and OR Construct the struct	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model. ure of LPP.		Credits:4	
Influence of researce Year/ semester: I/II Sem. I completion of this Define OR and OR Construct the struct Compare Two-phase	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model. ure of LPP. se method and Big-M method.		Credits:4	
Influence of researc Year/ semester: I/II Sem. I completion of this Define OR and OR Construct the struct Compare Two-phas Build the mathemat	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model. ure of LPP. se method and Big-M method. cical model of transportation problem.		Credits:4	
Influence of researc Year/ semester: I/II Sem. I completion of this Define OR and OR Construct the struct Compare Two-phas Build the mathemat How to solve the A	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model. Sure of LPP. Se method and Big-M method. Sical model of transportation problem. ssignment problem.	L:4 T:0 P:0		
Influence of researc Year/ semester: I/II Sem. I completion of this Define OR and OR Construct the struct Compare Two-phas Build the mathemat	ch reference Subject name code: Quantitative Analysis for Business Decisions (M18MB12) s course, student should be able to: Model. ure of LPP. se method and Big-M method. cical model of transportation problem.		Credits:4	
	promotion mix. Utilize the different Year/ semester: I/II Sem. I completion of this Define the basic completion of this Define the basic completion of this Infer Industrial Relations Settlements. Recommend and apperspective. Year/ semester: I/II sem I completion of this Identify the importation Apply different tech capital Analyze the capital Examine the factors Assess the needs an Year/ semester: I/II sem On successful co What is research models Explain the research Make use of question	promotion mix.         Utilize the different pricing strategies for profit maximization         Year/ semester:       Subject name code:         I/II Sem.       Human Resource Management (M18MB09)         Id completion of this course, student should be able to:       Define the basic concepts of HRM, Its model.         Demonstrate HRP process and Job Analysis.       Illustrate the techniques and tools for training and Develor         Infer Industrial Relations System Grievance redressal mesettlements.       Recommend and appraise the contemporary issues related perspective.         Year/ semester:       Subject name code:         I/II sem       Financial Management (18MBA10)         Id completion of this course, student should be able to:       Identify the importance of profit maximization and wealtd Apply different techniques for investment decision proce capital         Analyze the capital structure theories       Examine the factors determining dividend and its valuation Assess the needs and planning of working capital         Year/ semester:       Subject name code:         I/III sem       Business Research Methods (M18MB11)         On successful completion of this course, student should       Examine the research methodlogy and why it is useful.         Explain the research problem and research design       Make use of questionnaire and methods of data collection	Utilize the different pricing strategies for profit maximization.       No. of Hours         Year/ semester:       Subject name code:       No. of Hours         I/II Sem.       Human Resource Management       L:4 T:0 P:0         al completion of this course, student should be able to:       Define the basic concepts of HRM, Its model.       L:4 T:0 P:0         Define the basic concepts of HRM, Its model.       Demonstrate HRP process and Job Analysis.       Illustrate the techniques and tools for training and Development, performan Infer Industrial Relations System Grievance redressal mechanism and dispusettlements.         Recommend and appraise the contemporary issues related to HR practices i perspective.       No. of Hours         Year/ semester:       Subject name code:       No. of Hours         I/II sem       Financial Management       L:4 T:0 P:0         Identify the importance of profit maximization and wealth maximization       Apply different techniques for investment decision process and measuring capital         Analyze the capital structure theories       Examine the factors determining dividend and its valuation         Assess the needs and planning of working capital       No. of Hours         Year/ semester:       Subject name code:       No. of Hours         I/II sem       Business Research Methods       L:4 T:0 P:0         Mate use of question of this course, student should be able to:       No. of Hours <t< td=""></t<>	

On successfu	On successful completion of this course, student should be able to:					
1	Distinguish Financial Accounting, Cost accounting & Management Accounting					
2	Analyze Costing fo	r specific industries.				
3	Apply Break Even	analysis for various business problems	8			
4	Classify and evalua	te budgets.				
5	Compare and contra	ast standard cost, estimated cost & ma	rginal cost			
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:3		
come	I/II sem	Soft Skills Lab (M18MB14)	L:0 T:0 P:4			
On successfu	al completion of this	s course, student should be able to:				
1	show how to overco	ome fear of facing interviews				
2	Improve communic	ation skills and able to convince their	view point to the s	superior,		
	peers and subordinates.					
3	Adopt Time manag	Adopt Time management skills to efficiently manage time in meeting deadlines.				
4	Compare Traits of p	positive thinking and high achievers				
5	Improve General kr	nowledge and current information.				

		II/I Sem			
<b>Course out</b>	Year/ semester:	Subject name code: Strategic	No. of Hours	Credits: 4	
come	II/I Sem.	Management (M18MB15)	L:4 T:0 P:0		
On successfu		s course, student should be able to:			
1	Formulate organiza	tional objectives, policies, vision and	mission and outlin	e the	
	concepts in strategi	c management.			
2	Define the role of s	trategist in an organization.			
3	Evaluate the perform	Evaluate the performance by using qualitative and quantitative benchmarking technique.			
4	Identify diversifyin	g strategies and define why firms dive	ersify?		
5	Propose strategies f	for competing in global markets.			
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4	
come	II/I sem	Entrepreneurship (M18MB16)	L:4 T:0 P:0		
On successfu	ll completion of this	s course, student should be able to:			
1	Explains characteri	stics, Qualities, Skill and Functions of	Entrepreneur.		
2	Infers financial Inst	itutions assistance to promote Entrepr	eneurship.		
3		cal competitiveness, legal regulatory s	systems, patents, tr	ademarks	
4		perty rights to Entrepreneurship.	lalinga in husingas		
4 5		ity for business ethics and ethical guid			
5	Governance.	overnance and its History and theoreti	cal basis of corpor	ate	
Comment		Sechtard manual and a	N. eftlerer	Caraditary 2	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 3	
come	II/I sem	Intellectual Property Rights	L:4 T:0 P:0		
	l completion of the	(M18MB17A)		<u> </u>	
		s course, student should be able to:	, ni aleta		
1		ing importance of intellectual property			
2	Utilize post registr	ation procedures and trade mark regist	tration process		

3	Explain the copyrig	the principles and rights		
4		f patents and patent ownership.		
5		ecret and maintenance.		
Course out	Year/ semester:	Subject name code: Stress	No. of Hours	Credits:3
come	II/I sem	Management (M18MB17B)	L:4 T:0 P:0	
		s course, student should be able to:		
1		d Symptoms of stress		
2		ues in crisis management		
3		nship between the teams		
4	I I	zation personality of employee		
5		equired for personality development		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:3
come	II/I sem	Agri-Business Management	L:4 T:0 P:0	Creation
••••••		(M18MB17C)		
On successfi	al completion of this	s course, student should be able to:	1	
1		griculture in economic development		
2		ting of agriculture produce and agenci	ies through which	agriculture
	produce is markete	• • • •	8	8
3	1	ate the defects of agricultural marketing	ng	
4		ural prices and price policy	0	
5		responsibilities of marketing function	aries.	
Course out	Year/ semester:	Subject name code: Tourism and	No. of Hours	Credits: 3
come	II/I sem	Hospitality Management	L:4 T:0 P:0	
		(M18MB17D)		
On successfu	al completion of this	s course, student should be able to:		
1		nt concepts of Tourism management		
2		affecting hospitality and tourism indu	istry	
3		yment opportunities in Hospitality	J.	
4				
_	Develop the eco system	stem and ecotourism activities		
5		stem and ecotourism activities roblems in tourism and Hospitality ma	anagement	
-	Solve the various p	roblems in tourism and Hospitality ma		Credits:
Course out	Solve the various p. Year/ semester:	roblems in tourism and Hospitality ma Subject name code: Indian	No. of Hours	Credits: 03
Course out come	Solve the various p Year/ semester: II/I sem	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E)		
Course out come	Solve the various p Year/ semester: II/I sem al completion of this	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to:	No. of Hours	
Course out come On successfu	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history	No. of Hours	
Course out come On successfu 1 2	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to:	No. of Hours	
Course out come On successfu 1 2 3	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure	No. of Hours	
Course out come On successfu 1 2	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure ortance of election commission	No. of Hours	
Course out come On successfu 1 2 3 4 5	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfar	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure ortance of election commission e of SC/ST/BC and women	No. of Hours L:4 T:0 P:0	03
Course out come On successfu 1 2 3 4 5 Course out	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfart Year/ semester:	roblems in tourism and Hospitality ma         Subject name code: Indian         Constitution (M18MB17E)         s course, student should be able to:         student should be able to:         titution and constitutional history         and centre-state relationship         ecretariat and it structure         ortance of election commission         e of SC/ST/BC and women         Subject name code: Yoga and	No. of Hours L:4 T:0 P:0	03 Credits:
Course out come On successfu 1 2 3 4 5 Course out come	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfart Year/ semester: II/I sem	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure ortance of election commission e of SC/ST/BC and women Subject name code: Yoga and Spirituality (M18MB17F)	No. of Hours L:4 T:0 P:0	03
Course out come On successfu 1 2 3 4 5 Course out come	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfare Year/ semester: II/I sem Il completion of this	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure ortance of election commission e of SC/ST/BC and women Subject name code: Yoga and Spirituality (M18MB17F) s course, student should be able to:	No. of Hours L:4 T:0 P:0	03 Credits:
Course out come On successfu 1 2 3 4 5 Course out come On successfu 1	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfart Year/ semester: II/I sem Il completion of this Spell the aim and o	roblems in tourism and Hospitality ma         Subject name code: Indian         Constitution (M18MB17E)         s course, student should be able to:         titution and constitutional history         and centre-state relationship         ecretariat and it structure         ortance of election commission         e of SC/ST/BC and women         Subject name code: Yoga and         Spirituality (M18MB17F)         s course, student should be able to:         objectives of Yoga	No. of Hours L:4 T:0 P:0	03 Credits:
Course out come On successfu 1 2 3 4 5 Course out come On successfu	Solve the various p Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state s Determine the impo Improve the welfart Year/ semester: II/I sem Il completion of this Spell the aim and o	roblems in tourism and Hospitality ma Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship ecretariat and it structure ortance of election commission e of SC/ST/BC and women Subject name code: Yoga and Spirituality (M18MB17F) s course, student should be able to: objectives of Yoga and importance of Yoga	No. of Hours L:4 T:0 P:0	03 Credits:

5	Improve the spiritu	ality at workplace		
<b>Course out</b>	Year/ semester:	Subject name code: Consumer	No. of Hours	Credits:
come	II/I Sem	Behavior (M18MB18M1)	L:4 T:0 P:0	03
On successfu	ll completion of this	s course, student should be able to:		
1		ner behaviour research process and rur	al consumer behav	ior.
2	Understand the env	vironmental influences on consumer b	ehavior and able t	o appreciate
	the importance of c	ultural adaptation of consumer behavior	or.	
3	2	l personality and self-concept, con	<b>1 1</b> '	changing
		ers, consumer learning and informatio		
4		nce of consumer behaviour models in		
5	Makeup role of co	nsumerism, consumer safety, and co	nsumer information	on at market
	place.			
<b>Course out</b>	Year/ semester:	Subject name code: Sales and	No. of Hours	Credits:
come	II/I Sem	Distribution Management (M18MB19M2)	L:4 T:0 P:0	03
On successfu	l completion of this	s course, student should be able to:		
1		entals of sales management.		
2	Define and formula	te the strategies to effectively manage	company's sales o	perations
	and identify the role	es and responsibilities of the sales mar	nager.	-
3	Develop the sales for	orce productivity and control.		
4	Analyze and implei	nent distribution channel strategy.		
5	Examine the channel	els efficiency and effectiveness in who	lesaling and retaili	ng.
<b>Course out</b>	Year/ semester:	Subject name code: Product and	No. of Hours	Credits:
come	II/I Sem	<b>Brand Management</b>	L:4 T:0 P:0	03
		(M18MB20M3)		
		mpletion of this course, student sho	uld be able to:	
1		products in product management.		
2		product manager in modern marketin		
3		t portfolios to compare the competitive		
4		positioning strategies to gain a good p	place in the minds of	f customers
5		ant for a product and to a company	1	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	Security Analysis and Portfolio	L:4 T:0 P:0	03
0		Management (M18MB18F1)		
On successfu		s course, student should be able to:		
1		t alternatives and make investment pol	licy recommendation	on including
2		f an optimal asset allocation.		
$\frac{2}{2}$		pes of bonds in the stock markets		
3	· ·	alysis and valuation		
4		portfolios following the tenets of mode	ern portiolio theory	
5		es of mutual funds schemes	No of II-	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	Financial Institutions, Markets and Services (M18MB19F2)	L:4 T:0 P:0	03
<u></u>	l completion of the	s course, student should be able to:	1	

1	Define the financia	l Institutions markets and services, Ex	xplain the financia	Reforms
	after 1991, Regulat	ions and promotional Institutions.		
2		g and non-Banking Institutions.		
3	Distinguish the stru	cture and functioning of money marke	et & capital marke	t.
4	Evaluate of lease fi	nance and Hire Purchase.		
5	Elaborate functions	and activities of Investment bankers.		
<b>Course out</b>	Year/ semester:	Subject name code: International	No. of Hours	Credits:
come	II/I Sem	Financial Management (M18MB20F3)	L:4 T:0 P:0	03
On successfu	al completion of this	s course, student should be able to:		
1		rent international Business Methods		
2	To evaluate Balanc	e of payments and International Mone	tary system	
3		eign exchange market movements.	<u> </u>	
4		nt with exchange rate movements		
5	To find the opportu	inities in International financial marke	ts	
Course out	Year/ semester:	Subject name code: Leadership	No. of Hours	Credits:
come	II/I Sem	and Change Management	L:4 T:0 P:0	03
come	II/I Selli	(M18MB18H1)		05
On successfi	l completion of thi	s course, student should be able to:		
	Define leadership r	olos and functions		
2			atrilaa	
		effective leader and his/her leadership	-	
3		styles in organizational work settings		
4		roblems while inviting change in orga		
5	0	tionship between power, politics and		
Course out	Year/ semester:	Subject name code: Management	No. of Hours	Credits:
come	II/I Sem	of Industrial Relations	L:4 T:0 P:0	03
0		(M18MB19H2)		
On successfu		s course, student should be able to:		
1		trial relation and Indian IR system		
2		nion, types and their recognition		
3		ttlement missionary and its instrument	ts	
4	10	handling procedure		
5	Analyze collective	bargaining levels and legal framework	<u>KS</u>	-
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	<b>Compensation Management</b>	L:4 T:0 P:0	03
		(M18MB20H3)		
On successfu	al completion of this	s course, student should be able to:		
1	Define the compension	sation management and its objectives		
2	Explain issues and	models of executive compensation		
3		nents of pay structure and its strategy		
4	* *	ional compensation system and manag	ing variations in in	nternational
	pay		J	
5		k ownership plans and broad based or	ption plans	
5 Course out		k ownership plans and broad based op Subject name code: Internship	tion plans No. of Hours	Credits:

On successfu	l completion of this	s course, student should be able to:		
1	Improve their pract	ical knowledge by working in any orga	anization	
2		tual learning to practical business prob		
3		nal working teams and dynamics of or		
4		tencies for future job requirement	C	
Course out	Year/ semester:	Subject name code: Global	No. of Hours	Credits:
come	II/II Sem	Entrepreneurship (M18MB18E1)	L:4 T:0 P:0	03
On successfu	l completion of this	s course, student should be able to:		
1		und of entrepreneurship and Global en	trepreneurship	
2		cors for starting a new venture	1 1	
3		nmental situation and market opportun	ity	
4		ssumptions and identifying the startup		
5	—	pital requirement and legal environment	-	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/II Sem	MSME	L:4 T:0 P:0	03
••••••		Management(M18MB18E2)		
On successfu	l completion of this	s course, student should be able to:		
1		hallenges of MSMEs.		
2		siness opportunities, and formalities fo	r setting up an ente	erprise
3	<u> </u>	preneurship and a entrepreneurship	r setting up un ente	
4		p sources of financial support		
5	-	vernment in promoting entrepreneursh	nin	
Course out	Year/ semester:	Subject name code: Women	No. of Hours	Credits:
come	II/II Sem	Entrepreneurship (M18MB20E3)	L:4 T:0 P:0	03
		s course, student should be able to:		
1		trepreneurship, Nature and its intention	1.	
2		women Entrepreneurship.		
3	Analyze the challer	ges of women Entrepreneurship in Inc	lian scenario.	
4		financial institutions in women Entrep		nent
	programmes.		r-	
5	1 0	erspective in family business and in In	trapreneurship.	
	1 0 1	II/II Sem	1 1	
Course out	Year/ semester:	Subject name code: Business	No. of Hours	Credits:
come	II/II sem	Laws and Ethics (M18MB22)	L:4 T:0 P:0	04
On successfu	l completion of this	s course, student should be able to:		
1		s laws affecting the business conce	rn. Define the pr	ocedure for
		vinding up of company		
2		ts and define essential elements of	f Indian contract	act and its
	remedies for bread	ch. Explain the general principles,	conditions and w	arranties in
	contract of sale.			
3	Choose the approp	priate negotiable instrument under t	he negotiable inst	rument act.
3		priate negotiable instrument under t and regulations of GST in India.	he negotiable inst	rument act.
3		and regulations of GST in India.	he negotiable inst	rument act.
	Determine the rules Asses the ethical iss	and regulations of GST in India.		

come	II/II sem	and Operations Management (M18MB23)	L:4 T:0 P:0	04
On successfi	l completion of this	s course, student should be able to:		
1		n production methods. Compare and c	ontrast production	methods
2		ct and process design.	F	
3	1	riate facilities location and Plant layou	t.	
4		he techniques of sequencing and sched		on control.
-	Asses the concepts		8 F	
5		nagement techniques for inventory co	ontrolling.	
Course out	Year/ semester:	Subject name code: Gender	No. of Hours	Credits:
come	II/II sem	Sensitization (M18MB24A)	L:4 T:0 P:0	03
		s course, student should be able to:		
1		biological aspects of genders.		
2	Find Demographic			
3		gendered division of labour and its rel	ation to politics an	d economics
4	Identify causes of S	-	1	
5	~	appreciation of women in all walks of	f life.	
<b>Course out</b>	Year/ semester:	Subject name code: Disaster	No. of Hours	Credits:
come	II/II sem	Management (M18MB24B)	L:4 T:0 P:0	03
	al completion of this	s course, student should be able to:		
1		Environmental Hazards & Disasters.		
2	Identify causes of e			
3		isasters and their impact on the enviro	onment.	
4		tion & Environmental problems		
5		ve measures of Erosion & Sedimentation	on.	
<b>Course out</b>	Year/ semester:	Subject name code: Health Care	No. of Hours	Credits:
come	II/II sem	Management (M18MB24C)	L:4 T:0 P:0	03
On successfu	l completion of this	s course, student should be able to:		
1	Identify the prevail	ing health care system in India		
2	Avail the facility pr	ovided by the health policies		
3	Adopt the benefits	from different programs introduced by	government	
4	Utilize different hea	althcare schemes and funds offered by	WHO and UNICI	EF
5	Outline the trends i	n the health insurance sector		
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits:03
come	II/II sem	Data Analytics (M18MB24D)	L:4 T:0 P:0	
On successfu	l completion of this	s course, student should be able to:		
1	Explain basic Data	concepts such as Data Analytics conc	epts to include Im	portance of
	data analytics, data	visualization tools, Descriptive Statist	tical Measures, Pre	edictive
	Analytics, Data Min	ning, and Simulation		
2	Apply knowledge to	o solve simple tasks using data analyti	ics techniques with	n computer
	(MS Excel).			
3	Identify the advanta	ages and disadvantages of simulation,	risk analysis and d	lecision tree
	analysis			
4		nalytics parameters (descriptive analyt	tics, diagnostic ana	lytics,
	predictive analytics	and prescriptive analytics).		

5	Choose the data and	alytics techniques for solving practical	problems in busin	ess.
Course out	Year/ semester:	Subject name code: Disability &	No. of Hours	Credits:
come	II/II Sem	<b>Rehabilitation</b> (M18MB24E)	L:4 T:0 P:0	03
On successfu	l completion of this	s course, student should be able to:	·	•
1		y and Rehabilitation services		
2	Identify causes and	prevention of impairments		
3	List out the differen	nt models of service delivery		
4	Explain the barriers	of Rehabilitation and reforming po	olicies	
5	Design the commun	nity based Rehabilitation, awareness	and participation	n
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/II Sem	Sustainability Management (M18MB24F)	L:4 T:0 P:0	03
On successfu	l completion of this	s course, student should be able to:		
1		and emergence of sustainable develop	ment	
2		Judiciary system and Sustainability d		
3	*	of life, equation of poverty population		
4		ity conservation and ecosystem integri		
5		ble development strategies	l y	
Course out	Year/ semester:	Subject name code: Customer	No. of Hours	Credits:
come	II/II Sem	Relationship Management	L:4 T:0 P:0	03
come	II/II Sem	(M18MB25M4)	1.4 1.0 1.0	05
On successfu	l completion of this	s course, student should be able to:		
1		concepts in customer relationship man	agement	
2		ortance of customer relationship manage	-	
3		rends in customer relationship manage		
4		relations and customer profile		
5		for customer, retention and developme	ent	
Course out	Year/ semester:	Subject name code: Services	No. of Hours	Credits:
come	II/II Sem	Marketing (M18MB26M5)	L:4 T:0 P:0	03
		s course, student should be able to:	200 200 200	
1		eting services Vs. Physical services, a	nalvze services m	arketing mix
	and Gaps model of	•	,	6
2	-	ner requirements and extend custome	er relationships wi	th regard to
	services.	1	1	e
3		sues in service design, service blu	e printing, plan	new service
	-	ss and service standards.		
4		vee's and Customer's roles in service of	lelivery.	
5		marketing communications and five		ategies, and
	U	ment that achieves excellence in cust	U	0
	issues in pricing of			
Course out	Year/ semester:	Subject name code: International	No. of Hours	Credits:
come	II/II Sem	Marketing (M18MB27M6)	L:4 T:0 P:0	03
		s course, student should be able to:		•
		l marketing and its environment		
1		i marketing and its environment		

come	II/II Sem	Management Systems (M18MB26H5)	L:4 T:0 P:0	03
Course out	Year/ semester:	Subject name code: Performance	No. of Hours	Credits:
4 5	Classify workers an			
4	<u> </u>	ctices in selected countries		
3		es and compensation management		
2	Compare IHRM and	<u> </u>		
1	*	e and components of IHRM.		
		(M18MB25H4) (M18MB25H4)		
out come	II/II Sem	Human Resource Management	L:4 T:0 P:0	03
Course	Year/ semester:	Subject name code: International	No. of Hours	Credits:
6		ig in respect of mergers and Amalgam		
4		g with reference to setting up of a new	business.	
		Capital Structure decisions.		T (
3	1	ance of Tax planning, Tax Managemer	nt and able to use	Fax planning
2	Compute total Inco		<b>I</b>	*
-	_	Income of a Company and exempted I	-	
1	-	epts of direct & Indirect taxes and able	e to compute Resid	lential Statu
On successfu	ll completion of this	s course, student should be able to:		1
		(M18MB27F6)		
come	II/II Sem	Taxation and Planning	L:4 T:0 P:0	03
Course out	Year/ semester:	Subject name code: Corporate	No. of Hours	Credits:
5		ems on mergers and acquisitions		
4		s strategies for financing decisions		
3		ntages of leasing and leasing decisions		
4	payback	nea payback, post payback, return on	myestment and st	ii pius
2		nted payback, post payback, return on		irplus
1		decisions under conditions of risk and	uncertainty	
On successfu	ll completion of this	s course, student should be able to:		1
come		Decisions (M18MB26F5)		
come	II/II Sem	•		03
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
5	Explain strategies in			
4	Analyze Trading wa			
3		rd and future contract		
2	Explain players in I	•		
1		of derivatives in stock in commodity	market	
		s course, student should be able to:	L.4 1.0 1.0	03
come	I ear/ semester: II/I Sem	Derivatives (M18MB25F4)	L:4 T:0 P:0	03
Course out	Year/ semester:	Subject name code: Financial	No. of Hours	Credits:
5		factors influencing pricing decisions marketing program and segmentation	of product and ser	wices
4				

1			• 1	
1		e management and methods of perform	<u> </u>	
2	*	yee performance towards the predetern		
3	_	mance management system and appra	isal practices in As	ian
	countries	C 1 1 C	1.1	
4		yee performance through performance		
5		ssues involved in performance manage		
Course out	Year/ semester:	Subject name code: Strategic	No. of Hours	Credits:
come	II/II Sem	Human Resource Management	L:4 T:0 P:0	03
		(M18MB27F6)		
On successfu		s course, student should be able to:		
	(SHRD)	en strategic business planning (SBP)	and strategic HR de	evelopment
2	Discuss about trend	ls in utilization of HR and relocation of	of work	
3	Identify managerial	l issues in strategic formulation.		
4	Compare Results O	riented vs Process oriented measures.		
5	Evaluate strategic c	contribution of traditional areas such as	s selection, training	g and
	compensation		-	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/II sem	Comprehensive Subject Viva-	L:0 T:0 P:0	02
		<b>Voce (M18MB28)</b>		
On successfu		s course, student should be able to:		
1	Appraise and streng	gthen the students conceptual knowled	ge in all the subjec	ts of the
	semester.			
2		petencies regarding subjects.	1	Γ
Course out	Year/ semester:	Subject name code: Main project	No. of Hours	Credits:
come	II/II sem	and viva-voce (M18MB29)	L:0 T:0 P:0	04
On successfu		s course, student should be able to:		
1	U	real time working environment.		
2		port writing through data collection, d	lata analysis, data e	xtraction,
	presentation and in	1		
3		ces, system, processes, procedures and	l policies of a	
		n different functional areas.		
4	-	nowledge on business problems		
5		stions in scope of the organization		~
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/II Sem	Entrepreneurial Finance	L:4 T:0 P:0	03
		(M18MB25E4)		
		s course, student should be able to:		
1		es of entrepreneurs for raising finance		
3		me works and knowledge in entrepren		
4		ure worth and basic mechanisms of ve		<u> </u>
5		projected financial statements for dis	counted cash flow	valuation.
6	•	for the growing ventures.	NT 077	
Course out come	Year/ semester: II/II Sem	Subject name code: Entrepreneurial Marketing	No. of Hours L:4 T:0 P:0	Credits: 03

		(M18MB26E5)				
On successfu	al completion of this	s course, student should be able to:				
1	Explain the character	eristics, functions of marketing and its	challenges.			
2	Define the concept	Define the concept of enterprise growth and forms and types and they able to adapt				
	operative and strate	gic targets for growth, and evaluate S	WOT analysis.			
3	Compare growth str	Compare growth strategies and models for choosing best strategy in marketing.				
4	Explain segmenting	Explain segmenting, Targeting, positioning and pricing in entrepreneurial				
	communication stra	itegy.				
5	Analyze and able to	choose best entrepreneurial marketin	g tools.			
Course out	Year/ semester:	Subject name code: Creativity	No. of Hours	Credits:		
come	II/II Sem	Innovation & Entrepreneurship	L:4 T:0 P:0	03		
		(M18MB27E6)				
On successfu	al completion of this	s course, student should be able to:				
1	Explain the creativi	ty phenomenon including spiritual and	d social routes of c	reativity		
2	Adapt entrepreneur	ial and empowerment creativities.				
3	11 7	ative problem solving techniques.				
4	Apply innovation n	nanagement techniques for new produc	ct development.			
5	Apply different inne	ovation techniques for micro and mac	ro economies.			



Viswambhara Educational Society

# VAAGDEVI COLLEGE OF ENGINEERING

#### **UGC-Autonomous**

**Department of Mechanical Engineering** 

#### COURSE OUTCOMES FOR B.TECH - ME R18 FOR THE YEAR 2018-2019

Course Outcome	Year/Semester I/I Sem	Subject Name (Subject Code) LINEAR ALGEBRA AND CALCULUS (B18MA01)	No. of Hours L:3 T:1 P:0	Credits: 4		
After the o	completion of this c	course, the students should be able to				
1	Write the matrix re system of equation	presentation of a set of linear equations and to s	analyze the solution	on of the		
2	Find the Eigen valu	es and Eigen vectors				
3	Reduce the quadrat	ic form to canonical form using orthogonal tra	nsformation			
4	Analyze the nature	of sequence and series.				
5	Solve the application	ons on the mean value theorems.				
6	Evaluate the impro	Evaluate the improper integrals using Beta and Gamma functions				
7	Find the extreme va	alues of functions of two variables with/ without	ut constraints.			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGLISH (B18EN01)	No. of Hours L:2 T:0 P:0	Credits:2		
After the o	completion of this c	ourse, the students should be able to				
1	-	uage effectively in spoken and written for	ms.			
2	· · · · · · · · · · · · · · · · · · ·	given texts and respond appropriately.				
3	Communicate con	nfidently in various contexts and different of	cultures.			
4	Acquire basic pro writing and speak	ficiency in English including reading and ling skills.	listening comprel	nension,		
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGINEERING CHEMISTRY (B18CH01)	No. of Hours L:3 T:1 P:0	Credits: 4		
After the o	completion of this c	ourse, the students should be able to				
1	The knowledge of	molecular and electronic changes, band theory	related to conduct	ivity.		
2	The knowledge of	water treatment and corrosion.				
3	The knowledge of	organic reaction mechanisms and polymers.				
4	Apply phase rule as	nd adsorption to construct the materials by ana	lyzing their compo	ositions.		

5	The required princ	iples and concepts of electro chemistry and bat	teries.	
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGINEERING GRAPHICS (B18ME01)	No. of Hours L:1 T:0 P:4	Credits: 3
After the o	completion of this o	course, the students should be able to		
1	Analyse the Projec	tions of Points.		
2	Understand the pro	jections of solids.		
3	Estimate the use of	drawings, dimensioning, scales and conic sect	ions	
4	Modify the applica	tions of this knowledge in computer graphics.		
5	Compare the Conv	ersion of Isometric views to Orthographic view	/S	
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB(B18EN02)	No. of Hours L:0 T:0 P:2	Credits: 1
After the o	completion of this o	course, the students should be able to		
1	Better understandin activities.	ng of nuances of English language through aud	io- visual experier	ice and group
2		ity and confidence which in turn enhances their	employability sk	ills.
Course	Year /semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I/II Sem	DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B18MA02)	L:3 T:1 P:0	
After the co	ompletion of this c	purse, the students should be able to		
1	Identify whether the	ne given differential equation of first order is ex	act or not	
2	, , , , , , , , , , , , , , , , , , ,	rential equation and apply the concept of different		real world
3		ple integrals and apply the concept to find areas sphere and rectangular parallel piped.	s, volumes, centre	of mass and
4	Evaluate the line,	surface and volume integrals and converting the	em from one to an	other.
Course	Voor /Comoston	Subject Name (Subject Code)	No. of Hours	Credits:4
Course	rear/Semester	Subject Mame (Subject Code)	I.2 T.1 D.0	
Outcome	I / II Sem	ENGINEERING PHYSICS (B18PH03)	L:3 T:1 P:0	
Outcome	I / II Sem		L:3 T:1 P:0	
Outcome After com	I / II Sem pletion of this cou The student learn	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall is about transformation concept learns basic	cs of quantum m	echanics.
Outcome	I / II Sem pletion of this cou The student learr The student gain new innovations	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall as about transformation concept learns basic s knowledge on basics of rigid body dynam and improvements.	cs of quantum m ics and lasers wl	echanics. hich leads to
Outcome After com	I / II Sem pletion of this cou The student learr The student gain new innovations The knowledge of	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall as about transformation concept learns basic s knowledge on basics of rigid body dynam	cs of quantum m ics and lasers wl	echanics. hich leads to
Outcome After com 1 2	I / II Sem pletion of this cou The student learn The student gain new innovations The knowledge of technology	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall is about transformation concept learns basic is knowledge on basics of rigid body dynam and improvements. of physics relevant to engineering is critical and study of properties of optodevices help	cs of quantum m ics and lasers wl for converting id	echanics. hich leads to deas into
Outcome After com 1 2 3 4	I / II Sem pletion of this cou The student learr The student gain new innovations The knowledge of technology Characterization materials for variant	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall as about transformation concept learns basic s knowledge on basics of rigid body dynam and improvements. of physics relevant to engineering is critical and study of properties of optodevices help ious engineering applications.	es of quantum m tics and lasers wl for converting id os the students to No. of Hours	echanics. hich leads to deas into
Outcome After com 1 2 3	I / II Sem pletion of this cou The student learn The student gain new innovations The knowledge of technology	ENGINEERING PHYSICS (B18PH03) rse, the student shall be/shall is about transformation concept learns basic is knowledge on basics of rigid body dynam and improvements. of physics relevant to engineering is critical and study of properties of optodevices help	cs of quantum m ics and lasers wl for converting ic os the students to	echanics. hich leads to deas into prepare new

1	Know the fundar	mental knowledge of Specification of force		
2	Compare Spatial	Force systems.		
3	Understand the Coplanar Force Systems.			
4	Apply Deformat	ion of Stepped shaft due to axial loading in	problems.	
5	Evaluate Kinema	atics Problems and Kinetics Problems.		
Course Outcome	I / II Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP & IT 0WORKSHOP (B18ME02)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After compl		rse, the student shall be/shall		
1	Know the funda Applications.	mental knowledge of various trades and the	eir usage in real t	ime
2	Compare Found	ry, Welding, Black smithy, Fitting, Machine	e shop and house	wiring.
	electrical engine	basis for analyzing power tools in construction ering and mechanical engineering.		orking,
4		cepts of computer hardware for assembly ar		0 14 1
Course Outcome	Year /Semester I / II Sem	Subject Name (Subject Code) ENGINEERING PHYSICS LAB (B18PH04)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	pletion of this cou	rse, the student shall be/shall	•	•
1	•	ourse helps the student how to operate diffe	1 1	
2	engineering. It al experiments in e The course enlig etc.,	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment	ntal skills to desig like solar cell, op	gn new otical fibre
2 3	engineering. It al experiments in e The course enlig etc.,	ourse helps the student how to operate diffe lso allows the student to develop experimen ngineering. htens the student about modern equipment re to these experiments, the student can con	ntal skills to desig like solar cell, op	gn new otical fibre
2 3	engineering. It al experiments in experiments in experiments The course enlig etc., With the exposur with experiment.	ourse helps the student how to operate diffe lso allows the student to develop experimen ngineering. htens the student about modern equipment re to these experiments, the student can con	ntal skills to desig like solar cell, op	gn new otical fibre
2 3 Course Outcome	engineering. It al experiments in er The course enlig etc., With the exposur with experiment. Year /Semester II / I Sem	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con Subject Name (Subject Code) BASIC ELECTRICAL AND	ntal skills to design like solar cell, op npare the theory No. of Hours	gn new otical fibre and correlate
2 3 Course Outcome After com	engineering. It al experiments in experiments in experiments The course enlig etc., With the exposur with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02)	ntal skills to design like solar cell, op npare the theory No. of Hours L:3 T:0 P:0 ties , laws and network	gn new otical fibre and correlate Credits:3 work
2 3 Course Outcome After com 1 2	engineering. It al experiments in en- The course enlig etc., With the exposur- with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui reduction techniqu Analyze the stead	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) rse, the student shall be/shall t concepts such as electrical parameters, quantit	ties , laws and net citation in the syste	gn new otical fibre and correlate Credits:3 work tems
2 3 Course Outcome After com 1 2	engineering. It al experiments in e The course enlig etc., With the exposur with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui reduction techniqu Analyze the steady relationship betwe	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con <b>Subject Name (Subject Code)</b> BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) <b>rse, the student shall be/shall</b> it concepts such as electrical parameters, quanti- ties and apply the network theorems with DC ex- y state operation of single phase and three phase	ties , laws and networks and set of the solar cell, op not the theory <b>No. of Hours L:3 T:0 P:0</b>	gn new otical fibre and correlate Credits:3 work tems study the
2 3 Course Outcome 1 2 3 4	engineering. It al experiments in en- The course enlig etc., With the exposur- with experiment. Year /Semester II / I Sem Pletion of this cou Learn Basic circui reduction techniqu Analyze the steady relationship betwee Explore the constr	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con <b>Subject Name (Subject Code)</b> BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) rse, the student shall be/shall it concepts such as electrical parameters, quantities and apply the network theorems with DC ex y state operation of single phase and three phase een voltage and current for delta and star connect ruction, working , control and testing of various on basic electronic devices such as P-N junction	ties , laws and networks to circuits and sciences and set of the set of the system of	gn new ptical fibre and correlate Credits:3 work tems study the hines
2 3 Course Outcome After com 1 2 3 4 5	engineering. It al experiments in e The course enlig etc., With the exposur with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui reduction techniqu Analyze the steady relationship betwe Explore the constr Gain knowledge o their V-I character	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con <b>Subject Name (Subject Code)</b> BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) rse, the student shall be/shall it concepts such as electrical parameters, quanti- ues and apply the network theorems with DC ex- y state operation of single phase and three phase een voltage and current for delta and star connec- ruction, working , control and testing of various on basic electronic devices such as P-N junction ristics. knowledge on next generation of electronic devices	ties , laws and networks and a circuits a circuits and a circuits	gn new otical fibre and correlate Credits:3 Work tems study the nines and filter with
2 3 Course Outcome After com 1 2 3 4 5	engineering. It al experiments in e The course enlig etc., With the exposur with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui reduction techniqu Analyze the steady relationship betwe Explore the constr Gain knowledge o their V-I character Acquire extended diode and SCR de Year /Semester	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con <b>Subject Name (Subject Code)</b> BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) rse, the student shall be/shall it concepts such as electrical parameters, quanti- ues and apply the network theorems with DC ex- y state operation of single phase and three phase een voltage and current for delta and star connec- ruction, working , control and testing of various on basic electronic devices such as P-N junction ristics. knowledge on next generation of electronic devices	ties , laws and networks and a circuits a circuits and a circuits	gn new otical fibre and correlate Credits:3 Work tems study the nines and filter with
2 3 Course Outcome After com 1 2 3 4 5 5 Course Outcome After com	engineering. It al experiments in en- The course enlig etc., With the exposur- with experiment. Year /Semester II / I Sem pletion of this cou Learn Basic circui reduction techniqu Analyze the steady relationship betwe Explore the constr Gain knowledge of their V-I character Acquire extended diode and SCR de Year /Semester II / I Sem pletion of this cou	ourse helps the student how to operate diffe lso allows the student to develop experiment ngineering. htens the student about modern equipment re to these experiments, the student can con <b>Subject Name (Subject Code)</b> BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) rse, the student shall be/shall it concepts such as electrical parameters, quanti- ies and apply the network theorems with DC ex- y state operation of single phase and three phase een voltage and current for delta and star connec- ruction, working , control and testing of various on basic electronic devices such as P-N junction ristics. knowledge on next generation of electronic dev- vices. <b>Subject Name (Subject Code)</b> METALLURGY AND MATERIAL	tal skills to design like solar cell, op mpare the theory No. of Hours L:3 T:0 P:0 ties , laws and network e AC circuits and st ctions. DC and AC Mach Diode, rectifiers a vices such transiston No. of Hours L:3 T:0 P:0	gn new ptical fibre and correlate Credits:3 work tems study the nines and filter with prs,zener Credits:3

2	Apply lever rule in calculating the liquid and solid percentage.			
3	Apply heat treatment processes to different materials to get required properties.			
4	Gain knowledge about advanced materials like composites & ceramics.			
5	Analyze the appli	cations and the properties of cast irons and st	eels.	
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) MECHANICS OF SOLIDS (B18ME04)	No. of Hours L:3 T:1 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall		
	Understand the c properties.	oncepts of stress and strain in mechanics of	f solids and mate	rial
		nental concepts of shear force & bending n l beam & overhanging beam with point loa nbination.		
	Apply the fundaı Beams.	nental concepts of Bending stresses & shea	r stresses for diff	ferent
		ent methods to determine the deflection & s n method, Area moment method & Macaul	-	beams like
	Apply the Lame's equation to determine stresses in Thick cylinders. To understand the concept of torsion and its application to circular shafts.			
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) THERMODYNAMICS (B18ME05)	No. of Hours L:3 T:0 P:0	Credits:3
		rse, the student shall be/shall		
		asic thermodynamic principles and their ap	plications	
		f thermodynamics for different thermal sys	-	
		ram and steam tables to find the properties		es.
	_	nt properties of perfect gases, real gases and	=	
	Analyse differen		1	
Course Outcome		Subject Name (Subject Code) MACHINE DRAWING (B18ME06)	No. of Hours L:1 T:0 P:2	Credits:2
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand vario	ous conventions used in machine drawing.		
2	Prepare the asser	nbly and part drawings from component dr	awing.	
3	Identify the use of	of various machine components.		
4	Interpret and mal	ke conclusions about a given drawing.		
5	Apply the First a	ngle projection.	_	
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) MECHANICS OF SOLIDS AND METALLURGY LAB (B18ME07)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	pletion of this cou	rse, the student shall be/shall		
1	Identify grain an	d grain boundary, crystal structure of differ	ent materials.	

2	Study the micros	tructure of various materials.		Study the microstructure of various materials.			
3	Analyze the corr	elation between Mechanical and Metallurg	ical properties.				
4	Perform material	testing and analyze various material prope	erties.				
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) FUELS AND LUBRICANTS LAB (B18ME08)	No. of Hours L:0 T:0 P:2	Credits:1			
After com	pletion of this cou	rse, the student shall be/shall					
1	Apply different r	nethods to determine the flash point & fire	point of liquid fu	els.			
2	Apply carbon res	sidue test to determine carbon% in liquid fu	iels.				
3	Apply Different	methods to determine viscosity of Liquid la	ubricants.				
4	Apply different r	nethods to determine the calorific value of	fuels.				
Course Outcome	II / I Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB (B18EE03)	No. of Hours L:0 T:0 P:3	Credits:1. 5			
After com	pletion of this cou	rse, the student shall be/shall					
1		fy complex electric and electronic circuits	by applying the I	KVL and			
2	Identify the optir	nal loading on the system.					
3	Analyze the perf	ormance of DC machines.					
4	Identify and anal	yze the performance and operation of semi	conducting devi	ces.			
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04)	No. of Hours L:2 T:0 P:0	Credits:0			
After com	pletion of this cou	rse, the student shall be/shall	1	1			
-		concepts and features Indian constitution.					
2	To identify the c	ore values reflected in Preamble of the Cor	stitution.				
	To examine the r government.	nature of the Indian federal system and the	parliamentary for	m of			
Course Outcome	Year /Semester II / II Sem	Subject Name (Subject Code) GENDER SENSITIZATION (B18MC07)	No. of Hours L:2 T:0 P:0	Credits:0			
After com	pletion of this cou	rse, the student shall be/shall					
	Students will have developed a better understanding of important issues related to gender in contemporary India.						
	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and films.						
3		ain a finer grasp of how gender discriminat		society			
	politics and econ						
5	Men and women	students and professionals will be better ed	quipped to work a	and live in			

	harmony. Studer	ts will develop a sense of appreciation of w	omen in all walk	ts of life.
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	II / II Sem	PROBABILITY & STATISTICS (B18MA05)	L:3 T:1 P:0	
After com	pletion of this cou	rse, the student shall be/shall		I
1		heory and deals with modelling uncertainty	and apply discre	ete and
	_	ability, in order to evaluate the probability of		
	-	probability distributions and its application from Binomial and Poisson Distributions.	ns, and use these	techniques
		ous probability distributions and its applica nerate data from Normal Distribution.	tions, and use the	ese
	Perform correlation analysis, in order to estimate the nature and the strength of the linear relationship that may exist between two variables of interest, Perform regression analysis to estimate the magnitude of change in one variable due to a given change in the other variable.			
	hypothesis tests	ence interval estimates for population paran concerning population parameters, for singl data. And also perform Student T-test, F-te	le and multiple po	opulations
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II / II Sem	FLUID MECHANICS & HYDRAULIC MACHINERY (B18ME09)	L:3 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1		ics and basic sciences and translates this kn nd their applications.	owledge to unde	rstand fluid
2	Understand fund	amental knowledge of the mechanics of flu	id at rest and in r	notion.
3	Observe fluid ph	enomena by developing and using the princ	ciples, laws.	
4	Analyze fluid int	eractions with natural and constructed syste	ems.	
5	Associate fundar	nental knowledge & performance of differe	ent turbines & pu	mps.
Course Outcome		Subject Name (Subject Code) THERMAL ENGINEERING–I (B18ME10)	No. of Hours L:3 T:1 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall		1
1		concept and working of two and four stroke	s I.C. engines.	
2		nal and abnormal condition for the combust which effect the combustion characteristics.	tion of SI and CI	engines also
	· ·	the performance of the engine with differe	nt parameters.	
4		bout compressors and their classifications.	•	
	-	ious compressor on the basis of their worki	ng and requireme	ent and can
Course Outcome	Year /Semester II / II Sem	Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11)	No. of Hours L:4 T:0 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall		
· · · · · · · · · · · · · · · · · · ·				

1	Idontify the bear	machanisms involved in machines		
		c mechanisms involved in machines.		
2	-	ity with application of kinematics theories		
3		c relations between distance, time, velocity		
4	Understand analy	ytical linkage analysis, determine cam prof	iles	
5	Analyze gear tra	ins and gear profiles.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II / II Sem	PRODUCTION TECHNOLOGY (B18ME12)	L:3 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	Apply the knowl metal forming pr	edge of casting, welding joints and forces a cocesses.	and power require	ements in
2	U 1	ng, solidification, pattern allowances, gating	g and riser design	of mold
	cavity, aspects o			
3		c calculations of forces and power requirem	ents in the metal	forming
4	operations.	1	1.1'	• ,
4		application of welding using the arc welding	ng, gas weiding, i	resistance
5	welding, soldering and brazing. Survey the defects occurring in forging operation.			
	-		No. of Hours	Credits:1.
Course		<b>J</b>	L:0 T:0 P:3	5
Outcome	II / II Sem	FLUID MECHANICS & HYDRAULIC MACHINERY LAB (B18ME13)		C .
After com	pletion of this cou	rse, the student shall be/shall		
1		e of fluid mechanics and hydraulic machine	es and translates	this
	11.	nderstanding fluid flow principles and their		
2		re by using components vacuum gauge, pre		
	pipes, motors, pu			
3	Use comparison	of theoretical values with the real paramete	ers.	
4	Know and under	stand the experimental analysis in turbines	and pumps with	parameters
	such as discharge	e, head of water, speed of brake drum.	1	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.
Outcome	II / II Sem	PRODUCTION TECHNOLOGY LAB	L:0 T:0 P:3	5
1.0		(B18ME14)		
After com		rse, the student shall be/shall	manta	
1		c knowledge and concepts of various experi		
	Perform joining of materials (similar/dissimilar) using welding.			
3	-	cepts of extrusion and design of die.		
4	Operate injection	n molding and blow molding machines.		1
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III/ I Sem	MACHINE TOOLS AND METAL	L:3 T:0 P:0	
		CUTTING (B18ME15)		
		rse, the student shall be/shall		
1	Apply cutting me	echanics to metal machining based on cuttin	ng force and pow	er

	consumption.			
2	Operate lathe, m	illing machines, drill press, grinding machi	nes, etc.	
	Evaluate mach inability of different materials using specific cutting forces and surface finish.			
4	Understand Principles of design of Jigs and fixtures.			
5	Compare grindin	Compare grinding, lapping and honing operations.		
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) DYNAMICS OF MACHINERY (B18ME16)	No. of Hours L:4 T:0 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall		
1	Analyze the forc function of gove	es and torques in mechanisms and machine rnors, clutches and bearings.	-	now the
2	-	tional torque in clutches and braking torque	e in brakes.	
	••••	neel for different IC engines.		
4	Evaluate the bala	ancing masses in rotary and reciprocating b	alancing.	
5	Calculate the fre	quencies of different vibrations.		
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) DESIGN OF MACHINE MEMBERS – I (B18ME17)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	Design a particu using design data	lar machine element and make use of standa a book.	ards parts and dir	nensions
2	Design of shafts	, shaft couplings like flange couplings, flex	tible couplings.	
3	Determine the St	resses and deflections of bolded joints, key	s, cotters, knuck	le joints.
4	Determine the St	resses and deflections of helical springs.		
5	Design of riveted	l, welded joint and screwed joints.		
Course Outcome		Subject Name (Subject Code) METROLOGY AND SURFACE ENGINEERING (B18ME18)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	Apply mathematics to calculations of surface texture assessment by using C.L.A. and R.M.S. methods.			
	<b>v</b> 1 1	es of optics, interference, light to optical fla optical measuring instruments.	ats, interferomete	rs,
3		ed physical data that are useful to assembly	of components,	clearance,
4		angular measurement by using various mice	rometers, bevel p	rotractor,
5	Classify the basi	c techniques of surface engineering, surface face cleanings.	e treatment, surfa	ce

Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III/ I Sem	THERMAL ENGINEERING – II (B18ME19)	L:3 T:0 P:0			
After com	pletion of this cou	rse, the student shall be/shall				
1	Understand the b	basic concept behind the thermal power plan	nt.			
2	Get knowledge a	Get knowledge about working of boilers with their specification.				
3	Analyze the imp	ortance of nozzle and condenser in steam pe	ower plant.			
4	Identify the diffe	erent types of steam turbines and use accord	lingly to the requ	irement.		
5	Get the concepts	of gas power plant with its different compo	onents.			
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS (B18MB01)	No. of Hours L:3 T:0 P:0	Credits:3		
After com	pletion of this cou	rse, the student shall be/shall				
		nental concepts in managerial economics an nes governing the business operations.	d financial analy	sis including		
2	To learn the concepts of demand, elasticity of demand and demand forecasting and methods of demand forecasting.					
3	To learn various	issues involved in production decision anal	ysis.			
	decision making.		-	-		
5	To learn differen	t types of market environment under variou	is types of compe	etition.		
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) DESIGN OF MACHINE MEMBERS – I (B18ME17)	No. of Hours L:3 T:0 P:0	Credits:3		
After com	pletion of this cou	rse, the student shall be/shall				
	using design data		-	nensions		
2	Design of shafts	, shaft couplings like flange couplings, flex	ible couplings.			
3	Determine the St	resses and deflections of bolded joints, key	s, cotters, knuckl	e joints.		
4	Determine the St	resses and deflections of helical springs.				
5	Design of riveted, welded joint and screwed joints.					
6	_	vledge of new economic environment in po				
7	To know the concepts of capital budgeting and various methods of capital budgeting and its application in business decision making.					
Course Outcome	Year /Semester III/ I Sem	<b>Subject Name (Subject Code)</b> ENTREPRENEURSHIP DEVELOPMENT (B18MB03)	No. of Hours L:3 T:0 P:0	Credits:3		
After com		rse, the student shall be/shall				
		e mindset of the entrepreneurs, identity ver gal framework. and also understand strategi				

Course	Year /Semester	Subject Name (Subject Code) ENERGY STORAGE SYSTEMS (B18EE49)	No. of Hours L:3 T:0 P:0	Credits:3
Outcome	III/ I Sem	· · · · · ·		
		rse, the student shall be/shall		
1		plogy to have energy storage system for any	electrical Loads	•
2		rical power in peak time loads using ESS		
3	To store energy a	and to avoid the environmental pollution		
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) THERMAL ENGINEERING LABORATORY (B18ME20)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	pletion of this cou	rse, the student shall be/shall		
1	Identify various	types of engines and their parts.		
2	Understand the p	ower of different engine and where they ca	n be used.	
3	Estimate the per-	formance of different engine and analyze th	em.	
4	Analyze engines consumption of t	to set better efficiencies by knowing Brake he engines.	specific fuel	
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) METROLOGY AND MACHINE TOOLS LABORATORY (B18ME21)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	pletion of this cou	rse, the student shall be/shall		
1	Use different typ	es of measuring instruments		
2	Perform differen	t operations on Lathe machines.		
3	Measure angles a	and taper measurements.		
4	Evaluate differen	nt heights by using Vernier height gauge.		
5		ides fundamental knowledge and principles erent marching processes on machine tools.		the
6		s upon knowledge of metal cutting principle shaping, slotting, and grinding machines.	es turnouts the la	thes,
7		s how to evaluate machined work piece sur aracy using metrology equipment.	face finish and	
8	Students will be able to differentiate the lubrication and cooling effects of various cutting fluids.			
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) FINITE ELEMENT METHODS (B18ME22)	No. of Hours L:3 T:0 P:0	Credits:3
		rse, the student shall be/shall		<u> </u>
		analyze real time engineering objects and	to present a well	designed
2		yze bars beams, shafts and array symmetric	solids.	
3	Student is able to	o understand and analyze the heat flow and arious points on the components.		ature
4	Student can anal	yze any complicated structure by utilizing t ead of analytical methods.	he computer soft	ware

5	Estimate Load vector and stresses in 2D problems.					
Course Outcome		Subject Name (Subject Code) DESIGN OF MACHINE MEMBERS – II (B18ME23)	No. of Hours L:4 T:0 P:0	Credits:4		
After com	pletion of this cou	rse, the student shall be/shall				
1	Design journal a	nd roller bearings,				
2	Design engine pa cylinder liner.	Design engine parts like connecting rod, crank pins, crank shafts, pistons, cylinder and ylinder liner.				
3	Understand Pow	er transmission system by belt drives and c	hain drives.			
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) HEAT& MASS TRANSFER (B18ME24)	No. of Hours L:3 T:0 P:0	Credits:3		
After com	pletion of this cou	rse, the student shall be/shall				
1	Understand the band radiation.	basics of heat transfer with good knowledge				
2	Identify the free	convection and forced convection requiren	nent for particular	design.		
3	Analyse the concept of heat convection and get better result from free convection.					
4	To know the con	cept of hydrodynamics and thermal bound	ary in forced conv	vection.		
5	Design effective with conduction	heat exchanger by considering concepts of and convection.	f radiation heat tra	ansfer along		
Course Outcome		Subject Name (Subject Code) ENVIRONMENTAL SCIENCE (B18MC02)	No. of Hours L:3 T:0 P:0	Credits:3		
After com		rse, the student shall be/shall				
1	Recall previously environment.	y learned ecosystem and find how the biod	iversity changes v	went in the		
2	Demonstrate out	lines of types of pollutions and related to d	ay-to-day life.			
3	Organize import	Organize important seminars on natural resources.				
4	Apply models of food chains and energy flow models to solve the identified parameters.					
5	Classify the types of pollutants and distinguish the functions of sustainable development that take part in the environment.					
6	Design the experiments with BOD, COD, OD and to estimate the micro organisms which cause contamination and can propose solutions.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III/ II Sem	INDUSTRIAL MANAGEMENT (ELECTIVE-I) (B18MB05)	L:3 T:0 P:0			
After com		rse, the student shall be/shall				
1	operations throug		anisation carry out	production		
2	Carry out product	tion operations through Work study.				
3	Understand the mappropriately	narkets, customers and competition better and	l price the given p	roducts		

4	Ensure quality for	r a given product or service.		
5	Plan and control t	he HR function better.		
6	Plan, schedule and control projects through PERT and CPM.			
7	Evolve a strategy	for a business or service organisation.		
Course Outcome		<b>Subject Name (Subject Code)</b> DATABASE MANAGEMENT SYSTEMS (OPEN ELECTIVE) (B18CS08)	No. of Hours L:4 T:0 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall	L	1
1		ion in core Computer Science and Enginee	ring, both theore	tical and
	problems.	ly knowledge of mathematics, science, and		
	as well as applica		2	ware
4	An ability to con	nmunicate effectively, both in writing and o	oral.	
5	The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts			
7	A recognition of	f the need for, and an ability to engage in lit	fe-long learning.	
8	A knowledge of	contemporary issues.		
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) DISASTER MANAGEMENT (OPEN ELECTIVE) (B18CE54)	No. of Hours L:4 T:0 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall	I	1
		wledge of disaster Management		
2	Understand the	vulnerability of ecosystem and infrastructur	re due to a disaste	er
3	Acquire the know	wledge of Disaster Management Phases		
4	Understand the	hazard and vulnerability profile of India		
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) NANO TECHNOLOGY (B18ME25)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand the f	undamentals of Nanotechnology		
2	Know the different classes of nano materials			
	Impart basic knowledge on various synthesis and characterization techniques involved in Nanotechnology			
4	Make the learner	familiarize with nanotechnology potential	ities.	
5	Apply transfer in nanotechnology.	terdisciplinary systems engineering approa	ches to the field	of
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) MECHATRONICS (PROFESSIONAL ELECTIVE-I) (B18ME26)	No. of Hours L:3 T:0 P:0	Credits:3

After com	pletion of this cou	rse, the student shall be/shall		
		system; mechatronics design systems and n	neasurement syste	ems.
2	Work on various actuating systems.			
3	Convert the signals from one form to another form.			
4	Estimate the mic	ro controllers and micro processors.		
		ple programming code for PLC's.		
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) AUTOMOBILE ENGINEERING (PROFESSIONAL ELECTIVE-I) (B18ME27)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand the v	various parts used in automotive pollution s	standards.	
2	Understand diffe	rent types of fuel injection system and pun	np system.	
	Analyze the cooling systems depending upon the cooling requirements for particular automobile and Understand different types of ignition systems used in case of an automobile.			
4	Understand the p	ower transmission in automobile gearbox	and clutch system	1.
5	Understand varion breaking systems	ous transmission systems, steering systems	-	<u>.</u>
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) MAINTENANCE AND SAFETY ENGINEERING (PROFESSIONAL ELECTIVE-II) (B18ME28)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		•
		naintenance in equipment life cycle.		
2	Analyse The prev	ventive and corrective measures in maintenan	ice.	
3	Estimate The inv	entory control in maintenance.		
		sting and budget preparation		
		ability measures, reliability networks and reli	ability analysis	
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) MECHANICS OF COMPOSITE MATERIALS (PROFESSIONAL ELECTIVE-II) (B18ME29)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall	•	
		propriate use of composite materials in the	industry	
	Understand the significance of replacing existing metal structures with composite materials whenever beneficial.			osite
	Comprehend the complexity of design of composite materials and structures.			

	involved in curre	ent trends and research area.		
		ledge of composite materials for designing s smart structures.	structures for aer	ospace
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) REFRIGERATION & AIR CONDITIONING (PROFESSIONAL ELECTIVE-II) (B18ME30)	No. of Hours L:3 T:0 P:0	Credits:3
		rse, the student shall be/shall		
		e basic principles of refrigeration.		
	requirement.	refrigeration system and designing various co	mponents accordi	ng to the
3	Design an A.C. u	nit by calculating the heat loads.		
	units.	nalyze large capacity units like ice plants, colo	d storages and cer	ntralA.C.
5	Know all Psychro	ometric properties and processes.		
Course Outcome		Subject Name (Subject Code) HEAT TRANSFER LAB (B18ME31)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	nletion of this cou	urse, the student shall be/shall		
1		to analyze and conduct the experiments to k	now the heat tran	nsfer and
2		o interpret the experimental knowledge in th and refrigerator.	ne real life situati	on like
3	Student is able to	popossess the application knowledge of engineers, solar collectors etc.	ne radiation, air	
		gn a heat transfer system to cool the given c nin the desired time	component to req	uired
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) ADVANCED ENGLISH COMMUNICATION SKILLS LAB (B18EN03)	No. of Hours L:0 T:0 P:3	Credits:2
After com	pletion of this cou	rse, the student shall be/shall		
1	Developing effect	ctively and appropriate vocabulary to be use	ed contextually.	
2	Inculcating flair	for Writing and felicity in written expressio	on.	
3	Enhancing job prospects.			
4	Acquiring effective speaking abilities.			
<u> </u>	Year /Semester		No. of Hours L:3 T:0 P:0	Credits:3
Course Outcome	IV / I Sem	CAD/CAM (B18ME32)		
Outcome			1.5 1.0 1.0	
Outcome After com	pletion of this cou	urse, the student shall be/shall		
Outcome After comp 1	<b>pletion of this cou</b> Observe the vari			

4	Analyze the Group Technology (GT)			
	Differentiate CAQC (Computer Aided Quality Control) and CIM (Computer Integrated Manufacturing) systems.			
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) INSTRUMENTATION AND CONTROL SYSTEMS (B18ME33)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	Gain knowledge on various parts of machine and IC engine. Understand the design construction of machine parts.			
2	To gain knowledge of functioning of parts such as connecting rod, eccentric etc.			
	To understand how heat and electricity are combined in calibrating thermoelectric devices, especially resistance temperature detector, thermo couple.			
	To measure the displacement using LVDT transducer. To gain knowledge on flow measurement using rotameter.			
5	Classify Open and closed systems Servomechanisms.			
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) UNCONVENTIONAL MACHINING PROCESSES (PROFESSIONAL ELECTIVE-III) (B18ME34)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	Understand selection of processes.			
2	Design the components of Abrasive Jet machining process.			
3	Observe surface properties after machining without destructing the material.			
4	Select the material with respect to process.			
	Apply plasma for machining like Magnetic abrasive finishing, Abrasive flow finishing etc.,			
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) DESIGN FOR MANUFACTURING (PROFESSIONAL ELECTIVE-III) (B18ME35)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Classify the steps in design process.			
2	Understand the overview of various machining processes.			
3	Apply the factors in design of weldments.			
4	Analyse general design recommendations of extrusion.			
5	Compare the development of systematic dfa methodology.			
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) POWER PLANT ENGINEERING (PROFESSIONAL ELECTIVE-III) (B18ME36)	No. of Hours L:3 T:0 P:0	Credits:3
		rse, the student shall be/shall		
1	Understand the different types of operation takes place in the power plant with its			

	plant layout.			
2	Got knowledge a	bout internal combustion power plants and	their uses.	
	Explore the oppo power plant.	Explore the opportunities to improve the capacity and the efficiency of hydro electric ower plant.		
	against radiation			vay
	Analyze the plan establishment of	t economics and the environmental conside plant.	erations for the	
Course Outcome		Subject Name (Subject Code) PRODUCTION PLANNING & CONTROL (PROFESSIONAL ELECTIVE-IV) (B18ME37)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Design and plan	an economical production system.		
2	Learn about effe	ctive utilization of plant resources.		
3	Provide alternate	production strategies.		
4	Guide shop floor people for manufacturing products of required quantity.			
5	Define dispatche	r and its procedures.		
Course Outcome	IV/ISem	Subject Name (Subject Code) ROBOTICS (PROFESSIONAL ELECTIVE-IV) (B18ME38)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Apply the knowl	edge of robotics in real time human life ap	plications	
2	Analyse the conc	cept of CAD/CAM and automation to the re-	obotics.	
	loading and unlo			-
	-	obotics to the spot and continuous arc weld	ling and spray pa	inting.
5	Relate the Robot	Application in Manufacturing.		
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) COMPUTATIONAL FLUID DYNAMIC S (PROFESSIONAL ELECTIVE-IV) (B18ME39)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
1	Describe Govern	ing equations of CFD.		
2	Analyze problem	as with Euler and Navier Stokes Eqns.		
3	Evaluate CFD co	odes.		
4	Analyze differen	t models with different algorithms.		
5	Understand Finit	e volume formulations for diffusion equati	on	

~			No. of Hours	Credits:3	
Course		Subject Name (Subject Code) AUTOMATION IN MANUFACTURING	L:3 T:0 P:0	Creuits.5	
Outcome	IV / I Sem	(PROFESSIONAL ELECTIVE-V)			
		(B18ME40)			
After com	pletion of this cou	urse, the student shall be/shall			
		y of automating any industry and procedur	e to be adopted for	or	
	automation.				
2	Define different	fine different types of automated flow lines, transfer lines.			
3	Associate all typ	ssociate all types of material handling systems and adaptive control systems.			
4	Choose package	s available for advanced techniques availab	ble in mechanical		
	engineering.				
5	Discuss the Tech	nniques of Rapid Proto typing.			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV / I Sem	MECHANICAL VIBRATIONS	L:3 T:0 P:0		
		(PROFESSIONAL ELECTIVE-V)			
A 0/		(B18ME41)			
		rse, the student shall be/shall	of problems in vi	huntions	
		the ability to format mathematical models d & undamped subjected to non periodic for		orations	
		ve an ability to obtain the complete solution		f vibrator	
		able to obtain design parameters and indic			
		vibratory problems.	ate methous of so.	lutions	
	-	able to solve the vibrations problems for n	nulti degrees of fro	eedom.	
		able to obtain numerical solutions in vibra	-		
Course		Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome		NON CONVENTIONAL ENERGY	L:3 T:0 P:0		
Outcome	IV / I Sem	SOURCES			
		(PROFESSIONAL ELECTIVE V)			
		(B18ME42)			
		rse, the student shall be/shall			
		ology to capture the energy from the renew	able sources like	sun,	
		omass, geothermal.	1	<u>,1 C</u>	
2		newable energy sources to produce electrical	al power minimize	e the use of	
		ergy sources to produce electrical energy. that the conventional energy resources are	depleted		
	-		depicted.		
4 5		ct energy conversion. nethods in solar energy system.			
3			NT CTT	0 14 1	
Course		Subject Name (Subject Code)	No. of Hours L:0 T:0 P:3	Credits:1. 5	
Outcome	IV / I Sem	CAD/CAM LAB (B18ME43)	1.01.01.5	J	
		rse, the student shall be/shall			
	Duory the next du	awings which are utilized in real time appl	ications		
1	Draw the part dr	awings which are attized in real time appr	ieutions.		

	software.			
3	Analyze 2D and	3D part drawings using AutoCAD, CREO	software package	es.
	Develop and und packages.	lerstand the NC part program generation by	using CADEM	
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) INSTRUMENTATION AND CONTROL SYSTEMS LAB (B18ME44)	No. of Hours L:0 T:0 P:3	Credits:1. 5
After com	pletion of this cou	rse, the student shall be/shall		
1	Identify the diffe	rent pressure gauges.		
2	Understand the c	lifferent types of temperature measurement	s.	
3	Analyze the calil	pration of capacitive transducer for angular	displacement.	
4	Evaluate seismic	pickup for the measurement of vibration a	mplitude.	
Course Outcome	Year /Semester IV / II Sem	Subject Name (Subject Code) INTELLECTUAL PROPERTY RIGHTS (OPEN ELECTIVE-I) (B18MB06)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	An ability to app problem.	ly knowledge of mathematics, science and	engineering to re	al world
	Ability to model as application so	, understand and develop complex software ftware.	e for system softw	are as well
	engineering solu	tion necessary to understand the impact of e tions in the scientific, societal and human c	ontexts.	and
4	A recognition of	f the need for, and an ability to engage in life		1
Course Outcome	Year /Semester IV / II Sem	Subject Name (Subject Code) AIR POLLUTION AND CONTROL (OPEN ELECTIVE) (B18CE53)	No. of Hours L:4 T:0 P:0	Credits:4
After com	pletion of this cou	rse, the student shall be/shall		
1	Acquire the know	wledge of Air pollution Concepts.		
2	Acquire the know	wledge of Effects of air pollution.		
3	Acquire the know	wledge of Air pollution Control devices.		
4	Acquire the know	wledge of Air quality monitoring devices.		
Course Outcome	Year /Semester IV / II Sem	Subject Name (Subject Code) STATISTICAL OPERATIONS RESEARCH (OPEN ELECTIVE-III) (B18MA07)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall	1	<u> </u>
		olutions by various techniques of Linear Pro	ogramming Probl	em.
	-	mum expenditure of the products by Transp		
	• •	mum allocation and time of the tasks.	·	
	-	phical solution of a game theory problems.		
5	Formulate concr	ete problems using Queuing theoretical app principles of Queuing Theory.	roaches and gain	strong

Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome		PLANT LAYOUT & MATERIAL	L:3 T:0 P:0	
outcome		HANDLING		
		(PROFESSIONAL ELECTIVE – VI)		
A fton com	plation of this gave	(B18ME47)		
		<b>rse, the student shall be/shall</b> ge of various types of material handling sys	stems	
		ications of different types of plant layouts.		
		ge of applications of ergonomics in materia	l handling.	
		ge of designing of cost effective material ha		
5	Understand meri	ts of different types of plant layouts.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV / II Sem	CNC TECHNOLOGIES	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE – VI) (B18ME48)		
After com	pletion of this cou	rse, the student shall be/shall	I	
		pasic procedures and concepts of programm	ing, set up and op	peration of a
	CNC Machining	Center.		
	•	erstand the basic programming codes.		
		and tool paths from the specifications on a	blueprint for sim	ple parts
		n programming software.	1	
		ne the functions of the CNC machine contr		
5	Analyze the CNC	C machining center for manufacturing simp	-	
Course Outcome		Subject Name (Subject Code) JET PROPULSION & ROCKET ENGINEERING	No. of Hours L:3 T:0 P:0	Credits:3
		(PROFESSIONAL ELECTIVE – VI) (B18ME49)		
After com	pletion of this cou	rse, the student shall be/shall		
		racteristics & performance of aerospace pro	opulsion systems.	
		erformance and behavior of ramjets.		
3	Analyze prelimir	nary designs of rocket to meet specified req	uirements.	
	Identify testing a propulsion.	nd instrumentation methods for cryogenics	like nuclear and	plasma and
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Viswambhara Educational Society

VAAGDEVI COLLEGE OF ENGINEERING

**UGC-Autonomous** 

**Department of Mechanical Engineering** 

## COURSE OUTCOMES FOR M.TECH – THERMAL ENGINEERING R18 FOR THE YEAR 2018-2021

Course OutcomeSemester I SemSubject Name (Subject Code) ADVANCED THERMODYNAMICSNo. of Hours L: 3 T: 0 P:0Credits: 3After the completion of this course, the students should be able to1Emphasize the relevance of Evaluation of thermodynamic properties of working substance2Know the applications of Energy properties of real gases, Vapour pressure, Clausius for whe applications of Energy properties and psychometric chart, Air conditioning processes, cooling towers.4Get uses of the Combustion Reactions, Enthalpy of formation. Entropy of formation, Reference levels of tables. Energy of formation, Heat reaction5Solve a problem in Review binary vapour cycle, co generation and combined cycles, Second law analysts of cycles and Refrigeration cycles.6Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.CourseSemester I Sem0Subject Name (Subject Code) ADVANCED FLUID MECHANICS (M18TE02)1Know about Applications of In viscid Flow of Incompressible Fluids2Applicability of Basic Laws of fluid Flow3Understanding the Viscous Flow4Get Knowledge on Boundary Layer Concepts5Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number6Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number6Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivati		1					
Image: Second law analysts of cycles and Refrigeration cycles, Second law analysts of cycles and Refrigeration cycles, Second law analysts of cycles and Refrigerations, Photovoltaic cells.           Course Outcome         Semester I Sem         Subject Name (Subject Code) (MISTEO2)         No. of Hours L:3 T:0 P:0         Credits: 3           4         Get Know about Publications of In viscuid Flow         Credits: 3         Credits: 3           5         Second law analysts of cycles and Refrigeration cycles.         No. of Hours L:3 T:0 P:0         Credits: 3           6         Know about Puel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         No. of Hours L:3 T:0 P:0         Credits: 3           7         After the completion of this course, the students should be able to         1         Know about Applications of In viscid Flow of Incompressible Fluids         Credits: 3           7         Deal with Fundamental concept of turbulence         Deal with Fundamental concept of turbulence         Credits: 3           6         Mither the completion of this course, the students should be able to         Credits: 3         Credits: 3           9         Deal with Fundamental concept of turbulence         Deal with Fundamental concept of turbulence         Course Outcome         Subject Name (Subject Code) AIX CODE AIX COD			ADVANCED THERMODYNAMICS		Credits: 3		
1       substance         2       Know the applications of Energy properties of real gases, Vapour pressure, Clausius         3       Know about Psychometric mixture properties and psychometric chart, Air conditioning processes, cooling towers.         4       Get uses of the Combustion Reactions, Enthalpy of formation. Entropy of formation, Reference levels of tables. Energy of formation, Heat reaction         5       Solve a problem in Review binary vapour cycle, co generation and combined cycles, Second law analysts of cycles and Refrigeration cycles.         6       Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course       Semester         0utcome       I Sem         After the completion of this course, the students should be able to         1       Know about Applications of In viscid Flow of Incompressible Fluids         2       Applicability of Basic Laws of fluid Flow         3       Understanding the Viscous Flow         4       Get Knowledge on Boundary Layer Concepts         5       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         6       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDTIONING (M18TE03)       No. of Hours L:3 T:0 P:0         1       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energ	After the o	completion of this c	ourse, the students should be able to				
3       Know about Psychometric mixture properties and psychometric chart, Air conditioning processes, cooling towers.         4       Get uses of the Combustion Reactions, Enthalpy of formation. Entropy of formation, Reference levels of tables. Energy of formation, Heat reaction         5       Solve a problem in Review binary vapour cycle, co generation and combined cycles, Second law analysts of cycles and Refrigeration cycles.         6       Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course Outcome       Semester I Sem       Subject Name (Subject Code) (M18TE02)       No. of Hours L:3 T:0 P:0       Credits: 3         4       Get Know about Applications of In viscid Flow of Incompressible Fluids       2       Applicability of Basic Laws of fluid Flow       1       Know about Applications of In viscid Flow of Incompressible Fluids       2         3       Understanding the Viscous Flow       4       Get Knowledge on Boundary Layer Concepts       5         5       Deal with Fundamental concept of turbulence       No. of Hours L:3 T:0 P:0       Credits: 3         6       After the completion of this course, the students should be able to       1       No. of Hours Layer Concepts       5         5       Deal with Fundamental concept of turbulence       No. of Hours Layer Concepts       Course Course Semester Location for Mach Number       No. of Hours L:3 T:0 P:0       Cre	1		elevance of Evaluation of thermodynamic	properties of wor	rking		
3       Know about Psychometric mixture properties and psychometric chart, Air conditioning processes, cooling towers.         4       Get uses of the Combustion Reactions, Enthalpy of formation. Entropy of formation, Reference levels of tables. Energy of formation, Heat reaction         5       Solve a problem in Review binary vapour cycle, co generation and combined cycles, Second law analysts of cycles and Refrigeration cycles.         6       Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course Outcome       Semester I Sem       Subject Name (Subject Code) (M18TE02)       No. of Hours L:3 T:0 P:0       Credits: 3         4       Get Know about Applications of In viscid Flow of Incompressible Fluids       2       Applicability of Basic Laws of fluid Flow       1       Know about Applications of In viscid Flow of Incompressible Fluids       2         3       Understanding the Viscous Flow       4       Get Knowledge on Boundary Layer Concepts       5         5       Deal with Fundamental concept of turbulence       No. of Hours L:3 T:0 P:0       Credits: 3         6       After the completion of this course, the students should be able to       1       No. of Hours Layer Concepts       5         5       Deal with Fundamental concept of turbulence       No. of Hours Layer Concepts       Course Course Semester Location for Mach Number       No. of Hours L:3 T:0 P:0       Cre	2	Know the applic	now the applications of Energy properties of real gases, Vapour pressure, Clausius				
4       Get uses of the Combustion Reactions, Enthalpy of formation. Entropy of formation, Reference levels of tables. Energy of formation, Heat reaction         5       Solve a problem in Review binary vapour cycle, co generation and combined cycles, Second law analysts of cycles and Refrigeration cycles.         6       Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course       Semester       Subject Name (Subject Code)       No. of Hours       Credits: 3         1       Know about Applications of In viscid Flow of Incompressible Fluids       Credits: 3         2       Applicability of Basic Laws of fluid Flow       Get Knowledge on Boundary Layer Concepts         5       Deal with Fundamental concept of turbulence       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course       Semester       Subject Name (Subject Code)       No. of Hours         4       Get Knowledge on Boundary Layer Concepts       Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         6       Semester       Subject Name (Subject Code)       No. of Hours         1       Deal with Components of Vapor Compression System       Credits: 3         2       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – li	3	Know about Psyc	hometric mixture properties and psychome				
3       Second law analysts of cycles and Refrigeration cycles.         6       Know about Fuel cells, Thermo electric energy, Thermo ionic power generation, Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course Outcome       Semester I Sem       Subject Name (Subject Code) ADVANCED FLUID MECHANICS (M18TE02)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Know about Applications of In viscid Flow of Incompressible Fluids       2         2       Applicability of Basic Laws of fluid Flow       3       Understanding the Viscous Flow       4         4       Get Knowledge on Boundary Layer Concepts       5       Deal with Fundamental concept of turbulence         6       Subject Name (Subject Code) ADVANCED REFRIGERATION AND Acoustic Velocity Derivation of Equations for Mach Number       No. of Hours L:3 T:0 P:0       Credits: 3         6       Beal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number       Credits: 3         6       Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Deal with Components of Vapor Compression System       2       Develop the study skills on Production of Low Temperature       2         2       Develop the study skills o	4	Get uses of the Co	ombustion Reactions, Enthalpy of formatio		rmation,		
6       Thermodynamic devices magneto hydronamic generations, Photovoltaic cells.         Course Outcome       Semester I Sem       Subject Name (Subject Code) ADVANCED FLUID MECHANICS (M18TE02)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       Credits: 3       Credits: 3         1       Know about Applications of In viscid Flow of Incompressible Fluids       Credits: 3         2       Applicability of Basic Laws of fluid Flow       3         3       Understanding the Viscous Flow       4         4       Get Knowledge on Boundary Layer Concepts       5         5       Deal with Fundamental concept of turbulence       6         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       No. of Hours AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Deal with Components of Vapor Compression System       2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications       Enable stu	5	Solve a problem i	n Review binary vapour cycle, co generation		l cycles,		
Course OutcomeSemister I SemADVANCED FLUID MECHANICS (M18TE02)No. of Hours L:3 T:0 P:0Credits: 3After the completion of this course, the students should be able to1Know about Applications of In viscid Flow of Incompressible Fluids22Applicability of Basic Laws of fluid Flow3Understanding the Viscous Flow53Understanding the Viscous Flow5Deal with Fundamental concept of turbulence6Deal with Fundamental concept of Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach NumberNo. of Hours L:3 T:0 P:06Semester I SemSubject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)No. of Hours L:3 T:0 P:0Credits: 37Deal with Components of Vapor Compression System2Develop the study skills on Production of Low Temperature33Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications4Fenable students of Comfort Air –	6		Know about Fuel cells, Thermo electric energy, Thermo ionic power generation,				
1       Know about Applications of In viscid Flow of Incompressible Fluids         2       Applicability of Basic Laws of fluid Flow         3       Understanding the Viscous Flow         4       Get Knowledge on Boundary Layer Concepts         5       Deal with Fundamental concept of turbulence         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome       Semester         1       Subject Name (Subject Code)         AIR CONDITIONING (M18TE03)       No. of Hours         2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –			ADVANCED FLUID MECHANICS No. of Hours Credits: 3				
2       Applicability of Basic Laws of fluid Flow         3       Understanding the Viscous Flow         4       Get Knowledge on Boundary Layer Concepts         5       Deal with Fundamental concept of turbulence         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome         Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Deal with Components of Vapor Compression System       2         2       Develop the study skills on Production of Low Temperature       3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –	After the o	completion of this c	ourse, the students should be able to				
2       Applicability of Basic Laws of fluid Flow         3       Understanding the Viscous Flow         4       Get Knowledge on Boundary Layer Concepts         5       Deal with Fundamental concept of turbulence         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome         Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Deal with Components of Vapor Compression System       2         2       Develop the study skills on Production of Low Temperature       3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –	1	Know about Appl	ications of In viscid Flow of Incompressib	le Fluids			
4       Get Knowledge on Boundary Layer Concepts         5       Deal with Fundamental concept of turbulence         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome       Semester         I Sem       Subject Name (Subject Code)         AIR CONDITIONING (M18TE03)       No. of Hours         L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       Course         1       Deal with Components of Vapor Compression System         2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –	2						
5       Deal with Fundamental concept of turbulence         6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome       Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Deal with Components of Vapor Compression System         2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –	3	Understanding the	e Viscous Flow				
6       Deal with Thermodynamic basics – Equations of continuity, Momentum and Energy – Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome       Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       1       Deal with Components of Vapor Compression System       2       2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications       4       Enable students of Comfort Air –	4	Get Knowledge o	n Boundary Layer Concepts				
o       Acoustic Velocity Derivation of Equation for Mach Number         Course Outcome       Semester I Sem       Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       Deal with Components of Vapor Compression System       Develop the study skills on Production of Low Temperature       Subject Name (Subject Code) AIR CONDITIONING (M18TE03)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Deal with Components of Vapor Compression System       Develop the study skills on Production of Low Temperature       Subject Name (Subject Code) Aigrams – limitations and applications       Subject Name (Subject Code) AI       Subject Name (Subject Name (Subject Code) AI       Subject Name (Subject Na	5	Deal with Fundan	nental concept of turbulence				
Course OutcomeSemester I SemADVANCED REFRIGERATION AND AIR CONDITIONING (M18TE03)No. of Hours L:3 T:0 P:0Credits: 3After the completion of this course, the students should be able to1Deal with Components of Vapor Compression System22Develop the study skills on Production of Low Temperature3Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications4	6				Energy –		
1       Deal with Components of Vapor Compression System         2       Develop the study skills on Production of Low Temperature         3       Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications         4       Enable students on Construction of Psychometric chart, Requirements of Comfort Air –			ADVANCED REFRIGERATION AND		Credits: 3		
<ul> <li>2 Develop the study skills on Production of Low Temperature</li> <li>3 Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications</li> <li>4 Enable students on Construction of Psychometric chart, Requirements of Comfort Air –</li> </ul>	After the c	completion of this c	ourse, the students should be able to				
<ul> <li>Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications</li> <li>Enable students on Construction of Psychometric chart, Requirements of Comfort Air –</li> </ul>	1	Deal with Comp	onents of Vapor Compression System				
<ul> <li>diagrams – limitations and applications</li> <li>Enable students on Construction of Psychometric chart, Requirements of Comfort Air –</li> </ul>	2	-		re			
Enable students on Construction of Psychometric chart, Requirements of Comfort Air –	3	Develop the study	skills on Steam Jet refrigeration system: F		n T-s and h-s		
	4	Enable students o	n Construction of Psychometric chart, Req	uirements of Cor	mfort Air –		

E	Equip students wi	th Parameters influencing the Effective Te	mperature. Sum	ner, winter
5		r – conditioning systems	-	
6		Iake students aware of Humidification and dehumidification equipment, Systems of Air         leaning Grills and diffusers Fans and blowers Measurement and control of Temperature         ad Humidity		
Course Outcome	Semester I Sem	Subject Name (Subject Code) TURBO MACHINES (M18TE04)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	ourse, the students should be able to		
1	Understand the I	Fundamentals of turbo machines and their a	applications	
2	Applicability of st flow on performation	team nozzle and steam turbine in power plance of plant.	ant and the relation	on of their
3	To equip student	ts with the fundamental of thermodynamics	s concepts for ga	s dynamics
4	Get Knowledge	about type and working principle of centrif	fugal compressor	'S
5	Deal with Funda systems	mental concept of Axial flow compressors	and different typ	be of cascade
6	To understand regas turbines	elations of degree of reaction for maximum	performance of	axial flow
Course Outcome	Semester I Sem	Subject Name (Subject Code) ENERGY MANAGEMENT (M18TE05)	No. of Hours L:3 T:0 P:0	Credits: 3
After the o	completion of this c	ourse, the students should be able to		
1	To understand the	e need of energy management and its princi	iples.	
2	Analyze the requi	rement of energy audit and its concepts.		
3		oncepts of economic analysis and its scope.		
4	Get Knowledge al	bout methods of evaluation of projects.		
5	Deal with Fundan	nental concept energy audit		
6	Demonstrate the a	application of alternative energy sources in	energy managen	nent
Course Outcome	Semester I Sem	Subject Name (Subject Code) GAS TURBINES (M18TE06)	No. of Hours L:3 T:0 P:0	Credits: 3
After the o	completion of this c	ourse, the students should be able to		
1	Explain the Appli	cations and classifications of gas turbine		
2		ifferent processes for improving the perfor	mance of the pla	nt.
3		and Real cycle gas turbines and concept of		
4		bout fundamental equations and laws of ro		Ť
5		nd advanced concepts and working principl		pe of
3	compressors.			
6	To determine the	importance of effective combustion system	n for maximize th	ne efficiency
0	of gas turbine plan	nt.		
Course Outcome	Semester I Sem	Subject Name (Subject Code) NON CONVENTIONAL ENERGY SOURCES (M18TE07)	No. of Hours L:3 T:0 P:0	Credits: 3
After the o	completion of this c	ourse, the students should be able to		

	1 0 1		<u>a</u> 1 1		
	Know about Solar passive heating End	Energy Applications: Solar water heating. nergy	. Space heating,	Active and	
2	Deal with Structu	al with Structure of earth, Geothermal Regions, Hot springs. Hot Rocks			
3		a problem in Thermionic & thermoelectri		łD	
4		Fusion reaction, P-P cycle, Carbon cycle, on, Fuel cells and photovoltaic.	Deuterium cycle	, Condition	
5	To enable student	s on energy sources. Plant productivity, Biversion processed	omass wastes, ae	erobic and	
6	To equip students	with Wind, Beaufort number, Characterist betz model. Interference factor	ics, Wind energy	conversion	
Course Outcome	Semester I Sem	Subject Name (Subject Code) EQUIPMENT DESIGN FOR THERMAL SYSTEMS (M18TE08)	No. of Hours L:3 T:0 P:0	Credits: 3	
After the c	completion of this c	ourse, the students should be able to			
		heat exchanger and its classifications.			
	Determine the eff about double pipe	ect of increasing pipes in performance of h heat exchanger.	eat exchanger an	d get idea	
	Understand the was single vapors.	Understand the working principle of steam condenser and explore the condensation of			
1	Get Knowledge al	bout processes like vaporization, evaporation evaporation and for these processes	on and reboiling	and study	
5		working principle of cooling tower			
6		sign requirement of effective cooling tower	•		
Course Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED THERMAL ENGINEERING LAB (M18TE09)	No. of Hours L:0 T:0 P:4	Credits: 2	
After the c	completion of this c	ourse, the students should be able to			
	_	nalysis of air conditioning unit.			
		nalysis of heat pipe.			
		prmance analysis of flat plate collector.			
		ormance analysis of evacuative tube concer	ntrator		
Course Outcome	Semester I Sem	Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M18TE10)	No. of Hours L:0 T:0 P:4	Credits: 2	
After the c	completion of this c	ourse, the students should be able to	L		
1	Understand the A	nalysis of flow profile on the designed noz	zle.		
	Understand the D diffuser.	esigning the diffuser and Analysis of flow	profile on the de	signed	
3	Understand the A	nalysis of fluid flow on over curved surface	e.		
4		nalysis of force exerted by the fluid jet on :			
Course Outcome	Semester I Sem	Subject Name (Subject Code) RESEARCH METHODOLOGY (M18MC01)	No. of Hours L:2 T:0 P:0	Credits: 2	

After the	completion of this c	ourse, the students should be able to		
		hen IPR would take such important place	in growth of indi	viduals &
1		ess to emphasis the need of information abo		
	Right	-		
0	Compose and write quality research reports and attain familiarity with intelle			
2	property rights.		•	
3	<u> </u>	ch problem formulation		
4		related information		
C			N. C.I.	
Course	Semester I Sem	Subject Name (Subject Code) STRESS MANAGEMENT (M18AC02)	No. of Hours L:2 T:0 P:0	Credits: 0
Outcome	1 Sem	STRESS MANAGEMENT (MT6AC02)	L:2 1:0 P:0	
After the	completion of this c	ourse, the students should be able to		
1		e need of energy management and its princi	ples.	
2	Analyze the requi	rement of energy audit and its concepts.		
3	Understand the co	oncepts of economic analysis and its scope.		
4	Get Knowledge a	bout methods of evaluation of projects		
C	<b>G</b> (	Subject Name (Subject Code)	NI CII	
Course Outcome	Semester II Sem	ADVANCED HEAT TRANSFER	No. of Hours L:3 T:0 P:0	Credits: 3
Outcome	II Sem	(M18TE11)	L:3 1:0 F:0	
After the	completion of this c	ourse, the students should be able to		
1	Emphasize the Ge	eneral heat Conduction equation.		
2	Know the Lumpe	d system analysis		
3		tions of fluid flow		
4	To understand the	concept of free convection, boiling and co	ondensation	
5		e about transfer of heat in the space and at		ire.
6	Understand the co	oncepts of mass transfer and significance of	f non dimensiona	l numbers
C	G (	Subject Name (Subject Code)	NI CII	
Course Outcome	Semester II Sem	ADVANCED I.C. ENGINES	No. of Hours L:3 T:0 P:0	Credits: 3
Outcome	II Sem	(M18TE12)	L:31:01:0	
After the	completion of this c	ourse, the students should be able to		
1	Know about Des	sign and operating Parameters		
2		Thermo-chemistry of Fuel-Air mixtures.		
3		ne effect of Volumetric Efficiency on the p	erformance of th	e engines.
4	Ŭ	on Mean velocity and turbulent characteris		
5	Ŭ	mal combustion Fuel factors, MPFI.		
6		nissions, Measurement & Exhaust Gas Tre	atment	
~	<b>a</b>	Subject Name (Subject Code)		
Course	Semester	CRYOGENIC ENGINEERING	No. of Hours	Credits: 3
Outcome	II Sem	(M18TE13)	L:3 T:0 P:0	
After the	completion of this c	ourse, the students should be able to		
1	-	main concept of cryogenic systems.		
2		ortance and applications of gas liquefaction		
3		orking of liquefaction systems for various type	s of gases	
4	Equip students wi	th the knowledge of gas separation systems an	d purification syste	ems.

5	To immout lan oral o	dae an ama conic nefricanation contants		
5		dge on cryogenic refrigeration systems	achnology	
0	Make students aw	are applications of cryogenic system in space t	echnology	
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	II Sem	JET PROPULSION AND ROCKET	L:3 T:0 P:0	Credits: 3
		ENGINEERING (M18TE14)		
After the o	-	ourse, the students should be able to		
1		e concept of turbo jet propulsion system an		f flight.
2		to learn the concept of rocketry and its fund		
3	-	ledge on the effect of nozzle design on the	performance of j	et
	propulsion.			
4		ne combustion chemistry of fuels used in ro		
5		vith the knowledge of advanced rocket eng		
6	To learn the vari	ous method of liquid rocket propulsion sys	tem	
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	II Sem	ALTERNATE FUELS (M18TE15)	L:3 T:0 P:0	Credits: 3
Outcome	H Sem	ALTERIARIE I OLLS (MIOTLIS)	L.5 1.01.0	
After the o	completion of this c	ourse, the students should be able to		
1	Know about Ava	ilability and properties of alternate fuels, g	eneral use of Alc	ohols, LPG,
1	hydrogen, and am			
2		rties as engine fuel, alcohols and gasoline b	olends.	
3		ve a problem in performance in SI & CI En		
4		mance and emission characteristics, bio die	0	cteristics
-		nts on Layout of an electric vehicle, advant		
5		ystem components.	0	
6	To equip student	s with electronic control system.		
C	Compartant.	Subject Name (Subject Code)	N. CIL	
Course	Semester II Sem	ADVANCED COMPUTATIONAL	No. of Hours L:3 T:0 P:0	Credits: 3
Outcome	II Sem	FLUID DYNAMICS (M18TE16)	L:5 1:0 P:0	
After the o	completion of this c	ourse, the students should be able to	· · · · · · · · · · · · · · · · · · ·	
1	Understand Finite	difference method, finite volume method,	finite element m	ethod
2	Consider Solution	on methods of elliptical equations		
3		ndary layer equations for laminar, turbulen	t flow	
4		on Burgers equations: Explicit and implicit		e- Kutta
4	method.		ý U	
_		on Formulations of incompressible viscous	flows by finite d	ifference
5	methods.	I	5	
6		on Finite volume method via finite differen	ce method	
		Subject Name (Subject Code)		
Course	Semester	THERMAL AND NUCLEAR POWER	No. of Hours	Credits: 3
Outcome	II Sem	PLANTS (M18TE17)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	ıI	
1	_	ype of Power plants, Direct energy convers	ion system.	
2		derstand Recent developments in power ge		
3	Know about Fee			
5				

4	To impart know	ledge on Combined cycle power plant and	its importance	
5		the concepts of Nuclear Reactor and its Clas		
6		on Factors affecting the economics	sineation	
0	Get kilowiedze (			
Course	Semester	Subject Name (Subject Code) THERMAL MEASUREMENTS &	No. of Hours	Credits: 3
Outcome	II Sem	PROCESS CONTROLS (M18TE18)	L:3 T:0 P:0	Creuits: 5
A fton the a	amplation of this s			
	-	ourse, the students should be able to		
1		indamental principles of measuring instrum		1
2		king principle of all the instruments used to		low.
3		anced thermometers for different type of o	perations.	
4		el by direct or indirect methods.		
5		ge on principles used for process control.		
6	Design open as v	well as closed loop control system		
		Subject Name (Subject Code)		
Course	Semester	ADVANCED INTERNAL	No. of Hours	Credits: 2
Outcome	II Sem	COMBUSTION ENGINES LAB	L:0 T:0 P:4	
		(M18TE19)		
		ourse, the students should be able to		
1	Understand the ef	fect of change in compression ratio on the	performance of a	diesel&
1	petrol engine.			
2	Analyze the effe	ct of change in fuel injection timing on the	e performance of	diesel
2	engine.			
3	Understand and	analysis Flame propagation analysis of gas	eous fuels.	
4	Use different typ	be of fuels and analyze its effect on the per-	formance of dies	el and petrol
C	C (	Subject Name (Subject Code)	NI CII	
Course	Semester	MODELING AND ANALYSIS LAB-II	No. of Hours	Credits: 2
Outcome	II Sem	(M18TE18)	L:0 T:0 P:4	
After the c	completion of this c	ourse, the students should be able to		
1	Aware of Therma	l stress analysis of piston head of diesel en	gine for real con	dition.
2		and exhaust valve for diesel engine.	-	
3	•	mal stress of crank rod of diesel engine for	real operating c	onditions.
4		ct of thermal stress on the intake and outlet		
		Subject Name (Subject Code)		
Course	Semester	ENGLISH FOR RESEARCH PAPER	No. of Hours	Credits: 2
Outcome	II Sem	WRITING (M18AC01)	L:0 T:0 P:4	
After the c	completion of this c	ourse, the students should be able to	1	
1	-	ne nuances of language and vocabulary in v	writing a Researc	h Paper.
2		content, structure and format of writing a re		1
3	*	tice of writinga Research Paper.	r-r	
		idents to evolve original research papers w	vithout subjected	to
4	plagiarism		in subjected	
G	G i	Subject Name (Subject Code)	N. 0	
Course	Semester	ADVANCED MATERIALS FOR	No. of Hours	Credits: 3
Outcome	III Sem	THERMAL SYSTEMS (M18TE22)	L:3 T:0 P:0	
			L	

After the c	ompletion of this c	ourse, the students should be able to			
1	Understand the f	fundamentals of different type of testing me	ethods.		
2	Analysis and Un	Analysis and Understand Impact Behavior Heat Treatment of Steels and Cast Irons.			
3	Impart knowledg	ge on fundamentals of Nuclear Power Plan	t and Their Mate	rials	
4		about materials in Fuel cells and Solar Cell			
5		lvancement of use of super alloys.			
6	Design advanced	l energy storage system.			
Course Outcome	Semester III Sem	Subject Name (Subject Code) COMPUTER SIMULATION OF SI & CI ENGINES (M18TE23)	No. of Hours L:3 T:0 P:0	Credits: 3	
After the c	ompletion of this c	ourse, the students should be able to			
1	Impart knowledg	ge on importance of computer simulation o	of IC engines.		
2	To understand the	ne concept of Wiebe's function in SI engine	e modeling.		
3	Determine the ir	nportance of Watsons and White house and	d Way models in	CI engines.	
4	Understand the l	basics of gas exchange processes.			
5		vith knowledge of heat transfer to the surro	ounding from the	IC engines.	
6		Analyze the effect of friction in moving parts of the engines on the performance of			
Course Outcome	Semester III Sem	Subject Name (Subject Code) ADVANCED FINITE ELEMENT ANALYSIS (M18TE24)	No. of Hours L:3 T:0 P:0	Credits: 3	
After the c	ompletion of this c	ourse, the students should be able to			
1	Understand the l	Basic concepts, historical back ground, app	lications of FEM	[.	
2	Analysis and Un	derstand Virtual energy principle			
3	Know about 1-D	Structural Problems.			
4	Impart knowledg	ge on Hermite shape functions, stiffness ma	atrix, and Load v	ector.	
5	Know about Fin	ite element modeling of Axi-symmetric so	lids		
6	Get knowledge of	on Dynamic considerations and Dynamic e	quations		
Course Outcome	Semester III Sem	Subject Name (Subject Code) ADVANCED OPTIMIZATION TECHNIQUES & APPLICATIONS (M18MA01)	No. of Hours L:3 T:0 P:0	Credits: 3	
After the c	ompletion of this c	ourse, the students should be able to			
1	Know about the	basics of one dimensional Optimization m	ethods.		
2	Choose the ways	s to use Direct search method			
3		ic programming.			
4	Construct linear				
5	Analyze integer	programming			
6		astic programming.			
Course Outcome	Semester III Sem	Subject Name (Subject Code) BUSINESS LAW AND ETHICS (M18MB23)	No. of Hours L:3 T:0 P:0	Credits: 3	
After the c	ompletion of this c	ourse, the students should be able to			
1	Know the Rusin	ess Laws related to incorporating a compar	nv		

2	Identify the Importance of Ethics in Business
3	Categorize Cyber Crime and Legal Aspects.
4	Analyze Business Ethics.
5	Understand Negotiable Instruments Act – 1881
6	Compare Need for cyber laws in the Indian context.

## COURSE OUTCOMES FOR B.TECH-CSE R18 FOR THE YEAR 2018-2019

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
		LINEAR ALGEBRA AND CALCULUS		
Outcome	I/I Sem	(B18MA01)	L:3 T:1 P:0	
After the o	completion of this c	course, the students should be able to		
1	Understand the p	rinciples of matrix to calculate the charac	teristics of system	n of linear
		ns using multiple methods.		
2		values, eigen vectors and orthogonally diag	•	ricmatrices.
3		e of sequence and series to identify the con		
4		s using Beta and Gamma functions.	computationally.	Analyze
5	Calculate Partial with or without co	derivatives, Jacobian and extrema of function on straints.	tions of multiple	e variables
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I / I Sem	APPLIED PHYSICS (B18PH01)	L:4 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	-	on of semi conductors, photo detectors, design	basis of quantum	mechanics
2		ve optics extend & construct basics of wave op		
3		ers, which leads to new innovations and impro		
4		mulate the study of characterization properties e new materials for various engineering application		organize the
5		ledge on principles and recalls facts of light pr nalyse applications of optical fibers	operties, and moti	vate for new
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I/I Sem	ENGLISH(B18EN01)	L:2 T:0 P:0	
After the o	completion of this c	course, the students should be able to		
1	Use English Langu	age effectively in spoken and written forms.		
2		ven texts and respond appropriately.		
3		idently in various contexts and different culture		
4	Acquire basic profi and speaking skills	ciency in English including reading and listeni	ng comprehensior	, writing
5	Develops and Con speaking &writing	nmunicates by stating main ideas relevantly a g.	and coherently in	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I/I Sem	ENGINEERING GRAPHICS (B18ME01)	L:1 T:0 P:4	
After the o	completion of this c	course, the students should be able to		
1	Analyze the Proje	ections of points.		
2	· · · · · ·	rojections of solids.		
3		of Drawings, dimensioning, scales and coni	c sections.	
4		cations of this knowledge in Computer Gra		
5		version of isometric views to Orthographic		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I/I Sem	PROGRAMMING FOR PROBLEM SOLVING(B18CS01)	L:4 T:0 P:0	Cituits. 4
After the c	completion of this c	course, the students should be able to		1
1		now problems are posed and how they ca	an be analyzed	for obtaining
2		he fundamentals of C programming.		
-		tendumentuis or e programming.		

3	Learning of sequencing, branching, looping and decision making statements to solve Scientific and engineering problems.				
4	Implementing different operations on arrays and creating and using of functions to solve problems				
5	<b>1</b>	and implement different types of file struc	ctures using stand	dard	
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) APPLIED PHYSICS LAB (B18PH02)	No. of Hours L:0 T:0 P:3	Credits: 1.5	
		ourse, the students should be able to			
1		equipments related to light & electronics.			
2	Develop experime	ental skills to design new experiments & circuit	Ŷ.		
3		modern equipment like solar cell, optical fibre	etc.,		
4		develop novel semi conductor devices.		Creadites 1	
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	No. of Hours L:0 T:0 P:2	Credits:1	
		SOLVING – LAB (B18CS02)			
After the c		ourse, the students should be able to			
I		structure of the C Programming, data types structures and all related concepts.	s, declaration and	l usage of	
2	Ability to understa form.	and any algorithm and Write the C program	nming code in ex	ecutable	
3		ams using functions, pointers and arrays, ar	nd use the pre-pr	ocessors to	
4			2		
+	Ability to use file	structures and implement programs on file	s.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	I/II Sem	DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B18MA02)	L:3 T:1 P:0		
After the c	completion of this c	ourse, the students should be able to			
1		ntal concepts of ordinary differential equations			
	conceptsin solving	solution of a non homogeneous differential equiphysical problems of Engineering.	uations and apply	ing its	
3	Evaluate the multip	le integrals in various coordinate systems.			
4	Apply the concepts	of gradient, divergence and curl to formulate E	Engineering proble	ems.	
5	Analyze line, surfac	ce and volume integrals using fundamental theo	orems.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	I/II Sem	BASIC ELECTRICAL AND	L:3 T:0 P:0		
Outcome		ELECTRONICS ENGINEERING			
		(B18EE02)			
A ft on the o	annulation of this a				
After the c		t concepts such as electrical parameters, quant	tities laws and no	twork	
	reduction techniqu	ies and apply the network theorems with DC ex	xcitation in the sys	stems	
2	relationship betwee	y state operation of single phase and three phas een voltage and current for delta and star conne	ctions	-	
	Explore the construction, working, control and testing of various DC and AC Machines				
3	Gain knowledge on basic electronic devices such as P-N junction Diode, rectifiers and filter with their V-I characteristics.				
3 4 5	Gain knowledge o with their V-I char				

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I/II Sem	ENGINEERING CHEMISTRY (B18CH01)	L:3 T:1 P:0	
After the c	completion of this c	course, the students should be able to		
1		knowledge regarding atomic and molecular	r structure.	
2		c engineering materials. Recall basic organ		
3		ies and classify different electronics and electronics		
		help them to construct different electrical		
4	Examine which	type of impurities are present in water, spec corrosion behavior/ activity of metals.		
5	-	e and adsorption to construct the materials	by analyzing the	eir
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1
		ENGLISH LANGUAGE AND		cituits. I
Outcome	I/II Sem	COMMUNICATION SKILLS LAB(B18EN02)	L:0 T:0 P:2	
A ftor the c	omplotion of this c	course, the students should be able to		
		he influence of the sounds of their mother to	ngua	
1		the influence of the sounds of their mother to	iigue	
2	Better understandi group activities	ng of nuances of English language through a	udio- visual expe	erience and
3		ity and confidence which in turn enhances th	eir employability	skills
4	· · ·	propriately for public speaking		55
Course	Year / semester		No. of Hours	Credits:1.5
		Subject Name (Subject Code) BASIC ELECTRICAL AND		Creans:1.5
Outcome	I/II Sem	ELECTRONICS ENGINEERING LAB	L:0 T:0 P:3	
		(B18EE03)		
A ft on the o	ammlation of this a	annes the students should be able to		
After the C		course, the students should be able to complex electric and electronic circuits by app	lying the KVL on	d KCL lowe
2		al loading on the system.	Tynig the KvL and	I KCL laws.
3		rmance of DC machines		
4		ze the performance and operation of semi con	ducting devices	
•				Caralitari 5
Course	Year / semester	Subject Name (Subject Code) ENGINEERING WORKSHOP &	No. of Hours	Credits:1.5
Outcome	I/II Sem	ITWORKSHOP (B18ME02)	L:0 T:0 P:3	
After the c	completion of this c	course, the students should be able to		
1		ental knowledge of various trades and their usa	age in real time Ar	plications
2		of Foundry, Welding, Black smithy, Fitting, Ma		
3		asis for analyzing power tools in construction		
-		nechanical engineering.		2,
4	Use basic concept	s of computer hardware for assembly and disas	ssembly.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	II/I Sem	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE(B18CS03)	L:4 T:0 P:0	
After the c	completion of this a	course, the students should be able to	•	
1		ons of propositions, predicate formulae, Rul	les of inference	
-				
		cribe various types of Relations and Function		
3		of Mathematics, Combinations & Permuta	ations, Binomial	Multinomial
	theorems, Pigeon	hole principles.		
4	Develop to solve	the recurrence relations by using various m	ethods.	
5	Perceive the basic	c concepts of graph theory and apply for rea	al time examples	
			1	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
		Subject Name (Subject Code) DIGITAL LOGIC DESIGN &		Creans: 5
Outcome	II/I Sem	MICRO	L:3 T:0 P:0	
		PROCESSORS(B18EC49)		
After the o	completion of this o	course, the students should be able to		
1		asic concepts of different Number system	is and basic theo	orems
	using inBoolean			
2		circuits using basic logic gates by reducing	g the Boolean	
3		he help of Karnaugh Map.	•,	
	-	ypes of combinational and sequential circuit		
4		ternal organization of popular 8086microp	rocessors.	
5	Learn the design of	of microprocessors – based systems	1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	II/I Sem	DATABASE MANAGEMENT SYSYEMS(B18CS04)	L:4 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Perceive the fund	amental concepts of database management.	•	
2		models & Entity Relationship models and	to draw the E-R	
	diagram forthe gi			
3		Database Theory, and be able to write rela	ational algebra	
	expressions forqu		1	
4		tion Process to construct the database and o	explain Basic	
5	Issues of Transact		1 ' 5'1	
3		c Database storage structures and access te		
~	- <b>-</b>	xing methods including B- Tree and Hashi		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
Course		Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	II/I Sem	DATA STRUCTURES THROUGH	L:4 T:0 P:0	
		C++(B18CS05)		
After the o	completion of this c	course, the students should be able to		
1		ence between structured programming and	object oriented	
		nguage and understanding the features of C	•	oject
	oriented program			5
2	To explain and ap	pply the major object oriented concepts to in	mplement object	
	orientedPrograms	s in C++.		
3		knowledge to handle operations like insert		
	<b>U</b>	aversing mechanisms in linear data structur		
4		vanced data structure such as hash tables an	nd priority	
5	queue datastructu			
5		nowledge on trees, balanced trees, graphs a arrow data structures, and different sorting tech	1 0	++
0			<b>^</b>	0 14 4
Course	Year / semester	Subject Name (Subject Code) COMPUTER ORGANIZATION &	No. of Hours	Credits: 4
Outcome	II/I Sem	ARCHITECTURE(B18CS06)	L:4 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Perceive basics C	omputer types, buses, registers.		
2		design of Computer, addressing modes, Mi	icro Program Ex	ample.
3		unit operations and arithmetic Operations.	<u> </u>	<u> </u>
4		us Peripheral devices operations.		
•	Design memory organization that uses banks for different word size operations.			
5	Design memory o			1
5			No. of Hours	Credits: 1.5
	Year / semester	Subject Name (Subject Code) DIGITAL LOGIC DESIGN & MICROPROCESSORS	No. of Hours L:0 T:0 P:3	Credits: 1.5

		$\mathbf{I} \mathbf{A} \mathbf{D} (\mathbf{D} 1 9 \mathbf{E} \mathbf{C} 5 0)$	1	1		
		LAB(B18EC50)				
		course, the students should be able to				
1		emonstrate various types of logic gates (AND, OR, NOT, NAND, NOR, XOR, NOR) and flip flops.				
2	Analyze and desi	ign various types of combinational and sequ	ential circuits.			
3	Develop micropr	ocessor based programs for Arithmetic and	Logical Operation	ons		
4	Develop microp	ocessor based programs for various problem	ns.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5		
Outcome	II/I Sem	DATABASE	L:0 T:0 P:3			
		MANAGEMENT				
		SYSTEMS LAB(B18CS07)				
		course, the students should be able to				
1	Ŭ	schema for given Application.				
2		odel to Relational Model.				
3	Apply the normative realistic problems	alization techniques for development of a s.	pplication softw	are to		
4	Construct SQL q	ueries to retrieve information from database	es.			
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5		
Outcome	II/I Sem	DATA STRUCTURES	L:0 T:0 P:3			
	II/I Selli	THROUGH C++ Lab(B18CS08)				
After the o	completion of this	course, the students should be able to				
1		ign and implement Object Oriented Program	nming concepts			
2		the appropriate Data Structure for given pro-				
3		ations like searching, insertion, deletion and				
5		arious Data Structures.	uaversing			
4		and apply the hashing techniques.				
Course	Year / semester		No. of Hours	Credits: 0		
		ENVIRONMENTAL		creatis. v		
Outcome	II/I Sem	SCIENCE(B18MC02)	L:2 T:0 P:0			
A ftor the	omplation of this	course, the students should be able to				
1	-	y learned ecosystem and find how the biodiv	versity changes			
1	went in theenvir	<u> </u>	ensity enanges			
2		lines of types of pollutions and related to da	y-to-day life.			
3		ant seminars on natural resources.	• •			
4	•	food chains and energy flow models to solv	ve the identified	parameters.		
5		s of pollutants and distinguish the functions		L		
		take part in the environment.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II/II Sem	STATISTICAL	L:3 T:0 P:0			
0		METHODS FOR ENGINEERS(B18MA04)				
A fton the	omplation of this			L		
After the c		course, the students should be able to heory and deals with modeling uncertainty	in order to avalu	atethe		
1	probability of rea					
2	· · ·	e and continuous probability distributions to	o generate data f	rom		
-	-	son and Normal Distributions.	o generate tata I	10111		
	2					

3	Perform correlat	tion and regression analysis, in order to est	imate the nature	andthe		
5		near relationship between two variables.	iniale the nature	andune		
4		Construct confidence interval estimates for population parameters to test the				
5	Formulate conc	Formulate concrete problems using Queuing theoretical approaches and gainstrong knowledge and principles of Queuing Theory.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4		
Outcome	II/II Sem	DESIGN AND ANALYSIS	L:3 T:1 P:0			
outcome		OF ALGORITHMS (B18CS09)				
After the <b>c</b>	completion of this	course, the students should be able to	•			
4		to few known methods of solution proces	sses, build new	solution		
	÷	ze the asymptotic performance of algorithm				
	correctness proof	• • • •				
2		iate data structures and algorithm design	methods for s	pecified		
	classes of applica			peemea		
3		e choice of data structures and algorithm	design methods	s would		
		mance of programs and how to compare the				
4		s such as the greedy method, divide		lvnamic		
	_	ektracking and branch and bound		- J		
		s to deal with logarithmic type, polynomial t	vpe and non-pol	vnomial		
		of problems and Synthesis of efficient				
		gnsituations would be discussed.				
	0 0 0					
Course	Year / semester	Subject Name (Subject Code) FORMAL LANGUAGES AND	No. of Hours	Credits: 3		
Outcome	II/II Sem	AUTOMATA THEORY(B18CS10)	L:3 T:0 P:0			
After the c	completion of this	course, the students should be able to				
	-	ncepts in formal language theory, grammar	s automata			
		FA), computability theory, and complexity t				
		tion rules of regular expressions and gram				
		: free and context: sensitive grammars.	11d1 5,			
		ndown automata and context free, regular.	normal			
	-	design computer languages	, normai			
4		n for various problems using a theoretica	l computer			
		for a computer language.	reomputer			
		onship among language classes and gramm	hars with the			
	-	Hierarchy, and Distinguish between decida				
	undecidability.	incluicity, and Distinguish between decidu	onity and			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4		
		OPERATING SYSTEMS		Creans.4		
Outcome	II/II Sem	(B18CS11)	L:4 T:0 P:0			
After the c	completion of this	course, the students should be able to				
		Operating Systems architectures, IO struct	ures. Network St	tructure		
2		al memory, paging and memory allocation				
-	variousapplicatio		coninques 101			
3		prevention and Deadlock Detection algorith	ms and nerceive	e the		
-		prevention and Deadlock Detection argonal erating system as a File manager, I/O manag	-			
		verview of Disk Storage Structure.	501, 1 100005 man			
4	i chaciotana ule U	tor now of Disk Storage Silucture.				
4		ccess controls to protect files				
5	Analyze assess a	ccess controls to protect files.	NT OTT			
	Analyze assess a	ccess controls to protect files. Subject Name (Subject Code) MANAGERIAL ECONOMICS	No. of Hours L:3 T:0 P:0	Credits:3		

	1		1	1	
		ACCOUNTANCY(B18MB01)			
After the o	completion of this	course, the students should be able to			
1	Understand the n	ature, scope and importance of Managerial	Economics.		
2		and is, analyze demand and how elasticity o		for pricing	
		evaluate methods for forecasting demand.		1 8	
3		iction function is carried out to achieve leas	t cost combinati	on	
	of Inputsand hov				
4		haracteristics of different kinds of markets a			
		organization and analyze how capital budge	eting techniques	are	
~	used for investm				
5		epare final accounts and how to interpret the	m, analyze and		
Course		l statements using ratio analysis.			
Outcome		Subject Name (Subject Code) OPERATING SYSTEMS	No. of Hours	Credits:1.5	
	II/II Sem	LAB	L:0 T:0 P:3		
		(B18CS12)			
After the o	completion of this	course, the students should be able to			
1	T	duling algorithms, Page replacement algorit	hms.		
2	** *	Algorithm for Dead Lock Avoidance & De		ion	
3		cepts of paging and segmentation.			
4	Make use of Lin				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	II/II Sem	WEB TECHNOLOGIES	L:0 T:0 P:3		
Outcome	II/II Selli	LAB(B18CS13)	L.0 1.0 1.3		
After the c		course, the students should be able to			
1		·	riantad		
-	programmingtec	ions for a range of problems using object o	riented		
2		*	•		
3		d applications and Applets for web applicat	lons.		
		a java program with the mysql database.			
4	Develop web pag	ges using advanced server side programmin	g through Servle	ts and JSP.	
Course	Year / semester		No. of Hours	Credits: 0	
Outcome	II/II Sem	GENDER SENSITIZATION (B18MC07)	L:2 T:0 P:0		
After the <i>a</i>	completion of this	course, the students should be able to	J	I	
1		and importance of women empowerment.			
2		s of understanding and classification of gend	er disparities		
3		of equal distribution of work in the entire s			
	irrespective ofge				
4		ergency needs of saving girl child.			
5		g levels to find solution to the missing wom	en and bring		
	realizationin the		U		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/I Sem	DATA COMMUNICATIONS AND	L:3 T:0 P:0		
Guttolite		COMPUTER NETWORKS			
After the co	 	(B18CS14) ourse, the students should be able to			
1 2		omputer network technology.	1		
	dentify the different types of network topologies and protocols.				

4       Interpret Design and Evaluate subnet masks and addresses to fulfill networking requirements         5       Analyze the features and Operations of TCP/UDP, FTP, HTTP, SMTP,SNMP etc.         Course Vear/senseter       Subject Name (Subject Code) COMPILER DESIGN [L:3 T:1 P:0]       No. of Hours [L:3 T:1 P:0]         Outcome       Tull Sem [BIRCS15]       L:3 T:1 P:0]       Credits:4         1       Apply the knowledge of modern phases of compiler and its features.       2       Identify the similarities and differences among varies parsing techniques.         3       Explain semantic analysis in the context of the compilation process.       4       Design a symbol table format for the language defined by a grammar         5       Analyze the code generation algorithm.       Course       No. of Hours [L:3 T:0 P:0]       Credits:3         0utcome       III/I Sem [SoftWarE ENGINEERING [L:3 T:0 P:0]       No. of Hours [L:3 T:0 P:0]       Credits:3         2       Develop an understanding of software requirements and be able to prepare SRS document.       3       Understand software design engineering process using structural and object oriented approaches and be able to model.       4       0         4       Develop an understanding of software requirements and be able to implementation (unit, integration,)       5       Understand and able to compute quality measures and develop a software quality assurace plan for a software development.       5         4	3	Categorize the h networking.	ardware and software commonly used i	n data commu	nications and
Course Outcome         Year / semester III/I Sem         Subject Name (Subject Code) COMPLER DESIGN BLSCS5         No. of Hours L:3 T:1 P:0         Credits:4           1         Apply the knowledge of modern phases of compiler and its features.         1         Apply the knowledge of modern phases of compiler and its features.         1         1         Apply the knowledge of modern phases of compiler and its features.         1         1         Apply the knowledge of modern phases of compiler and its features.         1         1         1         Apply the knowledge of modern phases of compiler and its features.         1         1         1         1         Apply the knowledge of modern phases of compiler and its features.         1         <		Interpret Design	and Evaluate subnet masks and add	resses to fulfill	networking
Control         Hill Sem         COMPLER DESIGN (B18CS15)         L.3 T:1 P:0           After the completion of this course, the students should be able to         1         Apply the knowledge of modern phases of compiler and its features.         2           3         Explain semantic analysis in the context of the compilation process.         4         Design a symbol table format for the language defined by a grammar         5           5         Analyze the code generation algorithm.         Codition         Credits:3           Course         Year / semester         Subject Name (Subject Code) SOFTWARE ENGINEERING         No. of Hours L:3 T:0 P:0         Credits:3           7         Analyze the code generation algorithm.         Cordits:3         Credits:3         Credits:3           8         SOFTWARE ENGINEERING         L:3 T:0 P:0         Credits:3         Credits:3           9         Develop an understanding of software requirements and be able to prepare SRS document.         3         Understand software design engineering process using structural and object oriented approaches and be able to model.         4         Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration)         5         Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Credits:3           Coursee <td>5</td> <td>Analyze the featu</td> <td>res and Operations of TCP/UDP, FTP, HT</td> <td>TP, SMTP,SNM</td> <td>IP etc.</td>	5	Analyze the featu	res and Operations of TCP/UDP, FTP, HT	TP, SMTP,SNM	IP etc.
Outcome         II/I Sem         [B18CS15)         L.3 T:1 P:0           After the completion of this course, the students should be able to         1         Apply the knowledge of modern phases of compiler and its features.         2           2         Identify the similarities and differences among varies parsing techniques.         3           3         Explain semantic analysis in the context of the compilation process.         4           4         Design a symbol table format for the language defined by a grammar         5           5         Analyze the code generation algorithm.         Credits:3           Course         Year / semester         Subject Name (Subject Code) (B18CS16)         No. of Hours L.3 T:0 P:0         Credits:3           4         Define Software Engineering and list core principles of software engineering and understand various process models         2         Develop an understanding of software requirements and be able to prepare SRS document.         3         Understand software design engineering process using structural and object oriented approaches and be able to model.         4         Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5         Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Credits:3           Coursew         Year / semester         Su	Course	Year / semester		No. of Hours	Credits:4
After the completion of this course, the students should be able to         1       Apply the knowledge of modern phases of compiler and its features.         2       Identify the similarities and differences among varies parsing techniques.         3       Explain semantic analysis in the context of the compilation process.         4       Design a symbol table format for the language defined by a grammar         5       Analyze the code generation algorithm.         Course         Year / semester         Subject Name (Subject Code)         No. of Hours         Credits:3         Develop an understanding of software requirements and be able to prepare SRS         document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software quality assurance plan for a software development.         Course         Year / semester         Subject Name (Subject Code)         No. of Hours         Credits:3         Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course     <	Outcome	III/I Sem		L:3 T:1 P:0	
2       Identify the similarities and differences among varies parsing techniques.         3       Explain semantic analysis in the context of the compilation process.         4       Design a symbol table format for the language defined by a grammar         5       Analyze the code generation algorithm.         Course         Year/semester       Subject Name (Subject Code) (B18CS16)         After the completion of this course, the students should be able to       L:3 T:0 P:0         1       Define Software Engineering and list core principles of software engineering and understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year/semester       Subject Name (Subject Code)       No. of Hours Las T:0 P:0         1       Explain the theory underlying machine learning.       1:3 T:0 P:0       Credits:3         2       Learn beyond binary classification.       3       Rec	After the co	mpletion of this co		I	
3       Explain semantic analysis in the context of the compilation process.         4       Design a symbol table format for the language defined by a grammar         5       Analyze the code generation algorithm.         Course         Year / semester       Subject Name (Subject Code) (B18CS16)         0utcome       III/I Sem         1       Define Software Engineering and list core principles of software engineering and understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester Subject Name (Subject Code) Mo. of Hours III/I Sem       No. of Hours MaCHINE LEARNING (B18CS17)       Credits:3 L:3 T:0 P:0         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Software (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       No. of Hours LANGUAGES (PROFESSIONAL ELECTIVE-I)       Credits:3 L:3 T:0 P:0         4	1	Apply the knowle	edge of modern phases of compiler and its	features.	
4       Design a symbol table format for the language defined by a grammar         5       Analyze the code generation algorithm.         Course       Year/semster       Subject Name (Subject Code) (B18CS16)       No. of Hours L:3 T:0 P:0       Credits:3         4       Define Software Engineering and list core principles of software engineering and understand various process models       Image: Compute Computer		Identify the simil	arities and differences among varies parsing	g techniques.	
5       Analyze the code generation algorithm.       Vear/semester       Subject Name (Subject Code) SOFTWARE ENGINEERING BIBCS16)       No. of Hours L:3 T:0 P:0       Credits:3         0utcome       III/I Sem       SOFTWARE ENGINEERING BIBCS16)       L:3 T:0 P:0       Image: Comparison of this course, the students should be able to         1       Define Software Engineering and list core principles of software engineering and understand various process models       anderstand various process models       state of the comparison of the course, the students should be able to         2       Develop an understanding of software requirements and be able to prepare SRS document.       able to model.       and object oriented approaches and be able to model.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.       implementation (unit, integration,)       integration and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)       Credits:3         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.       Credits:3         Course       Year/semester       Subject Name (Subject Code) MACHINE LEARNING (BISCS17)       No. of Hours       Credits:3         4       Construct algorithms to learn tree, to learn linear, non-linear models and probabilistic models       Probabilistic models       No. of Hours       C	3	Explain semantic	analysis in the context of the compilation I	process.	
5       Analyze the code generation algorithm.       Vear/semester       Subject Name (Subject Code) SOFTWARE ENGINEERING BIBCS16)       No. of Hours L:3 T:0 P:0       Credits:3         0utcome       III/I Sem       SOFTWARE ENGINEERING BIBCS16)       L:3 T:0 P:0       Image: Comparison of this course, the students should be able to         1       Define Software Engineering and list core principles of software engineering and understand various process models       anderstand various process models       state of the comparison of the course, the students should be able to         2       Develop an understanding of software requirements and be able to prepare SRS document.       able to model.       and object oriented approaches and be able to model.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.       implementation (unit, integration,)       integration and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)       Credits:3         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.       Credits:3         Course       Year/semester       Subject Name (Subject Code) MACHINE LEARNING (BISCS17)       No. of Hours       Credits:3         4       Construct algorithms to learn tree, to learn linear, non-linear models and probabilistic models       Probabilistic models       No. of Hours       C	4	Design a symbol	table format for the language defined by a	grammar	
Outcome         III/I Sem         SOFTWARE ENGINEERING [BI8CS16]         L:3 T:0 P:0           After the completion of this course, the students should be able to         Image: the students should be able to         Image: the students should be able to           1         Define Software Engineering and list core principles of software engineering and understand various process models         Image: the students should be able to         Image: the students should be able to           2         Develop an understanding of software requirements and be able to prepare SRS document.         Image: the students should be able to         Image: the students should be able to         Image: the students should be able to           3         Understand software design engineering process using structural and object oriented approaches and be able to model.         Image: the students should be able to         Image: the students should be able to           4         Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         Image: the students should be able to         Image: the students should be able to         Image: the students should be able to           6         Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Image: the students should be able to         Image: the students should be able to           1         Explain the theory underlying machine learning.         Image: thes	5				
Outcome       Inf sem       (B18CS16)       L.S 1:0 F:0         After the completion of this course, the students should be able to       1       Define Software Engineering and list core principles of software engineering and understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course         Vear / semester         Subject Name (Subject Code)       No. of Hours         1       Explain the theory underlying machine learning.       Credits:3         2       Learn beyond binary classification.       3         3       Recognize and implement various genetic algorithms.       No. of Hours         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Probabilistic Si 1:0 P:0         5       Able to analyze the data using R Programming.       Credits:3         6       LANGUAGES       L:3 T:0 P:0 <td>Course</td> <td>Year / semester</td> <td></td> <td>No. of Hours</td> <td>Credits:3</td>	Course	Year / semester		No. of Hours	Credits:3
After the completion of this course, the students should be able to         1       Define Software Engineering and list core principles of software engineering and understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         11       Explain the theory underlying machine learning.       2       Learn beyond binary classification.       3         3       Recognize and implement various genetic algorithms.       4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         4       Subject Name (Subject Code)       No. of Hours       Credits:3         1       Explain the theory underlying machine learning.       2       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.       4       Construct algorithms to learn tree, to lear	Outcome	III/I Sem		L:3 T:0 P:0	
understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester       Subject Name (Subject Code) (B18CS17)       No. of Hours (Credits:3)         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.       3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING L:3 T:0 P:0         5       Able to analyze the data using R Programming.       Credits:3         6       PRINCIPLES OF PROGRAMMING L:3 T:0 P:0       No. of Hours L:3 T:0 P:0         7       B18CS18)       After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attri	After the co	mpletion of this co			<u> </u>
understand various process models         2       Develop an understanding of software requirements and be able to prepare SRS document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester       Subject Name (Subject Code) (B18CS17)       No. of Hours (Credits:3)         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.       3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING L:3 T:0 P:0         5       Able to analyze the data using R Programming.       Credits:3         6       PRINCIPLES OF PROGRAMMING L:3 T:0 P:0       No. of Hours L:3 T:0 P:0         7       B18CS18)       After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attri	1	Define Software	Engineering and list core principles of s	oftware enginee	ring and
a       Inderstand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course         Year / semester         Subject Name (Subject Code)         Machine LEARNING       L:3 T:0 P:0         After the completion of this course, the students should be able to         1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         6       Coursee         9       PRINCIPLES OF PROGRAMMING LAGES (PROFESSIONAL ELECTIVE-I) (BISCSIS)         After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.				C	C
document.         3       Understand software design engineering process using structural and object oriented approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course         Year / semester       Subject Name (Subject Code) (B18CS17)         After the completion of this course, the students should be able to       1         1       Explain the theory underlying machine learning.       2         2       Learn beyond binary classification.       3         3       Recognize and implement various genetic algorithms.       4         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       5         5       Able to analyze the data using R Programming.       1:3 T:0 P:0         6       PRINCIPLES OF PROGRAMMING LAGGES (PROFESSIONAL ELECTIVE-I)       No. of Hours         9       PRINCIPLES OF PROGRAMMING LAGGES (PROFESSIONAL ELECTIVE-I)       1:3 T:0 P:0         4       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	2	Develop an und	erstanding of software requirements and	be able to prep	are SRS
approaches and be able to model.         4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course         Vear / semester         Subject Name (Subject Code)       No. of Hours         HI/I Sem       Subject Name (Subject Code)       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.       3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Subject Name (Subject Code)       No. of Hours       Credits:3         5       Able to analyze the data using R Programming.       Coelection of this course, the students should be able to       L:3 T:0 P:0       Credits:3         6       III/I Sem       Subject Name (Subject Code)       No. of Hours       Credits:3         5       Able to analyze the data using R Programming.       Credits:3       L:3 T:0 P:0       Credits:3         6       III/I Sem       Subject Name (Subject Cod		document.			
4       Differentiate the techniques of verification and validation in the process of software development, Apply the testing strategies on different level of implementation (unit, integration,)         5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course         Year / semester         Subject Name (Subject Code)         MACHINE LEARNING       L:3 T:0 P:0         Credits:3         Outcome       III/I Sem         MACHINE LEARNING       L:3 T:0 P:0         After the completion of this course, the students should be able to       I:3 T:0 P:0         1       Explain the theory underlying machine learning.       2         2       Learn beyond binary classification.       3         3       Recognize and implement various genetic algorithms.       4         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       5         5       Able to analyze the data using R Programming.       1:3 T:0 P:0         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         6       Able to analyze the data using R Programming.       1:3 T:0 P:0       III/I Sem       PRINCIPLES OF PROGRAMMING       L:3 T:0 P:0       I:3 T:0 P:0	3			tural and object	oriented
integration,)       5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester       Subject Name (Subject Code) MACHINE LEARNING B18CS17)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.       2         2       Learn beyond binary classification.       3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Probabilistic Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I)       No. of Hours L:3 T:0 P:0       Credits:3         4       Construct algorithms course, the students should be able to       1       1.3 T:0 P:0       Credits:3         5       Able to analyze the data using R Programming.       Credits:3       Credits:3       Credits:3         6       Macuna course, the students should be able to       1.3 T:0 P:0       Credits:3         7       After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	4	* *		n the process of	software
5       Understand and able to compute quality measures and develop a software quality assurance plan for a software development.         Course       Year / semester       Subject Name (Subject Code) MACHINE LEARNING (B18CS17)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.       2         2       Learn beyond binary classification.       3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       Probabilistic Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.		development, Ap	ply the testing strategies on different level	of implementati	on (unit,
Course       Year / semester       Subject Name (Subject Code) MACHINE LEARNING       No. of Hours       Credits:3         Outcome       III/I Sem       MACHINE LEARNING (B18CS17)       L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       L:3 T:0 P:0       L:3 T:0 P:0         1       Explain the theory underlying machine learning.       Learn beyond binary classification.       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.       For babilistic models       For babilistic models         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models       No. of Hours       Credits:3         5       Able to analyze the data using R Programming.       Credits:3       Credits:3         0utcome       III/I Sem       Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       No. of Hours       Credits:3         4       After the completion of this course, the students should be able to       L:3 T:0 P:0       III/I Sem         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.       I		integration,)			
Course Outcome         Year / semester III/I Sem         Subject Name (Subject Code) MACHINE LEARNING (B18CS17)         No. of Hours L:3 T:0 P:0         Credits:3           After the completion of this course, the students should be able to         1         Explain the theory underlying machine learning.         2         Learn beyond binary classification.         3         Recognize and implement various genetic algorithms.         4         Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5         Able to analyze the data using R Programming.         Credits:3         Credits:3           5         Able to analyze the data using R Programming.         No. of Hours         Credits:3           6         Vear / semester         Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)         No. of Hours         Credits:3           1         Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.         1         Analyze Syntax related concepts including context free grammars, Attribute Grammar	5	Understand and	able to compute quality measures and de	velop a softwar	e quality
Outcome       III/I Sem       MACHINE LEARNING (B18CS17)       L:3 T:0 P:0         After the completion of this course, the students should be able to <ol> <li>Explain the theory underlying machine learning.</li> <li>Learn beyond binary classification.</li> <li>Learn beyond binary classification.</li> <li>Recognize and implement various genetic algorithms.</li> <li>Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models</li> <li>Able to analyze the data using R Programming.</li> <li>Course Outcome</li> <li>Year / semester Outcome</li> <li>Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)</li> </ol> <li>After the completion of this course, the students should be able to         <ol> <li>Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.</li> </ol> </li>		assurance plan fo	r a software development.		
Outcome       II/I Sem       (B18CS17)       L:3 1:0 P:0         After the completion of this course, the students should be able to       1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.       3         3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         PRINCIPLES OF PROGRAMMING       L:3 T:0 P:0         Limit Sem       LanguAGES         (PROFESSIONAL ELECTIVE-I)       B18CS18)         After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	Course	Year / semester		No. of Hours	Credits:3
After the completion of this course, the students should be able to         1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         Course         Year / semester       Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       No. of Hours       Credits:3         After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	Outcome	III/I Sem		L:3 T:0 P:0	
1       Explain the theory underlying machine learning.         2       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         PRINCIPLES OF PROGRAMMING       L:3 T:0 P:0         Credits:3       (PROFESSIONAL ELECTIVE-I)         B18/CS18)       B18/CS18)	After the c	ompletion of this (			<u> </u>
2       Learn beyond binary classification.         3       Recognize and implement various genetic algorithms.         4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         PRINCIPLES OF PROGRAMMING       L:3 T:0 P:0         III/I Sem       PRINCIPLES OF PROGRAMMING         LANGUAGES       (PROFESSIONAL ELECTIVE-I)         (B18CS18)       B18CS18)					
4       Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models         5       Able to analyze the data using R Programming.         Course       Year / semester         Bubject Name (Subject Code)       No. of Hours         PRINCIPLES OF PROGRAMMING       L:3 T:0 P:0         LANGUAGES       (PROFESSIONAL ELECTIVE-I)         (B18CS18)       Rest of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	2				
models       Subject Name (Subject Code)       No. of Hours       Credits:3         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       L:3 T:0 P:0       Credits:3         Outcome       III/I Sem       PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.       Free grammars, Attribute Grammar	3	Recognize and in	plement various genetic algorithms.		
Course Outcome       Year / semester III/I Sem       Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	4	Ū	hms to learn tree, to learn linear, non-lin	near models and	d Probabilistic
Outcome       III/I Sem       PRINCIPLES OF PROGRAMMING LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	5	Able to analyze t	he data using R Programming.		
Cutcome       Infriend       LANGUAGES (PROFESSIONAL ELECTIVE-I) (B18CS18)       L.S F.OFTO         After the completion of this course, the students should be able to       1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	Course	Year / semester		No. of Hours	Credits:3
(PROFESSIONAL ELECTIVE-I) (B18CS18)         After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.	Outcome	III/I Sem		L:3 T:0 P:0	
(B18CS18)         After the completion of this course, the students should be able to         1       Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.					
Analyze Syntax related concepts including context free grammars, Attribute Grammar parse trees.			(B18CS18)		
parse trees.		-	•		
2 Perceive the semantic issues associated with function implementations.	-		elated concepts including context free gran	nmars, Attribute	Grammar
	2	Perceive the sema	antic issues associated with function impler	nentations.	

3		epts of Abstraction and Encapsulation cons	structs of classes	, interfaces,
		ous Language Examples.		
4 5	Perceive the impl Compare the Fun	ementation of object oriented languages. ctional Programming Languages and Logic	Programming I	Languages.
Course		Subject Name (Subject Code)	No. of Hours	Credits:3
		COMPUTER GRAPHICS		Creatis.5
Outcome	III/I Sem	(PROFESSIONAL ELECTIVE-I) (B18CS19)	L:3 T:0 P:0	
	-	ourse, the students should be able to		
		applications areas of Computer Graphics, C		
	performing geom Hours L:array pa		curves, filled ar	ea, celNo. of
3		ous surface functions such as quadrics, poly objects and 3-Dimensions transformations		
		portance of viewing. Learn major consider lisplays, detecting visible surfaces in a 3-D ces.		
5		cations of computer Graphics. Analyze the	fundamentals of	animations
Course		Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III/I Sem	MOBILE APPLICATION	L:3 T:0 P:0	Ci cuitoro
Outcome	III/I Selli	DEVELOPMENT		
		(PROFESSIONAL ELECTIVE-I)		
		(B18CS20)		
After the co	mpletion of this co	ourse, the students should be able to		
1	Student understand	s the working of Android OS Practically.		
2		e and select appropriate solutions to the mo	bile computing	platform.
3		o the user interface.	i	
4	Ability to work w	vith SQLITE DB.		
5	Student will be abl	e to develop, deploy and maintain the Android	Applications.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III/I Sem	INTELLECTUAL PROPERTY RIGHTS	L:3 T:0 P:0	
		(OPEN ELECTIVE-I) (B18MB06)		
After the co	mpletion of this co	ourse, the students should be able to		
1	Understand the le	gal rights related to design, trade and unfai	r competition.	
2	Ability to apply a	nd assess principles in intellectual property	·	
3	Discuss the real t	ime areas related to semiconductor chip pro	otection act.	
4	Develop different	t law of patents.		
5	-	ecret and apply state law and trade secret la	W.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III/I Sem	DISASTER MANAGEMENT	L:3 T:0 P:0	
		(OPEN ELECTIVE-I)		
		(B18CE53)		
After the co	ompletion of this co	ourse, the students should be able to		
1	Perceive the vario	ous types of disaster.		
2		bus types of Hazards and Vulnerability.		
		t approaches of disaster risk reduction.		
4	Describe the disa	ster management and safety plan.		

5	Discuss the vario	us disaster risks in India.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III/I Sem	MANAGEMENT SCIENCE	L:3 T:0 P:0			
		(OPEN ELECTIVE –I)				
A (0) 17		(B18MB02)				
After the co	-	ourse, the students should be able to				
1		mentals of management and contributions t	-			
2		Responsibilities of an organization toward				
	-	able organization structure and to identify factors influencing plant location and layout				
	decisions.					
3	-	ow importance of materials management, evaluate quality of products using SQC				
	-	Identify the basic concepts of marketing	mix and Hum	an Resource		
	concepts.					
4		T and CPM different and to construct		per planning		
5		naging the efforts to accomplish a successful emporary management practices and analyz		tomporary		
	management prac	tices one applicable in modern business an	d service organiz	zations.		
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5		
Outcome	III/I Sem	COMPUTER NETWORKS AND COMPILER DESIGN LAB (B18CS21)	L:0 T:0 P:3			
After the co	mpletion of this co	ourse, the students should be able to				
1	Create any topolo	bgy using network devices and build a device	ce for sharing on	network.		
2		r software and hardware technologies used				
3	Demonstrate a wo	orking process of lexical analysis, parsing a	nd other compile	er design		
	aspects.		<u> </u>			
4		king of lex and yacc compiler for debugging				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5		
Outcome	III/I Sem	MACHINE LEARNING LAB (B18CS22)	L:0 T:0 P:3			
After the co	mpletion of this co	ourse the students should be able to :				
1	Discuss different	application on Machine Learning problems	5.			
2		algorithms on Machine Learning mentionir	ng its strengths a	nd		
	weaknesses.					
3		ormance of Machine Learning algorithms w	vith different			
4	parameters.	test issues missed by summent messenthems				
		test issues raised by current researchers.	NI CII			
Course		Subject Name (Subject Code) INDIAN CONSTITUTION	No. of Hours	Credits:0		
Outcome	III/I Sem	(B18MC04)	L:2 T:0 P:0			
After the co	mpletion of this co	ourse, the students should be able to				
1	Demonstrate the	fundamental rights and duties of a citizen				
2	Classify the admi	nistrative structure of the Indian union				
3	Identify the powe	r of state government and make use of posi	tions			
4	Categorize the va	rious department and local administrations	responsibilities			
5		Functions of election commission and its roles				
Course	Voor/somostor	Subject Name (Subject Code)	No. of Hours	Credits:3		
		NETWORK PROGRAMMING (B18CS23)		Creans:3		
Outcome	III/II Sem		L:3 T:0 P:0			
After the co	mpletion of this co	ourse, the students should be able to				

1	Demonstrate adv	anced knowledge of OSI layers, TCP & UI	P concepts Net	working	
2				working.	
3	Summarize the TCP socket functions and Byte Ordering. Make use of TCP client server applications and analyze I/O Multiplexing and socket				
5	options.				
4	· •	Elementary UDP sockets and Address conv	versions		
5		cess communication consisting of pipes, I		ores Message	
-		ote Procedure Calls	n Os, Bennaphe	ics, message	
Course		Subject Name (Subject Code)	No. of Hours	Credits:3	
	III/II Sem	SOFTWARE TESTING (B18CS24)	L:3 T:0 P:0	Creatiste	
Outcome	III/II Sem		L:3 1:0 P:0		
After the co	ompletion of this co	ourse, the students should be able to			
1	Design test cases	suitable for a software development for dif	ferent domains.		
2	Prepare test plan	ning based on the document.			
3	Identify suitable	tests to be carried out.			
	_				
4		and test cases designed.			
5	Use of automatic	testing tools.	1	1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	DATA WAREHOUSING AND DATA	L:3 T:0 P:0		
		MINING (B18CS25)			
A ft on the o	ammlation of this	anne the students should be able to			
		course, the students should be able to	- <b>C</b> 1- (		
$\frac{1}{2}$		ning concepts and develops understanding			
2		rstanding of data warehouse, designing and	using data in da	ita warenouse	
3	using various ope		nila minina mati	and their	
5	_	ok of Association rule mining, association i me sample data sets, evaluate these method	-		
4		standing of classification and prediction, cl			
т		me sample data sets, evaluate these method			
5		ual understanding of clustering, various			
		me sample data sets, evaluate these method			
Course		Subject Name (Subject Code)	No. of Hours	Credits:3	
		WEB SERVICES (B18CS26)		Creatis.5	
Outcome	III/II Sem		L:3 T:0 P:0		
After the c	completion of this o	course, the students should be able to			
1	1 -	service client and server with interoperable	systems like co	re distributed	
	-	, SOA, WSDL, UDDI and EBXML	2		
2		yze the principles of SOAP.			
3		ement Web Services life cycle, Anatomy of	f WSDL definiti	on document.	
	ļ				
4		e semantics of web services. Working wi	th UDDI, progr	amming with	
~	UDDI, UDDI dat		~~ ····· 1		
5	Explore interoper that use web serv	ability between different frameworks. Desi	gn web based aj	oplications	
Course			No. of Hours	Credits:3	
Course		Subject Name (Subject Code) ADVANCED DATABASE		Creans:3	
Outcome	III/II Sem	MANAGEMENT SYSTEMS	L:3 T:0 P:0		
		(PROFESSIONAL ELECTIVE-II)			
		(B18CS27)			
				1	
		course, the students should be able to	A 1.		
1		Languages, Models along with Client Serve	er Architecture.		
2	Explain principle	s of Database Recovery protocols.			

3	Construct EER m	odel for real world problems.		
4 5	Determine variou	s database security issues. aced Data models and its applications.		
Course Outcome	-	Subject Name (Subject Code) DESIGN PATTERNS (PROFESSIONAL ELECTIVE-II) (B18CS28)	No. of Hours L:3 T:0 P:0	Credits:3
After the co	mpletion of this co	ourse, the students should be able to		•
	-	opriate design patterns to solve object orien	ted design probl	ems.
2	Identify and imp consulting techni and existing sour	cal documentation and specifications, incl ce code.	g programming uding design pa	problems by
3	Understand basic	elements of structural patterns and their in	plementation.	
4	Understand basic	elements of creational patterns and their in	nplementations.	
5	Understand basic	elements of behavioral patterns and their in d of using design patterns.		llong with
Course Outcome	Year / semester III/II Sem	Subject Name (Subject Code) OPEN SOURCE SOFTWARE (PROFESSIONAL ELECTIVE-II) (B18CS29)	No. of Hours L:3 T:0 P:0	Credits:3
After the co	mpletion of this co	ourse, the students should be able to	L	
-	_	en-source operating systems.		
	*	on about free and open source software pr	ojects from soft	ware releases
3		one or more free and open source software	e packages.	
4	Ability to learn v development com	ersion control system and interface with ve	rsion control sys	stems used by
5		are to and interact with free and open s	source software	development
Course Outcome	Year / semester III/I Sem	Subject Name (Subject Code) AIR POLLUTION CONTROL (OPEN ELECTIVE – II) (B18CE52)	No. of Hours L:3 T:0 P:0	Credits:3
After the c	ompletion of this a	course, the students should be able to	<u> </u>	
	Perceive Air poll			
2	Analyze the Effe	cts of air pollution on the environment. ficance of meteorological factors in polluta	nt dispersion and	d to predict
4	1	persion modelling and assess the concentrat	ions.	
5		ity monitoring devices.	1	
Course	Year / semester III/II Sem	Subject Name (Subject Code) BIOMEDICAL INSTRUMENTAION	No. of Hours L:3 T:0 P:0	Credits:3
Outcome	111/11 50111	(OPEN ELECTIVE – II) (B18EC23)		
After the c	ompletion of this o	course, the students should be able to		
	Understand the fusignals.	unctions of bio amplifiers, characteristics of	f medical instrur	nents and bio
	0	us internal, external Bio electrodes and relation of heart.	tions between el	lectrical and
3		concepts of Cardiac Instrumentation and g	ain the knowled	ge about
4	Analyze the Ther	apeutic Equipment and their operation.		

5	Acquires knowledge about neuro-muscular Instrumentation like ECG EMG and EEG.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	DIGITAL IMAGE PROCESSING	L:3 T:0 P:0		
		(OPEN ELECTIVE – II) (B18EC24)			
After the c	completion of this o	course, the students should be able to			
		lge of digital image fundamentals and imag	e transforms.		
2		resis of image enhancement in spatial and free			
3		ifferent methods to restore an image.	<i>quency commun</i>		
		C C			
	processing.	image segmentation techniques and underst	and morphologi	cal image	
5	Analyze the diffe	rent image compression techniques.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	III/II Sem	ADVANCED ENGLISH	L:0 T:0 P:3		
		COMMUNICATION SKILLS LAB			
		(B18EN03)			
	-	course, the students should be able to	11		
2	10	vely and appropriate vocabulary to be used con r Writing and felicity in written expression.	textually		
	Enhancing job pro				
C	Linianenig joo pro				
4	Acquiring effective	e speaking abilities			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	III/II Sem	NETWORK PROGRAMMING LAB	L:0 T:0 P:3		
		(B18CS30)			
After the c	ompletion of this o	course, the students should be able to			
		INIX commands, shell scripts and AWK scr	ripts.		
		nipulate files and directories.			
		UDP client server applications and outline t	he I/O multiplex	ting concepts	
	of Select and Pol			1	
4	message Queues	ess communication consisting of pipes, FIF and develop RPC applications.	Os, Semaphores	and	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	III/II Sem	DATAMINING AND SE LAB (B18CS31)	L:0 T:0 P:3		
A ftor the c	completion of this (	course, the students should be able to			
	_	of data warehouse and implement OLAP of	nerations		
		For data mining task such as association rule	*	cation and	
	1	few algorithms from the respective task.	inining, clussifi	cution and	
3		ng using WEKA and apply classification us	sing Naive baves	s technique.	
	_				
4		ence and/or awareness of testing problems a	nd will be able t	o develop a	
	simple testing rep	port.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0	
Outcome	III/II Sem	LOGICAL REASONING &	L:2 T:0 P:0		
		QUANTITATIVE APTITUDE (B18MC05)			
After the c	ompletion of this a	course, the students should be able to			
	_	re reasoning and mathematical analysis met	hodologies to un	derstand and	
	solve problems.	e reasoning and matientatical analysis met	incurrence to un		
		formation correctly, determine which mathe	ematical model b	pest	
	describes the data				

3	<b>C</b> (1 1		• .1 •	1 1 •		
3	Correctly apply mathematical language and notation to explain the reasoning underlying their conclusions					
4	Improve their mathematical skills in various general aspects to solve real world problems.					
5	Ability to draw conclusions or make decisions based on logical reasoning and mathematical ability.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV/I Sem	NETWORK SECURITY &	L:3 T:0 P:0			
Outcome	I V/I Dem	CRYPTOGRAPHY	2.5 1.01.0			
		(B18CS32)				
	1	course, the students should be able to				
1	Identifies various types of vulnerabilities, attacks, mechanisms and security services.					
2		trast symmetric and asymmetric encryption	-			
3	±	of message authentication, hashing algorithm	ns and able to			
	understand kerbe					
4	E-mailsecurity.	ks and controls associated with IP, transpor				
5	-	n detection system, solutions for wireless ne	etworks and			
	designing ofvario	ous types of firewalls.	1	1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV/I Sem	MANAGEMENT AND	L:3 T:0 P:0			
		ORGANISATIONAL BEHAVIOR				
		(B18MB04)				
After the c	-	course, the students should be able to				
1		agement and contribution of Management				
2	The relevance of	environmental scanning, planning and to ta	ke decisions.			
3	Organizing and c	ontrolling.				
4	Individual and gr	oup Behaviour.				
5	Leadership and N	Iotivation.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV/I Sem	CLOUD COMPUTING	L:3 T:0 P:0			
Outcome	I V/I Sem	(PROFESSIONAL ELECTIVE-III)	1.01.0			
		(B18CS33)				
After the c	completion of this of	course, the students should be able to				
1		n concepts, key technologies of virtualization				
2	Describe the arcl of cloudand depl	nitecture and infrastructure of cloud computed optimized optimized and the second se	iting with all se	rvices		
3		es of cloud computing like cloud security. E	Explain the core	issues		
		ng such as security and privacy				
4		s; analyze various cloud computing solution	ns using python.			
		sive case studies by analyzing different clou				
	solutions		1 0			
5	Perceive the virt	ualization and cloud computing concepts.	Develon scalab	le		
	applicationsusing	g AWS.	-			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV/I Sem	INFORMATION SYSTEMS AND	L:3 T:0 P:0			
		AUDITING (PROFESSIONAL				
		ELECTIVE-III) (B18CS34)				
After the c	completion of this	course, the students should be able to				
	Recognize the pr	opensity of errors and remedies in processes	s involving			
2	InformationTech					
2	A consummate k	nowledge of risks and controls in IT operati	ons in Industry.			

3	Apply the information systems auditing methodology. Identify and manage the security controls.					
4	Provide protective IT security guidelines for various types of Industries. Analyze thecurrent issues in auditing					
5	The necessary wherewithal to become an IS Auditor and/or Security specialist eventually. Evaluate asset safeguarding and data integrity, system effectiveness and system efficiency.					
Course Outcome		Subject Name (Subject Code) ARTIFICIAL INTELLIGENCE	No. of Hours L:3 T:0 P:0	Credits:3		
		(PROFESSIONAL ELECTIVE-III) (B18CS35)				
After the c	completion of this c	course, the students should be able to				
1	Remember variou underlyingassum	as AI concepts like the AI technique, level options etc.	of model, there			
2	Perceive the conc methods	epts of AI search techniques. Solve various	s problems by ap	ply in search		
3		Representation techniques. Analyze different	ent structures of			
4	representation.					
4 5		h techniques. Analyze different Planning T	echniques			
	Create Expert sys					
Course	Year / semester	Subject Name (Subject Code) SOFT COMPUTING	No. of Hours	Credits:3		
Outcome	IV/I Sem	(PROFESSIONAL ELECTIVE-IV) (B18CS36)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1	Learn basics of ar	tificial neural network and soft computing t	techniques.			
2		supervised learning networks and training	algorithms of va	arious		
3	Associativememo	•	4.1			
	networks, Specia	rithms for pattern association unsupervised lnetworks.	a learning			
4		mappings in fuzzy sets. Interpret the Sco ceive defuzzification methods and discussion	1	1		
5	Analyze and con	nprehends the concepts and applications o puting techniques for problem solving	f genetic algorit	hms,		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV/I Sem	BUSINESS INTELLIGENCE AND BIG DATA(PROFESSIONAL ELECTIVE-IV) (B18CS37)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1	_	lations, definitions and capabilities of Bigda	ata.			
2		ns, concepts, architectures and challenges ir itions, concepts, and enabling technologies	0			
3		epts on Handoop Ecosystem in Big data.				
4	Analyze the Map	reduce programming in Big data Analytics				
5		big data technologies in business inter- ocation-based analytics, social networking,				
Course Outcome		Subject Name (Subject Code) SOFTWARE PROJECT MANAGEMENT (PROFESSIONAL ELECTIVE-IV) (B18CS38)	No. of Hours L:3 T:0 P:0	Credits:3		

After the c	completion of this o	course, the students should be able to					
1	Gain knowledge	of software economics, phases in the	e life cycle of	software			
	development, pro	ject organization, and project control and p	rocess instrumer	ntation.			
2		vare economics, software development li					
		ws, checkpoints, project organization and	•				
		ess instrumentation.	1	× 1 5			
3		hoose the right software development approach. Compare various project					
	organizations and		ompane (alloa	project			
4		or and minor milestones, artifacts and met	rics for manage	ment and			
	technical perspec	,	ines for manage	und und			
5		product using conventional and modern prir	nciples of softwa	re project			
	management.			lie project			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
		NANO TECHNOLOGY		Creats.5			
Outcome	IV/I Sem	(OPEN ELECTIVE-III)	L:3 T:0 P:0				
		(B18ME25)					
After the c	completion of this o	course, the students should be able to					
1		ance of nano scale, types and their properti-	65				
2				finamanta			
$\frac{2}{3}$		mechanical phenomenon in two and three of	unnensional con	mements.			
3	Understand the aj	pplications of carbon nano structures.					
4	Differentiete non	a sale characterization techniques					
5		o scale characterization techniques.					
		devices and other devices.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	IV/I Sem	ENTREPRENEURSHIP DEVELOPMENT	L:3 T:0 P:0				
		(OPEN ELECTIVE-III) (B18MB03)					
After the c	ompletion of this a	course, the students should be able to	I				
-				1 •			
1	Define the nature and Qualities of Entrepreneur and relate to types of ownership.						
1				nip.			
2	What are risk Rec	duction, market scope and Imitation strategi	es.	nıp.			
	What are risk Rec Explain the legal	luction, market scope and Imitation strategi regulations system and IPRs and summarized	es.	nip.			
2 3	What are risk Rec Explain the legal finance fromdiffe	duction, market scope and Imitation strategi regulations system and IPRs and summariz- erent institutions.	es. e the source of	<u>nıp.</u>			
2 3 4	What are risk Rec Explain the legal finance fromdiffe Identify the needs	duction, market scope and Imitation strategi regulations system and IPRs and summariz- erent institutions. s of business ethics and develop the principl	es. e the source of es.	nıp.			
2 3	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principles of corporate governance and interpret the	es. e the source of les. guidelines.				
2 3 4	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue	duction, market scope and Imitation strategi regulations system and IPRs and summariz- erent institutions. s of business ethics and develop the principl	es. e the source of les. guidelines.				
2 3 4	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecond	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principles of corporate governance and interpret the	es. e the source of les. guidelines.				
2 3 4 5 <b>Course</b>	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecone Year / semester	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principle es of corporate governance and interpret the cept of social responsibility and improve pr	es. e the source of es. guidelines. ofessional ethics <b>No. of Hours</b>	5. I			
2 3 4 5 <b>Course</b>	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecond	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principl es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code)	es. e the source of es. guidelines. ofessional ethics	5. I			
2 3 4 5 <b>Course</b>	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecone Year / semester	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principl es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS	es. e the source of es. guidelines. ofessional ethics <b>No. of Hours</b>	5. I			
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2 3 4 5 <b>Course</b> <b>Outcome</b> After the c 1 2 3	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecone Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the co Demonstrate Soft Classify the diffe	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principl es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and complete architecture of 8051 and Advanced	es. e the source of es. guidelines. ofessional ethics <b>No. of Hours</b> L:3 T:0 P:0 d the metrics or Processor. and High Level I	challenges i			
2 3 4 5 <b>Course</b> <b>Outcome</b> After the c 1 2 3	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecone Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the co Demonstrate Soft Classify the diffe WindowsCE.	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principle es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and complete architecture of 8051 and Advanced tware programming in Assembly language a rent Real Time Operating System (RTOS),	es. e the source of ess. guidelines. ofessional ethics No. of Hours L:3 T:0 P:0 d the metrics or Processor. and High Level I RTOS Vx Work	challenges i Language.			
2 3 4 5 <b>Course</b> <b>Outcome</b> 1 2 3 4	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecond Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the co Demonstrate Soft Classify the diffe WindowsCE. Understand the E	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principle es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and complete architecture of 8051 and Advanced tware programming in Assembly language a rent Real Time Operating System (RTOS), mbedded Software Development Process and	es. e the source of es. guidelines. ofessional ethics <b>No. of Hours</b> <b>L:3 T:0 P:0</b> d the metrics or of Processor. and High Level I RTOS Vx Work	challenges i Language.			
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2 3 4 5 Course Outcome After the c 1 2 3 4 5	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecome Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the co Demonstrate Soft Classify the differ WindowsCE. Understand the E testing onTesting	duction, market scope and Imitation strategi regulations system and IPRs and summariz- erent institutions. s of business ethics and develop the principl es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and omplete architecture of 8051 and Advanced tware programming in Assembly language a rent Real Time Operating System (RTOS), mbedded Software Development Process and on Host Machine, Simulators, Laboratory	es. e the source of ess. guidelines. ofessional ethics <b>No. of Hours</b> L:3 T:0 P:0 d the metrics or Processor. and High Level I RTOS Vx Work nd Tools and Per Tools	challenges i Language.			
2 3 4 5 <b>Course</b> <b>Outcome</b> After the c 1 2 3 4	What are risk Rec Explain the legal finance fromdiffe Identify the needs Evaluate the issue Elaborate thecome Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the co Demonstrate Soft Classify the differ WindowsCE. Understand the E testing onTesting	duction, market scope and Imitation strategi regulations system and IPRs and summarize erent institutions. s of business ethics and develop the principle es of corporate governance and interpret the cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and complete architecture of 8051 and Advanced tware programming in Assembly language a rent Real Time Operating System (RTOS), mbedded Software Development Process and	es. e the source of es. guidelines. ofessional ethics <b>No. of Hours</b> <b>L:3 T:0 P:0</b> d the metrics or of Processor. and High Level I RTOS Vx Work	challenges i Language.			

After the c	completion of this c	course, the students should be able to				
1	Perceive, plan and execute a mini project as an individual or in a team in development of mini project.					
2	Prepare a technical report based on the Mini project.					
3	As a team student can organize, record and compile their work done throughout the projectin an efficient manner.					
4	1 0	communication skills for presentation of n	nini project relat	ed activities.		
5	•	nical seminar based on the Mini Project wo		1		
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) NETWORK SECURITY & CRYPTOGRAPHY LAB (B18CS39)	No. of Hours L:0 T:0 P:3	Credits:1.5		
After the c	completion of this c	course, the students should be able to				
1	Implement the cip	oher techniques.				
2	· · ·	natical foundation required for various cryp	tographic algori	thms.		
3	Develop the vario	bus security algorithms.				
4	Use different oper	n source tools for network security and anal	lysis.			
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE – I (B18CS47)	No. of Hours L:0 T:0 P:8	Credits:4		
After the c	completion of this c	course, the students should be able to				
1	Uses fundamenta project.	l knowledge and skills in engineering and a	pply it effective	ly on a		
2	Apply knowledge	of the 'real world' situations that a profess	sional engineer c	an encounter		
5	Apply critical and Networkingprojec	l creative thinking in the design of software cts.	, Hardware and			
4	As a team student projectin an effici	can organise, record and compile their workent manner.	rk done through	out the		
5	Manage any dispu	utes and conflicts within and outside their te	eam.			
6		und technical knowledge of their selected p				
7	Demonstrate the l	knowledge, skills and attitudes of a professi	onal engineer.			
8	Summarize an appropriate list of literature review, analyse previous work and relate them					
	tocurrent project.					
Course	Year / semester	Subject Name (Subject Code) HUMAN VALUES AND	No. of Hours	Credits:0		
Outcome	IV/I Sem	PROFESSIONAL ETHICS (B18MC09)	L:2 T:0 P:0			
After the o	completion of this c	course, the students should be able to				
1		ortance of ethics and values in life and socie	ety.			
2		sponsibility and mould them as best profess				
3		ion and achieve harmony in life.				
4	Provide a critical	perspective on the socialization of men and	women.			
5	Perceive the impo	ortant issues related to gender in contempor	ary India.			

				r – – – – – – – – – – – – – – – – – – –
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV/II Sem	INTERNET OF THINGS (IoT) (PROFESSIONAL ELECTIVE-V)	L:3 T:0 P:0	
		(B18CS40)		
After the c	completion of this c	ourse, the students should be able to		
1	Interpret the visio	n of IoT from global context.		
2	Perceive building	blocks of Internet of Things and its charact	teristics.	
3	Learn the basic co	oncepts of Python. Implement the python pr	ogramming usir	g Raspberry.
	Perceive the appli Cloud & Sensor N	cation areas of IoT. Realize the revolution vertices	of Internet in Mo	bile Devices,
5	Determine the M servers for IoT.	arket perspective of IoT. Develop Pythor	n web applicatio	ons and cloud
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV/II Sem	ADVANCED OPERATING SYSTEMS	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-V) (B18CS41)		
After the c	completion of this c	ourse, the students should be able to	I	1
1	Discuss the variou	is synchronization, scheduling and memory	v management is	sues
	demonstrate the N			
2	Deadlock detection	on and agreement protocols of Distributed of	perating system	
3		is resource management techniques for dis	* * *	
		as resource management teeninques for uns	unduced systems	
4	Identify the differ	ent features of real time and mobile operati	ng systems	
5	Install and use ava	ailable open source kernel. Modify existing	open source kei	mels in terms
	of functionality or	features used		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV/II Sem	PYTHON PROGRAMMING (PROFESSIONAL ELECTIVE-V) (B18CS42)	L:3 T:0 P:0	
After the c	completion of this c	ourse, the students should be able to	ł	
- 1		ute by hand simple Python programs.		
2		Python programs and decomposing program	n into functions.	
3		und data using Python lists, tuples, dictiona		
4	Read and write da	ta from/to files in Python Programs.		
5	To build software	for real needs.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV/II Sem	CYBER SECURITY& HACKING (PROFESSIONAL ELECTIVE-VI) (B18CS43)	L:3 T:0 P:0	
After the c	completion of this c	ourse, the students should be able to	1	
1	-	and concepts in cyber law, intellectual pro	perty and cyber	crimes.
2		rabilities, threats and cybercrimes posed by		
2	•	ecurity challenges phased by mobile device		
4	Identify various t	ypes of tools and methods used in cybercrit	me, develops the	e secure
		o maintain security protection.		secure
5		er security risk management policies in o	order to adequa	elv protect
			nuer to adequa	ery protect
	anorganization's c	critical information and assets.		

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV/II Sem	SERVICE ORIENTED ARCHITECTURE	L:3 T:0 P:0		
		(PROFESSIONAL ELECTIVE-VI)			
		(B18CS44)			
After the c	completion of this o	course, the students should be able to			
1	Design various s	ervice layers			
2	Ŭ	ndidate derived from existing business docu	mentation.		
3	Design the compo				
4		n services for technology abstraction.			
5	Principles of Serv				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV/II Sem	INFORMATION RETRIEVAL SYSTEMS (PROFESSIONAL ELECTIVE-VI)	L:3 T:0 P:0		
		(B18CS45)			
After the o	completion of this o	course, the students should be able to			
1		ace model, understand various similarity coe	efficient and me	asures.	
2	-	erstanding on Relevance feedback, , Cluster			
	Analysis, Thesaur		6, 6		
3	Apply various Re	trieval Utilities for Information Retrieval.			
4	Develop an Unde	rstanding about Signature files, Duplicate d	ocument detection	on.	
5		es to locate relevant information large colle			
Course		Subject Name (Subject Code)	No. of Hours	Credits:1	
Outcome	IV/II Sem	TECHNICAL SEMINAR	L:0 T:0 P:2	Ci cui bii	
Outcome	IV/II Selli	(B18CS48)	L.0 1.0 1.2		
After the c	completion of this o	course, the students should be able to			
1	Identifies, unders	tand and discuss current, real -world issues.			
2	Explain the role of	f self-efficacy, personal goals, and motivation	on in improving	academic	
	life	i sen enneaey, personar goars, and motivati	on in improving	acadenne	
3			<u> </u>	1 1 6 6	
	Describe the beha	aviours and characteristics of an effective lea	arner. Gain know	wledge of fast	
	and rapidly chang	ging by self learning			
4	Practice finding r	elevant course material on the Internet and	incorporate them	n in their	
	C C		incorporate then		
	courses. Develop	articles and presentation skills			
5	Develop the inter	personal skills, soft skills and creativity. Pre	esent features of	the	
	developedproject to the targeted group through written and oral communication.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:8	
Outcome	IV/II Sem	MAJOR PROJECT PHASE –II	L:0 T:0		
outcome		(B18CS49)			
			<b>P:16</b>		
After the c	completion of this o	course, the students should be able to			
1	Uses fundamenta project.	l knowledge and skills in engineering and a	pply it effectivel	y on a	
2		of the 'real world' situations that a profess	ional engineer o	an encounter	
3					
	Apply critical and	l creative thinking in the design of software,	, Hardware and I	Networking	
	projects.				

4	As a team student can organize, record and compile their work done throughout the
	projectin an efficient manner.
5	Manage any disputes and conflicts within and outside their team.
6	Demonstrate a sound technical knowledge of their selected project topic.
7	Demonstrate the knowledge, skills and attitudes of a professional engineer.
8	Summarize an appropriate list of literature review, analyze previous work and relate them
	tocurrent project.

## COURSE OUTCOMES FOR M.TECH-CSE R18 FOR THE YEAR 2018-2020

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3				
Outcome	I Sem	Data Structures and Algorithms(M18CS01)	L:3 T:0 P:0					
On successf	ful completion of th	nis course, students will be able to:						
1		Define knowledge basic on data structures to store and retrieve an ordered or unordered data. Such as, arrays, linked lists, trees, heaps, and hash tables.						
2		e on applications of data structures having the a on as create, insert, delete, search, and sorting.	ability to impleme	ent algorithms				
3		nd to compare efficiency of an algorithm.						
4	Understand the bas	sic concepts of latest techniques.						
5	Ability to have con	cepts on tree and graphs.						
6	Implement various various operations.	projects on these data structures and plan B-Tr	ees to implement	different				
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) Distributed Systems(M18CS02)	No. of Hours L:3 T:0 P:0	Credits:3				
On success	sful completion o	f this course, students are able to:						
1	-	system design and its properties.						
2		underlined along with its functionality.						
3	· · · · · ·	ms and challenges with these principles.						
4		iveness and shortcomings for solutions.						
5	· · · ·	bles that are based on these contemporary distri	buted systems.					
6	<b>^</b>	on software design to identify the features.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3				
Outcome	I Sem	Internet of Things(M18CS03)	L:3 T:0 P:0					
	-	course, the students should be able to						
1	Describe the basic	terminology, latest technology along with its ap	oplications.					
2	Discuss the protoco	ols based on the concepts such as machine to m	achine.					
3	Illustrate the IOT	devices using Python Scripting Language.						
4	Develop an application with Raspberry PI platform which can be widely used in many applications of IoT devices.							
	Implement it widely that can be used in many applications of IoT devices.							
5	implement it widel	Design a web application framework on REST ful web API.						
5	-							
6	-	ication framework on REST ful web API.	No. of Hours	Credits: 3				
	Design a web appli		No. of Hours L:3 T:0 P:0	Credits: 3				
6 Course	Design a web appli Year / semester I Sem	ication framework on REST ful web API. Subject Name (Subject Code)		Credits: 3				

3	Illustrate the basic theory focused on Machine Learning
4	Improve the performance of Machine Learning algorithms with different parameters.
5	Analyze current research papers
6	Understand the latest issues raised by current researchers

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3				
Outcome	I Sem	Cloud Computing(M18CS05)	L:3 T:0 P:0					
On successf		is course, students will be able to:						
1	Discuss main conce	epts, key strengths, and limitations for cloud co	omputing.					
2		Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.						
3	Explain the issues of	on cloud computing along with security, privac	cy, and interoperat	oility.				
4	Choose and use the	e appropriate technology, methods on these issu	ues.					
5	• •	and explain, analyze, and evaluate various clo		itions.				
6	Provide the approp	priate solutions on cloud computing based on the	he application.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3				
Outcome	I Sem	Data Science(M18CS06)	L:3 T:0 P:0					
On success	sful completion of	f this course, students are able to:	•					
1	Describe a Data Sc	ience, skill sets available for a data scientist.						
2		Statistical Inference, its significance to explore	data analysis.					
3	Understand Data S	cience Process and its components interact						
4	Adapt APIs tools to	o understand the Web data.						
5	Illustrate EDA and	the Data Science as a case study.						
6	Plan a effective vis	ualization on given data.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3				
Outcome	I Sem	Advanced Wireless and Mobile Networks(M18CS07)	L:3 T:0 P:0					
After the o	completion of this o	course, the students should be able to						
1	Discuss the state-of	f-the-art in network protocols, architectures an	d applications					
2	Analyze existing network protocols and networks.							
3	Develop new proto	cols on networking						
4	Describe novel idea	as in the area of Networking via term-long rese	earch projects.					
5	Implement various	protocols on localization Methods.						
6	Design a real time	applications on RFID.						

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	I Sem	Scripting Languages(M18CS08)	L:3 T:0 P:0				
1	Explain scripting	as well as contributions on scripting language	s.				
2	Discuss Python o	Discuss Python on regard as the object-oriented concepts,					
3	Design the different built-in objects of Python,						
4		Discuss advanced applications such as TCP/IP network programming, multithreaded programming, Web applications, discrete-event simulations, etc.					
5	Develop different	modules on exception handling applications.					
6	Plan a Real Time	Web systems.					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2			
Outcome	I Sem	Research Methodology(M18MC01)	L:2 T:0 P:0				
On successf	ful completion of th	is course, students will be able to:					
1		e on Research Design and statistical methods in					
2	•	s methods in Data Collection, Data Organization	on and different ap	oproaches of			
3	Data Representatio						
3	<ul><li>Understand all the basic concepts required to prepare</li><li>a. Research synopsis</li><li>b. Dissertation</li><li>c. Writing a good research proposal</li></ul>						
4		of Patent Rights and Administration of Patent	System.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:0			
Outcome	I Sem	English for Research Paper Writing(M18MC01)	L:2 T:0 P:0				
On success	sful completion of	f this course, students are able to:					
1	-	nowledge on Definition of a research paper, Pu Scope and Benefits.	rpose of writing a	ny			
2		ndard English formats .for scripting the best rea	search paper				
3	Analyze all the Qualitative and Quantitative Research Methodologies and the ethics of plagiarism.						
4	Explain the detailed process of writing and publishing any research paper and perform a case study on paper writing.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2			
Outcome	I Sem	Data Structures and Algorithms Lab(M18CS09)	L:0 T:0 P:4				
After the o	completion of this c	course, the students should be able to					
1	Analyze algorithms	s efficiency .					
2	ummarize and implement various searching and sorting techniques.						
2 3 4	Demonstrate stack	, queue and linked list with various operations t trees and graphs concepts.	ies.				

Course Outcome	Year / semester I Sem	Subject Name (Subject Code) Cloud Computing Lab (M18CS10)	No. of Hours L:0 T:0 P:4	Credits:2		
	Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.					
2	Explain the issues on cloud computing along with security, privacy, and interoperability					
3	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.					
4	Provide the appropriate solutions on cloud computing based on the application.					

## **II-SEMESTER**

Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Network Programming(M18CS11)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	ful completion of th	his course, students will be able to:	L			
1	Determine Linux utilities.					
2	Identify file handling techniques and signals.					
3	Explain what is IPC and network programming in Java.					
4	Learn how processes communicate with each other across a Computer Network.					
5	Develop Network programming using TCP/UDP sockets					
6	Implement Real Time and current trends in client server Application.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	II Sem	Soft Computing Techniques(M18CS12)	L:3 T:0 P:0			
On success	sful completion o	f this course, students are able to:				
1	Understand the fuzzy logic, concepts of fuzziness involved in fuzzy set theory					
2	Explain the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic.					
3	Build the fundamental theory, concepts of neural networks.					
4	Identify different neural network architectures, algorithms, applications along their limitations.					
5	Classify different learning rules, architectures to learn several neural network paradigms along with its applications.					
6	Deploy different applications of these models to solve engineering					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
	ПС	Computer Vision(M18CS13)	L:3 T:0 P:0			
Outcome	II Sem					
	12 1	course, the students should be able to				
	completion of this o	course, the students should be able to nent of algorithms and techniques.				

	1					
3	Apply the fundamental concepts on multi-dimensional signal processing, feature extraction, pattern analysis visual geometric modeling, stochastic optimization etc.					
4	Take part to makeu	Take part to makeup and contribute in research developments in the field of computer vision.				
5		pplications ranging from Biometrics, Medical content, to surveillance, advanced rendering etc.	liagnosis, docume	ent processing,		
6		ns In-vehicle vision system.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Data Preparation and Analysis(M18CS14)	L:3 T:0 P:0			
1	Work for a busines	s environment dealing with data preparation.				
2	Prepare data mart	s for statistical analysis using SAS software.				
3	Implement SAS wi					
4	Analyze data from	databases to clean the data for statistical analys	sis in SAS.			
4	Develop many stra	tegies to deal with imperfect real world data.	1			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Digital Forensics(M18CS15)	L:3 T:1 P:0			
On successf	ful completion of th	is course, students will be able to:				
1	-	ensics related to investigative process.				
2	Explain the legal is position.	Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position.				
3	Demonstrate the te	echniques, usage of digital forensics tools				
4	Elaborate digital fo	rensics in detail.				
5	Analyze the state o	f the practice, gaps in technology, policy, and	legal issues			
6	Develop technique	s used on Data Analysis, cybercrime.				
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) Distributed Databases (M18CS16)	No. of Hours L:3 T:0 P:0	Credits:3		
On success	sful completion of	f this course, students are able to:	1	1		
1	Describe various to distributed databas	Describe various techniques used for data fragmentation, replication, and allocation for a distributed database				
2	Compare simple st	rategies for executing a distributed query opti	imization.			
3	Learn the two-phase	se commit protocol on multiple nodes.				
4	Describe distribute	ed concurrency control.				
5	Illustrate technique	es based on the distinguished voting methods.				
6	Learn different typ	es of Heterogeneous Database System				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	Human Computer Interaction(M18CS17)	L:3 T:0 P:0			
After the o	completion of this o	course, the students should be able to				
1	=	teristics of graphical and web user interfaces.				
2		inciples of design of business function.				
3	Demonstrate the s	ystem menus and screen based controls.				
-						

4	Adapt the goals ar	d conceptualization interaction.				
5	Design the process	of interaction and affective aspects				
6	Compare the fram	ework, predictive models and prototypes.				
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Software Process and Project Management (M18CS18)	No. of Hours L:3 T:0 P:0	Credits: 3		
1	Discuss and plan to	o execute projects based on required standard	ds.			
2	Understand the ra	nge of tools used on project management.				
3	Analyze the conce	pts related on project governance and metho	dologies.			
4	Apply critical analy	Apply critical analysis on solving problems and planning process.				
5	Describe planning,	Risk and issues management.				
6	Plan process, prag	Plan process, pragmatic planning service delivery and quality assurance				
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 0		
Outcome	II Sem	Stress Management (M18AC02)	L:2 T:0 P:0			
On successf	ul completion of th	is course, students will be able to:				
1	<b>^</b>	wareness log. Include identification of causes,	symptoms, and a	nalysis of		
2	Gather information on current stress management techniques and evaluate personal relevance.					
3	Practice specific te	chniques, track effectiveness, and revise to m	neet personal pre	ferences.		
4	Choose an adaptat techniques.	ole stress management plan for academic succ	ess incorporating	selected		
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) Network Programming Lab(M18CS19)	No. of Hours L:0 T:0 P:4	Credits:2		
On success	sful completion of	f this course, students are able to:				
1	Understand the co	ncepts of Socket commands.				
2	Implement Connec	ction-Oriented Service using standard ports.				
3	Define Connection	less and Connection Oriented Service.				
4	Plan a case study c sockets.	on client and server and construct a Remote C	Command Executi	on using		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2		
Outcome	II Sem	Digital Forensics Lab (M18CS20)	L:0 T:0 P:2			
	completion of this o	course, the students should be able to	1			
1		ethods available for retrieving the lost data.				
2		s mobile forensic techniques and how to hand	dle them.			
3		ent Open-source intelligence techniques				
4	-	to develop certification for Cyber Forensic.				

Course Outcome	Year / semester I I Sem	Subject Name (Subject Code) Mini Project (M18CS21)	No. of Hours L:0 T:0 P:2	Credits: 2		
1	Enhance students	Enhance students' knowledge in current technology				
2	Develop leadersh	Develop leadership ability and responsibility to execute the given task				
3	Enhance their employability skills along with real corporate exposure					
4	Elaborate the completed task and compile the report.					

### **III-SEMESTER**

Course Outcome	Year/Semester Ⅲ Sem	Subject Name (Subject Code) Semantic Web & Social Networks (M18CS22)	No. of Hours L:3 T:0 P:0	Credits: 3			
On successf	ul completion of th	his course, students will be able to:		•			
1		ept structure of the semantic web technology World Wide Web and its uses.	and how this te	chnology			
2		nalyze the concepts of metadata, semantics of knowledge and resource, ontology, andtheir escriptions in XML-based syntax and web ontology language (OWL).					
3	Describe logic sem	nantics and inference with OWL.					
4	Use ontology engi	se ontology engineering approaches in semantic applications					
5		rogram semantic applications with Java API.					
6		Perceive the concept structure of the semantic web technology and how this technology revolutionizes the World Wide Web and its uses.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	III Sem	Mobile Application and Security (M18CS23)	L:3 T:0 P:0				
On success	sful completion o	f this course, students are able to:		I			
1	Explain the mobile	e issues and development strategies.					
2	Discuss WAP and I	mobile security issues.					
3	Define the Bluetoo	oth security issues.					
4	Classify the SMS S	ecurity issues.					
5	Demonstrate the E	Enterprise Security on the Mobile OS.					
6	Develop Applicatio	on and security on Mobile OS.					
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Compiler for HPC (M18CS24)	No. of Hours L:3 T:0 P:0	Credits: 3			

1	Transform algorith	ms in the computational area to efficient pro	ogramming code f	or modern		
	Ũ	computer architectures.				
2	Discuss, organize and handle programs for scientific computations.					
3		performance optimization and debugging.				
4	Analyze code with	respect to performance and suggest and impl	ement performan	се		
	improvements.		·			
5		ance analysis in clear and correct writing.				
6	Implement algorith	nms on sparse graphs.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Advanced Optimization Techniques (M18MA01)	L:3 T:0 P:0			
n successf	ful completion of th	is course, students will be able to:		I		
1	Describe problem	clearly, identify and analyze the individual fu	nctions.			
2	Analyze study on s	olving optimization problem.				
3	Translate verbal fo	rmula on optimization problem.				
4	Design algorithms,	Design algorithms, reliably to find an approximate solution.				
5	Compare the perfo	Compare the performance of an algorithm.				
6		inderstand and solve optimization technique	s using algorithms			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Waste Management (M18SE27)	L:3 T:0 P:0			
In success	sful completion of	f this course, students are able to:		I		
1	Compare the subje	ect from the technical, legal and economical p	points .			
2	Learn solid waste i					
3	Describe environm	ent for sound management.				
4		icipal solid waste management system.				
5		management system for decision makers.				
6	Design an incinera					
	-			Credits: 3		
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Embedded System Design (M18VL07)	No. of Hours L:3 T:0 P:0	Creuits. 5		
outcome						
After the o		course, the students should be able to				
1	Describe embedd	ed systems, design, technology to explain its	s metrics or challe	nges.		
2		gle – purpose processors using combinationa				
3		imizing single – purpose processors. Discuss eneral purpose processors.	about the basic	architecture		
4		guish between a timer and a counter, van onous Receiver/ Transmitter. Explain contro	••			

5	Discuss common memory types ROM , RAM, advanced RAM. Explain microprocessor interfacingand arbitration methods, various protocols like serial, parallel.					
6	Explain basics of interrupts, architectures like Round Robin, Real – Time Operating Systemarchitecture.					
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Dissertation Phase-I (M18CS25)	No. of Hours L:0 T:0 P:20	Credits: 10		
1	Identify the prob	lem by applying acquired knowledge.				
2	Analyze and cate	gorize executable project modules.				
3	Choose efficient	Choose efficient tools for designing project modules.				
4	Combine all the r	Combine all the modules through effective team work after efficient testing				
5	Elaborate the cor	npleted task and compile the project re	port.			

## **IV-SEMESTER**

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 16
Outcome	I Sem	Dissertation Phase-II (M18CS26)	L:0 T:0 P:32	
On successf	ful completion of t	his course, students will be able to:		
1	Identify the prob	lem by applying acquired knowledge.		
2	Analyze and cate	gorize executable project modules.		
3	Choose efficient	tools for designing project modules.		
4	Combine all the modules through effective team work after efficient testing			
5	Elaborate the cor	npleted task and compile the project rep	ort.	

### VAAGDEVI COLLEGE OF ENGINEERING

## (AUTONOMOUS)

### ELECTRICAL AND ELECTRONICS ENGINEERING

## **COURSE OUTCOMES FOR B.TECH-EEE R18**

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Linear Algebra and Calculus	B18MA01	L/T/P :3/1 /0	4
After learni	ng the conter	tts of this subject, the student must	be able to		
1	Define syste	em of linear equations to matrix and	d explore various i	methods of solving	g
	homogenou	s and non-homogenous equations.			
2	Find matrix	rank, Eigen values & Eigen vector	s and to find the in	nverse and power	of matrix.
	Reduce line	ar equations to quadratic equations	and transform inte	o canonical form.	
3	Discuss con	vergence and divergence in its sim	plest form, classif	ying difference be	etween a
	sequence an	d series in application context and	further investigate	e infinite process.	
4	Judge the co	onsequences and geometrical appro	ach to the mean va	alue theorems and	l
	engineering	applications to mathematical problem	ems. Learn to ado	pt different techni	iques for
	multi-dimer	sional change of variables to trans	form the coordinat	tes over which inte	egration
	proceeds.				
5		the maximum & minimum functio			g limits
		differential equations and recogniz	the their application	s in developing	
	mathematic				1
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Applied Physics	B18PH01	L/T/P :4/0 /0	4
After learni	-	ts of this subject, the student must			
1		brication of semiconductors, photo		-	mechanics
2		of wave optics extend & construct			
3	*	out lasers, which leads to new inno			
4		nd formulate the study of character			rganize the
	-	prepare new materials for various e			
5		knowledge on principles and recal	<b>e</b> 1	operties, and moti	vate for
		tions. Analyze applications of optic			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	English	B18EN01	L/T/P :2/0 /0	2
By the end	1	, students will be able to			
1	Use English	Language effectively in spoken ar	nd written forms.		
2	Comprehen	d the given texts and respond appro	priately.		
3		te confidently in various contexts a			
4	-	ic proficiency in English including	reading and lister	ing comprehension	on, writing
	and speakin	-			
5	Develops an	nd Communicates by stating main i	deas relevantly an	d coherently in sp	eaking &
	writing				

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Engineering Chemistry	B18CH01	L/T/P :3/1 /0	4
The basic c	oncepts inclu	ded in this course will help the stud	lent to gain:		L
1	Recall prev	ious knowledge regarding atomic a	nd molecular strue	cture.	
2	Design poly	meric engineering materials. Reca	Il basic organic rea	actions	
3		atteries and classify different electr	-		odes, etc.,
		o construct different electrical/ elec			
4	Examine w	hich types of impurities are present	in water, specific	ation of drinking	water and
		corrosion behavior/ activity of met	—	C	
5	-	e rule and adsorption to construct t		alyzing their com	positions.
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	English Language and	B18EN02	L/T/P :0/0 /2	1
		Communication Skills Lab			
After learni	ng the conten	ts of this subject, the student must	be able to		
1	-	Better Understanding of nuances of		audio-visual exp	erience
	and group a		0 0 0		
2	Develop Ne	Develop Neutralization of accent for intelligibility			
3	_	with clarity and confidence thereby		loyability skills of	f the
	students by acquiring knowledge and techniques.				
4	Extend to s	peak fluent English, through advan	ced vocabulary to	improve quality i	n
	speaking.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Applied Physics Lab	B18PH02	L/T/P :0/0 /3	1.5
After learni	ng the conten	ts of this subject, the student must	be able to		1
1	Operate diff	ferent equipment's related to light	& electronics		
2	Develop ex	perimental skills to design new exp	periments & circui	t design	
3	Understand	about modern equipment like solar	r cell, optical fiber	·etc.,	
4	Have Expos	sure to develop novel semiconductor	or devices.		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Engineering Workshop/IT	B18ME02	L/T/P :0/0 /3	1.5
		Workshop			
After learni	ng the conten	ts of this subject, the student must	be able to		I
1	Perform dif	ferent trade exercise.			
2	Assemble a	nd Disassemble a computer and dia	agnostic exercises	with installation of	of
		stems and Linux Tools	•		
3		ustrial environment and operation	of power tools		
4	—	edge of foundry, welding, black sn	-	ouse wiring	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Differential Equations And	B18MA02	L/T/P :3/1 /0	4
		Vector Calculus			
	I		1		1
After learni	ng the conten	ts of this subject, the student must	be able to		
After learni 1	-	ats of this subject, the student must amentals of differential equations t		ns and Summarize	;

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
5	Explore various file handling functions employed in problem solving.				
4		asics of pointers and various opera	÷ .		
3	_	different operations for problems u			
		and also explore various functions	<u> </u>		
2	-	e concepts of sequencing, branchin		-	making
		flowchart. Learn the basic operator	<u>^</u>		0
1		the fundamental basics of program			
After learnin	-	its of this subject, the student must			
		Solving			
Outcome	II Sem	Programming for Problem	B18CS01	L/T/P :4/0 /0	4
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
5	Design mul	ti vibrators and wave shaping circu	its using basic con	mponents	
4		istor biasing and stabilization			
3	Analyze the	e operation of oscillators and ampli	fiers.		
2	•	owledge of rectifiers and filters and		ons	
-		circuit of diodes			
1		l operation of analog devices and ci		e characteristics a	ind
After learnin	ng the conter	its of this subject, the student must	be able to		
Outcome	II Sem	Circuits	DIOLCUI	L/1/1 .3/0/0	5
Outcome	II Sem	Electronic Devices And	B18EC01	L/T/P :3/0 /0	3
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
5	-	dent and independent current and v		ini loop and lloua	methous
5	-	rious network topologies and analy	ze the networks w	ith loop and nodal	methods
4	-	e series and parallel magnetic circu netic induction.	ns with basic mag	neue principies ar	iu laws of
4		l various network theorems and its			d laws of
3	•	parallel AC circuits	annliaationa in ala	atui a al aiu anni ta	
2	-	e basic principles and concepts invo	lved in AC circuit	s and analyze pov	ver in
	techniques.				<u> </u>
1		es of electrical circuits such as laws	, transformation a	nd network reduct	ion
	-	its of this subject, the student must			
Outcome	II Sem	<b>Electrical Circuits-I</b>	B18EE01	L/T/P :3/1 /0	4
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
	characterist	ics.			
5	Explain imp	portance of integrals theorems to de	esign different geo	metries and their	
	volumes			_	
4		concept of gradient, divergence and			and
	•	Evaluate line, surface and volume in			
3		e multiple integrals for functions ar	d elaborate areas	and volumes in di	fferent
-		differential equations.			
2	Identify, an	alyze, formulate and perceive phys	ical situation who	se behavior can be	e described

Outcome	II Sem	Electronic Devices and	B18EC02	L/T/P :0/0 /2	1	
		Circuits Lab				
After learn	ing the conte	nts of this subject, the student must	be able to			
1	Understand	the use of RPS & CRO & different	meters and test el	ectronic circuits u	ısing	
	experiment					
2	Explore the operation of different electronic components and design electronic circuits to					
	meet specif	ic requirements.				
3	Understand	working principle of electronic circ	cuits.			
4	Evaluate th	e characteristics of the electronic cir	cuits.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	II Sem	Programming for Problem	B18CS02	L/T/P :0/0 /2	1	
		Solving Lab				
After learn	ing the conte	nts of this subject, the student must	be able to			
1		the fundamentals of C programmin				
2		ncepts of sequencing, branching, lo	-	n making stateme	nts to solve	
	-	nd engineering problems.	1 0	C		
3		different operations on arrays and fu	unctions to solve r	problems.		
4		implement different types of file str	•		y.	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits: 3	
Outcome	II Sem	Engineering Graphics	B18ME01	L/T/P :1/0/4		
		nts of this subject, the student must		21212 121011		
1	2	rinciples of Engineering Graphics a		ce_ISO and ANS	I standards	
-	_	ate dimensioning- usage of Drawing	-		1 50011001100	
2		pjection of lines inclined to one or ty		8		
3	-	e projections and views on the plane	-			
4		nt of surfaces on solids and understa		erent types of con	ic sections	
5	<u> </u>	hographic views into isometric view		51		
U		echnologies for graphical communic				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Electrical Circuits – II	B18EE07	L/T/P :3/0 /0	3	
		nts of this subject, the student must		L/1/1 .5/0/0		
1	-	the basics of network representatio		vzing the network	and	
1	duality of n	-	in, method of analy	yzing the network	and	
2	2	lanced and unbalanced three phase of	vircuits and measu	re voltage currer	nt and	
2	-	ree phase star and delta connections		ire voltage, currer		
3	-	ransient response of series and paral		or DC and sinusoi	dal	
5		Analyze the response for step, ram				
4		rent types of network functions and	-			
7	-	ing transformed variables	Cratual the netwo		two port	
5		t different types of filters and Fourie	r analysis applied	to AC circuits		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
		Numerical Methods and			4	
Outcome	III Sem		B18MA03	L/T/P :3/1 /0	4	
		<b>Complex Variables</b>				

After learn	ing the conter	nts of this subject, the student must	be able to			
1	Find a bette	r approximate root of a given equat	ion			
2	Estimate the	e derivative at a given value and inte	egral of function			
3	Analyze the	complex function with reference to	their analyticity,	integration using	Cauchy's	
		residue theorems			·	
4	Taylor's and	l Laurent's series expansions of con	nplex function			
5		inear transformation.	-			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Power Systems – I	B18EE08	L/T/P :3/0 /0	3	
After learn	ing the conter	its of this subject, the student must	be able to	I		
1		owledge on operation of Hydro Ele				
2	Acquire and	interpret fundamental concepts Th	ermal generation.			
3	_	various economic aspects of Power	-			
4	Acquire kno	wledge on power system distribution	on systems and su	bstation		
5		Understand design of underground cables				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Electrical Machines-I	B18EE09	L/T/P :3/0 /0	3	
After learn	ing the conter	nts of this subject, the student must	be able to	L	1	
1	Evaluate the	Evaluate the stored and converted energy and also exerted force in electromechanical energy				
	conversion	devices.				
2	Able to anal	yze and design the types of dc gene	erators			
3	Able to sele	ct appropriate D.C Generator to me	et the requirement	ts of the application	on in	
	industry					
4	To understa	nd the characteristics and concept s	of speed control.			
5	Able to Test	t the performance and select approp	riate D.C machine	e to meet the requi	irements of	
	the application	on in industry.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Electromagnetic Fields	B18EE10	L/T/P :3/0 /0	3	
After learn	ing the conter	nts of this subject, the student must	be able to			
1	Analyze the	relation between the electric field a	and the magnetic f	ield, about the var	rious laws	
	such as EFI	Potential and other concepts of the	ese fields			
2	Understand	the behavior of conductors and diel	ectrics, their boun	dary conditions, l	Maxwell's	
	equations w	ith respect to electrostatics.				
3	Understand	the magnetic field concepts using H	Biot-Savart law an	d Ampere's law		
4	Analyze the	relation between two or more cond	luctors when subje	ected to magnetic	fields	
	Understand the concepts of time varying fields in both electric and magnetic fields and their			d magnetic fields	and their	
5	relationship in evaluating power					
5						
5 Course			Subject Code	No. of Hours	Credits:	
	relationship	in evaluating power Subject Name Object Oriented Programming		No. of Hours L/T/P :3/0 /0		
Course Outcome	relationship Semester III Sem	in evaluating power Subject Name Object Oriented Programming & Data Structures	Subject Code B18CS50		Credits:	
Course Outcome	relationship Semester III Sem	in evaluating power Subject Name Object Oriented Programming	Subject Code B18CS50		Credits:	
Course Outcome	relationship Semester III Sem ing the conter	in evaluating power Subject Name Object Oriented Programming & Data Structures	Subject CodeB18CS50be able to	L/T/P :3/0 /0	Credits: 3	

2 3 4	Identify the	applications of diode as integrator, the timer circuits and phase locked	differentiator, clip							
-	Classify the different families of digital integrated circuits and their characteristics.									
1		operational amplifiers with linear in	-							
	-	nts of this subject, the student must								
		Integrated Circuits								
Outcome	IV Sem	Pulse Digital And Linear	B18EC45	L/T/P :3/0 /0	3					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:					
5	-	types of pollutants and distinguish the environment.	the functions of s	istainable develop	ment that					
4		els of food chains and energy flow r		-						
3	U	portant seminars on natural resource		• 1						
2		e outlines of types of pollutions and	÷	day life.						
1	environmen	t.								
	-	iously learned ecosystem and find h		v changes went in	the					
Outcome	III Sem	ts of this subject, the student must	B18MC02	L/T/P :2/0 /0	0					
Course	Semester	Subject Name Environmental Sciences	Subject Code	No. of Hours	Credits:					
9		near Data Structure.			a III					
4		nd and apply the hashing technique	s and to able to de	sign and impleme	nt Linear					
		a Structures and to gain practical kn		-						
3		operations like searching, insertion		e						
2		e appropriate Data Structure for giv	-							
1		o design and implement Object Ori		concepts.						
After learn		nts of this subject, the student must								
		Lab								
Outcome	III Sem	Data Structures Through C++	B18CS08	L/T/P :0/0 /3	1.5					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:					
	their resona	nce conditions.								
4	Evaluate the	e time response and frequency respo	onse characteristic	s of RLC series ci	rcuit and					
3	Determine 2	Z, Y and ABCD parameters for a gi	ven two port netw	ork.						
2	Verify netw	ork theorems								
1	Explain the	concept of circuit laws								
After learn	ing the conter	nts of this subject, the student must	be able to							
Outcome	III Sem	Electrical Circuits Lab	B18EE11	L/T/P :0/0 /3	1.5					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:					
-		res and Pattern Matching Algorithm								
5	Attain the knowledge on trees, balanced trees, graphs and developing C++ code for nonlinear									
4	Examine with advanced data structure such as hash tables and priority queue data structures.									
5		nechanisms in linear data structures		cietions, searching	, and					
3	Build the basic knowledge to handle operations like insertions, deletions, searching, and									
	III C++.		Explain and apply the major object oriented concepts to implement object oriented programs in C++.							

5	Explore var	rious A-D and D-A converters and i	ts applications						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	<b>Electrical Machines-II</b>	B18EE12	L/T/P :3/1 /0	4				
After learn	ing the conte	nts of this subject, the student must	be able to						
1	Understand	the concepts and performance of si	ngle phase transfo	rmer.					
2	Test the performance of single phase Transformer								
3	Choose a su	itable three phase transformer base	d on its application	n and also convert	three				
	phase to tw	o phases or vice versa.							
4	Understand	the concepts of Construction, operation	ation characteristic	s, testing (concep	t of circle				
	diagram) ar	nd speed.							
5	Analyze spe	eed torque characteristics and control	ol the speed of ind	uction motors					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	<b>Electrical Measurements and</b>	B18EE13	L/T/P :3/0 /0	3				
		Instrumentation							
After learn	ing the conte	nts of this subject, the student must	be able to						
1	Identify Dif	fferent types of measuring instrument	nts and their const	ruction, operation	and				
	characterist	ics							
2	Classify Re	sistance, voltage, current measurem	ents through poter	ntiometers, voltag	e and				
	current mea	surements through instruments tran	sformers						
3	Find Power	and energy measurements through	watt and energy n	neters with examp	les.				
4	Calculate Resistance measurements through DC bridges, capacitance and inductance								
	measureme	nts through AC bridges and differer	t types of transdu	cers					
5	Gain Knowledge on Measurement of frequency and phase through CRO, range extension of								
	-	nstruments and different types of en	rors & their reduc	tion methods in n	neasuring				
	instruments		1		1				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Power Systems – II	B18EE14	L/T/P :3/0 /0	3				
After learn	-	nts of this subject, the student must	be able to						
1		ower system in P.U values.							
2		nductance and capacitance of single	phase and three pl	nase.					
3		rformance of transmission line							
4		the transients on transmission line							
5		g and string efficiency.	1		1				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Control Systems	B18EE15	L/T/P :3/0 /0	3				
	-	nts of this subject, the student must							
1		the concept of feedback and analyz	e the control syste	em components by	their				
		cal modeling							
2		e time domain specifications and ste							
3		ous time domain and frequency dom	ain techniques to	assess the system					
	performanc								
4	-	e system performance by designing	a suitable controll	er and/or a compe	ensator for				
	a specific a	pplication							

5	-	Controllability and Observability u	<b>U</b>	epresentation and	
~~~~	~ ~	of state space representation to van	-		~
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	IV Sem	Switching Theory and Logic Design	B18EC05	L/T/P :3/0 /0	3
After learn	ing the conter	nts of this subject, the student must	be able to		
1	-	explain the functionality of logic ga		OR. NOR. XOR	XNOR.
-	NOT).			, 011, 1101, 1101	,,
2		erent combinational circuits using n	ninimization techn	iques.	
3	-	ious flip flops, and design of register		1	
4	-	esign procedures to design basic se			
5		d design of small sequential circuits	-	rd sequential	
	-	uilding blocks to build more comple		I	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits
Outcome	IV Sem	Pulse Digital and Linear	B18EC47	L/T/P :0/0 /3	1.5
		Integrated Circuits Lab			
After learn	ing the conter	nts of this subject, the student must	be able to		
1	-	the applications of diode as integra		clippers and clam	per
	circuits.			11	1
2	Design circ	uits using operational amplifiers for	various application	ons.	
3	<u> </u>	VCO & PLL circuits.			
4	•	and implement DAC conversions u	using OP AMP.		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	IV Sem	Electrical Machines Lab-I	B18EE16	L/T/P :0/0 /3	1.5
After learn	ing the conter	nts of this subject, the student must	be able to	I	
1	Select range	of apparatus based on the ratings of	of DC Machines.		
2	Determine (	Characteristics of DC machines by	conducting tests		
3	Evaluate the	e efficiency of the machine by analy	zing test results.		
4	Study speed	control methods for dc machines	-		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits
Outcome	V Sem	Electrical Machines-III	B18EE17	L/T/P :3/0/0	3
After learn	ing the conter	nts of this subject, the student must	be able to		•
1	Demonstrat	e basic concepts of AC machines.			
2	Analyze the	concepts of regulation of synchron	ous generators		
3	Evaluate pe	rformance characteristics of synchr	onous machines.		
4	Analyze the	operating characteristics of synchr	onous motors		
5	Identify the	Construction, operation and charac	teristics of single-	phase motor and s	special
	machines				
Course	Semester	Subject Name	Subject	No. of Hours	Credits:
Outcome			Code		3
	V Sem	Power System Protection	B18EE18	L/T/P :3/0 /0	
	watha aanta	ate of this subject the student must	ha abla to		
After learn	ing the conter	nts of this subject, the student must			

	types							
2	Understand	the basic principle of electromagne	etic Relay Operatio	on and its various	types to			
	different app	plications.						
3	Explore the	various schemes of protecting gen	erator and transfor	mers.				
4	Explore var	ious relaying operation in protectin	g the transmission	line and bus bar.				
5	Learn the necessity of neutral grounding and protection against overvoltage.							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Power Electronics	B18EE19	L/T/P :3/1 /0	4			
After learn	ing the conter	nts of this subject, the student must	be able to	L	I			
1	Understand	the differences between signal leve	el and power level	devices				
2	Examine sir	ngle phase-controlled rectifier circu	uits.					
3		three phase-controlled rectifier circ						
4	Learn the op	peration of DC-DC choppers						
5	Study the op	peration of DC-AC converters and	AC-AC voltage re	gulators				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Electric Machine Design	B18EE20	L/T/P :3/0 /0	3			
After learn	ing the conter	nts of this subject, the student must	be able to	L	I			
1	Understand	the basic design consideration, star	ndards. Study the h	neat dissipation, co	ooling			
	characteristi	ics and electrical characteristics of	various dielectric 1	naterials.				
2	Understand	the design, choice of materials and	specifications in I	DC machines				
3	Understand	and design the main dimensions of	f each parts of a tra	insformers				
4	Design the o	constructional features of induction	motors and estimation	ate their currents a	ind			
	reactance							
Ē	Design the constructional features of synchronous motors							
5	Design the o	constructional features of synchron	ous motors					
5 Course	Design the of <b>Semester</b>	constructional features of synchron Subject Name	ous motors Subject Code	No. of Hours	Credits:			
-	-			No. of Hours L/T/P :3/0 /0	Credits: 3			
Course	Semester	Subject Name	Subject Code					
Course Outcome	Semester V Sem	Subject Name Electrical Distribution	Subject Code B18EE21					
Course Outcome	Semester V Sem	Subject Name Electrical Distribution Systems	Subject Code B18EE21					
Course Outcome After learn	Semester V Sem ing the conter Understand	Subject Name Electrical Distribution Systems nts of this subject, the student must	Subject CodeB18EE21be able to	L/T/P :3/0 /0				
Course Outcome After learni 1	Semester V Sem ing the conter Understand Analyze the	Subject Name Electrical Distribution Systems hts of this subject, the student must design of various loads	Subject CodeB18EE21be able to	L/T/P :3/0 /0				
Course Outcome After learni 1 2	Semester V Sem ing the conter Understand Analyze the Understand	Subject Name Electrical Distribution Systems nts of this subject, the student must design of various loads need of substations and there erec	Subject Code         B18EE21         be able to         tion and site select	L/T/P :3/0 /0				
Course Outcome After learni 1 2 3	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno	Subject NameElectrical DistributionSystemsnts of this subject, the student mustdesign of various loadsneed of substations and there erecprotection of distribution system.	Subject Code B18EE21 be able to tion and site select ent.	L/T/P :3/0 /0				
Course Outcome After learni 1 2 3 4	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno	Subject Name           Electrical Distribution           Systems           nts of this subject, the student must           design of various loads           need of substations and there erec           protection of distribution system.           owledge of power factor improvem	Subject Code B18EE21 be able to tion and site select ent.	L/T/P :3/0 /0				
Course Outcome After learn 1 2 3 4 5	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th	Subject Name           Electrical Distribution           Systems           nts of this subject, the student must           design of various loads           need of substations and there erec           protection of distribution system.           owledge of power factor improvem           e distribution voltage drop calculated	Subject Code B18EE21 be able to tion and site select ent.	L/T/P :3/0 /0	3			
Course Outcome After learn 1 2 3 4 5 Course Outcome	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03	L/T/P :3/0 /0 ion No. of Hours	3 Credits:			
Course Outcome After learn 1 2 3 4 5 Course Outcome	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0	3 Credits:			
Course Outcome After learn 1 2 3 4 5 Course Outcome	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter Apply the k	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems         nts of this subject, the student must	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to         asis to signals. Ana	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0 llyze the spectral	3 Credits:			
Course Outcome After learn 1 2 3 4 5 Course Outcome	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter Apply the k characteristi	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems         nts of this subject, the student must         nowledge of vectors, orthogonal base	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to         asis to signals. Ananals using Fourier	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0 llyze the spectral	3 Credits:			
Course Outcome After learni 1 2 3 4 5 Course Outcome After learni 1	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter Apply the k characteristi Demonstrate	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems         nts of this subject, the student must         nowledge of vectors, orthogonal base	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to         asis to signals. Ananals using Fourier         arious signals.	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0 llyze the spectral series.	3 Credits: 3			
Course Outcome After learni 1 2 3 4 5 Course Outcome After learni 1 2	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter Apply the k characteristi Demonstrate	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems         nts of this subject, the student must         nowledge of vectors, orthogonal bailes of continuous-time periodic signer         e and apply Fourier transform on vectors	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to         asis to signals. Ananals using Fourier         arious signals.	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0 llyze the spectral series.	3 Credits: 3			
Course Outcome After learni 1 2 3 4 5 Course Outcome After learni 1 2	Semester V Sem ing the conter Understand Analyze the Understand Acquire kno Calculate th Semester V Sem ing the conter Apply the k characteristi Demonstrate Apply the L signals	Subject Name         Electrical Distribution         Systems         nts of this subject, the student must         design of various loads         need of substations and there erec         protection of distribution system.         owledge of power factor improvem         e distribution voltage drop calculat         Subject Name         Signals And Systems         nts of this subject, the student must         nowledge of vectors, orthogonal bailes of continuous-time periodic signer         e and apply Fourier transform on vectors	Subject Code         B18EE21         be able to         tion and site select         ent.         tions.         Subject Code         B18EC03         be able to         asis to signals. Ananals using Fourier         arious signals.         form for the analys	L/T/P :3/0 /0 ion No. of Hours L/T/P :3/0 /0 ilyze the spectral series.	3 Credits: 3			

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	V Sem	Database Management	B18CS04	L/T/P :3/0 /0	3
		Systems			
After learn	ing the conter	its of this subject, the student must	be able to		
1	Understand	the fundamental concepts of databa	se management a	nd analyze databa	se models
	& Entity Re	lationship models and to draw the I	E-R diagram for th	e given case stud	у.
2	Apply relati	onal Database Theory, and be able	to write relational	algebra expressio	ons for
	queries and	Utilize the knowledge of basics of	SQL and construc	t queries using SQ	ĮL.
3	Apply Norm	nalization Process to construct the d	latabase. Explain l	Basic Issues of tra	nsaction
	processing				
4		Concurrency control and Recovery	-		
5	—	e basic Database storage structures		ques: File Organiz	ation,
	indexing me	thods including B- Tree and Hashi	-		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	V Sem	<b>Computer Organization</b>	B18EC12	L/T/P :3/0 /0	3
After learn		nts of this subject, the student must			
1	<b>^</b>	I/O and memory organization in de	A		
2	-	embly language programs for vario			
3		e basic components of computers ar	nd extend the desig	gn of Digital Logi	c Circuits
		Computer Organization.			
4		memory organization and evaluate	-		
5		the basic chip design and organizat		assembly language	e
	~ -	g and Compare RISC and CISC A		1	1
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	V Sem	Internet of Things	B18CS40	L/T/P :3/0 /0	3
After learn		nts of this subject, the student must			
1	-	vision of IOT from a global contex			
2		ilding blocks of Internet of Things a	and its characterist	tics.	
3		asic concepts of Python			
4		he python programming using Ras	pberry		
5	Design a RE		ſ	ſ	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	V Sem	ELECTRICAL MACHINES –	B18EE22	L/T/P :0/0 /3	1.5
		II LAB			
	-	nts of this subject, the student must	be able to		
1	-	of apparatus based on the ratings.			
2		quivalent circuits and analyze vario			
3	-	performance and Characteristics of	· · · · · · · · · · · · · · · · · · ·		
4		e efficiency of the machine by analy	-	N. 0	a
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	V Sem	Electrical Measurements &	B18EE23	L/T/P :0/0 /3	1.5
		Instrumentation Lab			
After learn	ing the conter	nts of this subject, the student must	be able to		

1	Compare pe	rformance of MC, MI and Dynamo	meter types of me	easurements, Ener	gy meter.			
2	Determine t	he circuit parameters using AC and	Dc bridges.					
3	Compute the	e errors CT's and PT's.						
4		the performance of industrial instru	iments					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Control Systems Lab	B18EE24	L/T/P :0/0 /2	1			
After learn	ing the conter	its of this subject, the student must	be able to	1				
1	Analyze the	time & Frequency response of con	trol systems					
2	Evaluate the	performance of feedback control s	systems.					
3		e response of PID controllers	·					
4	Identify the Performance of AC & DC servo motors							
Course	Semester Subject Name Subject Code No. of Hours C							
Outcome	V Sem	Human Values and	B18MC09	L/T/P :2/0/0	0			
		<b>Professional Ethics</b>						
After learn	ing the conter	ts of this subject, the student must	be able to					
1	Perceive the	importance of ethics and values in	life and society					
2	Develop mo	ral responsibility and mould them a	as best professiona	als.				
3	Create ethic	al vision and achieve harmony in li	fe					
4	Provide a cr	itical perspective on the socialization	on of men and wo	men.				
5	Perceive the	important issues related to gender	in contemporary I	India.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Power System Operation and	B18EE25	L/T/P :3/0/0	3			
		Control						
After learn	-	nts of this subject, the student must	be able to					
1	Analyse eco	nomic operation of power system.						
2		the working of hydrothermal coord						
3	Analyse loa	d frequency control of Single area a	and Two area pow	ver system				
4	Understand	power factor and voltage control						
5		wledge on reactive power control.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Managerial Economics and	B18MB01	L/T/P :3/0 /0	3			
		Financial Analysis						
After learn	6	nts of this subject, the student must						
1		the nature, scope and importance o	· ·					
2		is demand, analyze demand and ho	-	mand is used for p	ricing			
		d to evaluate methods for forecasti	-					
3	-	production function is carried out to	o achieve least cos	t combination of	inputs and			
	how to analy	·						
4		the characteristics of different kind						
	11 1	conjugation and analyza how conital	budgeting techniq	ues are used for in	vestment			
	business organization and analyze how capital budgeting techniques are used for investment							
	decisions.							
5	decisions. Know how t	to prepare final accounts and how to tements using ratio analysis.			ret			

Semester	Subject Name	Subject Code	No. of Hours	Credits:				
VI Sem	Power Semiconductor Drives	B18EE26	L/T/P :3/0/0	3				
ing the conter	nts of this subject, the student must	be able to						
Analyze the	operation of converter fed dc moto	rs and four quadra	ant operations of d	c motors				
using dual c	onverters	-	-					
Describe the chopper fed dc motors in various quadrants of operation								
Know the concept of speed control of induction motor by using AC voltage controllers and								
voltage source inverters.								
Differentiate the stator side control and rotor side control of three phase induction motor.								
Explain the	speed control mechanism of synchi	conous motors.	-					
Semester								
VI Sem								
ing the conter		be able to						
-			ources like sun, w	ind,				
	-	uce electrical pow	ver.					
Minimize th	e use of conventional energy sourc	es to produce elec	trical energy.					
-								
Semester		Subject Code	No. of Hours	Credits:				
VI Sem	Electrical Engineering Material	-	L/T/P :3/0 /0	3				
ing the conter								
Impart the k	nowledge on electrical engineering	materials classific	cation and their ap	plications				
_			-	-				
		-						
Identify var	ious magnetic materials and their cl	assification						
Learn vario	us special purpose of materials							
Design varie	ous electronic components							
Semester	Subject Name	Subject Code	No. of Hours	Credits:				
VI Sem	Digital Signal Processing	B18EC16	L/T/P :3/0 /0	3				
ing the conter	ts of this subject, the student must	be able to						
Explain the	time domain and frequency domain	representation of	the signals.					
Understand the inter relationship between DFT and various transforms and fast computation								
•		•	forms and fast cor	nputation				
Understand		•	forms and fast cor	nputation				
Understand of DFT and	the inter relationship between DFT	and various trans	forms and fast cor	nputation				
Understand of DFT and Classify the	the inter relationship between DFT appreciate the FFT processing	and various transf						
Understand of DFT and Classify the	the inter relationship between DFT appreciate the FFT processing different types of windowing techr gital filters for a given specification	and various transf						
Understand of DFT and Classify the Design a dig	the inter relationship between DFT appreciate the FFT processing different types of windowing techr gital filters for a given specification	and various transf						
Understand of DFT and Classify the Design a dig processing a	the inter relationship between DFT appreciate the FFT processing different types of windowing techr gital filters for a given specification applications.	and various transf niques s and Apply the kn	nowledge to real v	vorld				
Understand of DFT and Classify the Design a dig processing a Semester VI Sem	the inter relationship between DFT appreciate the FFT processing different types of windowing techr gital filters for a given specification applications. <b>Subject Name</b>	and various transf iiques s and Apply the kr Subject Code B18EE29	nowledge to real v No. of Hours	vorld Credits:				
Understand of DFT and Classify the Design a dig processing a <b>Semester</b> <b>VI Sem</b> ing the conter	the inter relationship between DFT appreciate the FFT processing different types of windowing techr gital filters for a given specification applications. Subject Name Advanced Power Electronics	and various transf and various transf s and Apply the king Subject Code B18EE29 be able to	nowledge to real v No. of Hours	vorld Credits:				
	VI Sem ing the conter Analyze the using dual c Describe the Know the co voltage sour Differentiate Explain the Semester VI Sem ing the conter Minimize th Identify the Explore the Semester VI Sem ing the conter Impart the k Study the per materials an Identify varie Semester VI Sem ing the conter Impart the k	VI SemPower Semiconductor Drivesing the contents of this subject, the student mustAnalyze the operation of converter fed dc motorusing dual convertersDescribe the chopper fed dc motors in various ofKnow the concept of speed control of inductionvoltage source inverters.Differentiate the stator side control and rotor sideExplain the speed control mechanism of synchmSemesterSubject NameVI SemRenewable Energy Systemsing the contents of this subject, the student mustApply the technology to capture the energy fromocean, biomass, geothermal.Use different renewable energy sources to proofMinimize the use of conventional energy sourceIdentify the fact that the conventional energy referenceExplore the direct energy sources.SemesterSubject NameVI SemElectrical Engineering Materialing the contents of this subject, the student mustImpart the knowledge on electrical engineeringStudy the performance characteristics of varioumaterials and their applications in design of eleIdentify various magnetic materials and their clLearn various special purpose of materialsDesign various electronic componentsSemesterSubject NameVI SemDigital Signal Processinging the contents of this subject, the student mustImpart the knowledge on electrical engineeringStudy the performance characteristics of varioumaterials and their clLearn various special purpose of materials <t< td=""><td>VI SemPower Semiconductor DrivesB18EE26ing the contents of this subject, the student must be able toAnalyze the operation of converter fed dc motors and four quadra using dual convertersDescribe the chopper fed dc motors in various quadrants of operaKnow the concept of speed control of induction motor by using A voltage source inverters.Differentiate the stator side control and rotor side control of threeExplain the speed control mechanism of synchronous motors.SemesterSubject NameSubject CodeVI SemRenewable Energy SystemsB18EE27ing the contents of this subject, the student must be able toApply the technology to capture the energy from the renewable so ocean, biomass, geothermal.Use different renewable energy sources to produce electrical powMinimize the use of conventional energy resources are depletedExplore the direct energy sources.SemesterSubject NameSubject CodeVI SemElectrical Engineering MaterialsB18EE28ing the contents of this subject, the student must be able toIdentify the fact that the conventional energy resources are depletedExplore the direct energy sources.SemesterSubject CodeVI SemElectrical Engineering MaterialsB18EE28ing the contents of this subject, the student must be able toImpart the knowledge on electrical engineering materials classificationLearn various 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resources are depleted.Explore the direct energy sources.SemesterSubject NameSubject CodeNo. of HoursVI SemElectrical Engineering MaterialsB18EE28L/T/P :3/0 /0ing the contents of this subject, the student must be able toImpart the knowledge on electrical engineering materials classification and their ap Study the performance characteristics of various semiconducting, dielectric and ins materials and their applications in design of electrical and electronic devices.Identify various magnetic materials and their classificationLearn various special purpose of materialsDistect Code&lt;</td></t<>	VI SemPower Semiconductor DrivesB18EE26ing the contents of this subject, the student must be able toAnalyze the operation of converter fed dc motors and four quadra using dual convertersDescribe the chopper fed dc motors in various quadrants of operaKnow the concept of speed control of induction motor by using A voltage source inverters.Differentiate the stator side control and rotor side control of 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SemElectrical Engineering MaterialsB18EE28L/T/P :3/0 /0ing the contents of this subject, the student must be able toImpart the knowledge on electrical engineering materials classification and their ap Study the performance characteristics of various semiconducting, dielectric and ins materials and their applications in design of electrical and electronic devices.Identify various magnetic materials and their classificationLearn various special purpose of materialsDistect Code<				

3	Understand	the operation of resonant converter	s.					
4	Know the di	ifferences between VSI and CSI.						
5	Gain knowl	edge on the operation of multilevel	inverters.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Advanced Control Systems	B18EE30	L/T/P :3/0/0	3			
After learni	ing the conter	nts of this subject, the student must	be able to		1			
1	Understand	different non linearities and their de	escribing function	s.				
2	Describe the	e methods of Phase-plane trajectory	of nonlinear cont	rol systems.				
3	Apply vario	us theorems for stability analysis of	f linear and nonlin	ear systems.				
4	Implement 1	nodal control and calculus of variat	tions.					
5	Formulate a	Formulate and solve optimal control problems.						
Course	se Semester Subject Name Subject Code No. of Hours				Credits:			
Outcome	VI Sem	High Voltage Engineering	B18EE31	L/T/P :3/0/0	3			
After learni	ing the conter	nts of this subject, the student must	be able to		1			
1	Understand	Transients in power system.						
2	Acquire the	knowledge on breakdown in solid,	Liquid and gaseou	us dielectrics.				
3	Understand	the generation of high voltage and	current.					
4	Identify the	measurement of high voltage and c	urrent.					
5	Analyze pov	wer apparatus and insulation coordi	nation.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Power Electronics Lab	B18EE32	L/T/P :0/0 /2	1			
After learni	ing the conter	nts of this subject, the student must	be able to		ı			
1	Study Chara	acteristics of various Power Semico	nductor devices.					
2	Analyze AC	C/AC and AC/DC Converters.						
3	Analyze the	behavior of various DC/DC and D	C/AC converters					
4	Understand	types of Power Electronic converte	rs and identify the	ir applications				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Power Systems Lab	B18EE33	L/T/P :0/0 /2	1			
After learni	ing the conter	nts of this subject, the student must	be able to		•			
1	Calculate Tr	ransmission line parameters, efficie	ncy and regulation	1.				
2	Evaluate the	e Performance analysis of Over/Und	ler Voltage Relay					
3	Understand	the Analysis and performance testing	ng of Feeder Prote	ection System				
4	Calculate Se	equence Reactances of 3-Φ Transfo	rmer.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Electronics Design Lab	B18EE34	L/T/P :1/0 /2	2			
After learni	ing the conter	nts of this subject, the student must	be able to		•			
1	Design the	various regulated power supplies fo	r control boards.					
2	Gain knowl	edge on designing of various trigge	ring circuits for So	CR				
3	Develop sca	ling and conditioning circuits for v	arious sensors.					
4	Develop PW	M control and gate driver circuits	for various power	electronic applica	tions.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Logical Reasoning and	B18MC05	L/T/P :2/0/0	0			
Outcome	VI Dem	Logical Reasoning and	DIGNICUS		ů.			

After learni	ng the conter	nts of this subject, the student must	be able to						
1	Improve the	ir logical thinking in terms of gener	ral and mathemati	cal concepts.					
2	-	academic as well as competitive le	vels through which	h students are able	to solve				
2	the real world problems.								
3	Analyze the number systems								
4	Make quick decisions to face the critical arithmetic problems.								
5		mathematical problems.		_					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VII Sem	<b>Computer Methods in Power</b>	B18EE35	L/T/P :3/0 /0	3				
		Systems							
After learni		nts of this subject, the student must							
1	Learn to dif	ferentiate the incidence and primitiv	ve matrices of a ne	etwork and form Y	bus for				
2	Perform loa	d flow to evaluate the complex volt	age at all nodes in	the power system	1				
3		the faulted power system using Zbu	-	_ •					
4		nmetrical components.	•						
5		ability of the power system for sma	ll and large distur	bance.					
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>				
Outcome	VII Sem	Microprocessors and	B18EC20	L/T/P :3/0 /0	3				
		Microcontrollers							
After learni	ng the conter	its of this subject, the student must	be able to						
1	-	e internal organization of popular 80		ocessors/microcon	trollers.				
2		dware and software interaction and							
3		oprocessors and microcontrollers-b		develop microcor	troller				
		ns for real time applications.	2	1					
4		owledge about microcontroller 805	1 and its program	ning.					
5		Memory organization, classificatio							
	•	g, interfacing etc of various device	••		world.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VII Sem	Soft Computing Techniques	B18EE36		3				
		its of this subject, the student must							
1	-	asic concepts of soft computing and		om hard computin	g				
2		fuzzy logic sets and fuzzy logic con			-				
3	-	various architecture of ANNs and e		-					
-	real-life pro								
4	-	asic concepts of GA and its differen	t architecture to so	olve single objecti	ve				
	optimization			8					
5			mization problems	(MOOPs) and iss	sues of				
5	Understand	the concept of multi-objective optim	mization problems	(MOOPs) and iss	sues of				
5 Course	Understand solving it.	the concept of multi-objective optim	-	(MOOPs) and iss	Sues of Credits:				
	Understand		mization problems Subject Code B18EE37	No. of Hours					
Course Outcome	Understand solving it. Semester VII Sem	the concept of multi-objective optin	Subject Code B18EE37		Credits:				

2	Describe the	VSI and CSI fed induction motor	operation.		
3	Know the co	oncept of vector control of inductio	n motor drive.		
4		the concept of direct torque control		duction motor.	
5		edge on vector control of PMSM di	-		es.
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	VII Sem	HVDC and FACTS	B18EE38	L/T/P :3/0 /0	3
After learni	ing the conter	Its of this subject, the student must	be able to		
1	-	the basic knowledge on converters		f HVDC system	
2		onics filters for reactive power con			
3		ver flow analysis in HVDC system			
4		basic concepts and necessity of FA			
5		bus shunt and series compensators.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	VII Sem	Electrical and Hybrid	B18EE39	L/T/P :3/0 /0	3
		Vehicles			
After learni	ing the conter	its of this subject, the student must	be able to		
1	-	owledge on basic concepts of Elect			
2		interpret fundamental concepts of		s and super capaci	tors.
3	Identify vari	ous Motor drives used for Electric	Vehicles.		
4	Understand	various concepts of Electric Train.			
5	Acquire kno	wledge on series and parallel conn	ections of EHV.		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	VII Sem	Power Quality	B18EE40	L/T/P :3/0 /0	3
After learni	ing the conter	ts of this subject, the student must	be able to		
1		rminology, and definitions of vario		problems	
2	Define and u	understand the components of curre	ent/power in sinus	oidal/non-sinusoid	lal single
	phase supply	y/load systems			
3	Define and u	understand the components of curre	ent/power in sinuso	oidal/non-sinusoid	lal three
	phase supply	y/load systems			
4	Analyze the	e power outages, unbalance, voltage	e sag and distortion	ns in power syster	ns
5					
	Design the p	bassive shunt/series compensators a	nd power filters		
Course	Design the p Semester	bassive shunt/series compensators a Subject Name	nd power filters Subject Code	No. of Hours	Credits:
	÷ .	-	-	No. of Hours L/T/P :3/0 /0	Credits: 3
Course Outcome	Semester VII Sem	Subject Name	Subject Code B18EE41		
Course Outcome	Semester VII Sem ing the conter Acquire a st	Subject Name Digital Control Systems Its of this subject, the student must rong foundation in sampling and re	Subject Code B18EE41 be able to construction Z-tra	L/T/P :3/0 /0 nsforms.	3
Course Outcome After learni	Semester VII Sem ing the conter Acquire a st	Subject Name Digital Control Systems hts of this subject, the student must	Subject Code B18EE41 be able to construction Z-tra	L/T/P :3/0 /0 nsforms.	3
Course Outcome After learni 1	Semester VII Sem ing the conter Acquire a st Apply know Replace the	Subject Name Digital Control Systems Its of this subject, the student must rong foundation in sampling and re reledge of Mathematics, Z-plane and conventional control system with I	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syst	L/T/P :3/0 /0 nsforms. me control system em.	3
Course Outcome After learni 1 2	Semester VII Sem ing the conter Acquire a st Apply know Replace the	Subject Name Digital Control Systems hts of this subject, the student must rong foundation in sampling and re reledge of Mathematics, Z-plane ana	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syst	L/T/P :3/0 /0 nsforms. me control system em.	3
Course Outcome After learni 1 2 3	Semester VII Sem ing the conter Acquire a st Apply know Replace the Evaluate and	Subject Name Digital Control Systems Its of this subject, the student must rong foundation in sampling and re reledge of Mathematics, Z-plane and conventional control system with I	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syst	L/T/P :3/0 /0 nsforms. me control system em.	3
Course Outcome After learni 1 2 3 4	Semester VII Sem ing the conter Acquire a st Apply know Replace the Evaluate and	Subject Name Digital Control Systems its of this subject, the student must rong foundation in sampling and re- reledge of Mathematics, Z-plane ana conventional control system with I d apply Z-plane analysis of discrete	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syst	L/T/P :3/0 /0 nsforms. me control system em.	3
Course Outcome After learni 1 2 3 4 5	Semester VII Sem ing the conter Acquire a st Apply know Replace the Evaluate and Apply state	Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re- reledge of Mathematics, Z-plane ana conventional control system with I d apply Z-plane analysis of discretes feedback controllers and observers	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syste time control syste	L/T/P :3/0 /0 nsforms. me control system em. ems	3
Course Outcome After learni 2 3 4 5 Course Outcome	Semester VII Sem ing the conter Acquire a st Apply know Replace the Evaluate and Apply state Semester VII Sem	Subject NameDigital Control Systemsits of this subject, the student mustrong foundation in sampling and reeledge of Mathematics, Z-plane anaconventional control system with Id apply Z-plane analysis of discretefeedback controllers and observersSubject Name	Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syste time control syste Subject Code B18MB02	L/T/P :3/0 /0 nsforms. me control system em. ems No. of Hours	3 s. Credits:

!	operations th	rough Work study			
2	Carry out pre	oduction operations through Work	study.		
3		the markets, customers and compet	ition better and pr	ice the given prod	ucts
	appropriatel				
4	Ensure quali	ty for a given product or service			
5	Plan and cor	trol the HR function better.			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VII Sem	Oops Trough Java	B18CS52	L/T/P :3/0 /0	3
After learni	ing the conten	ts of this subject, the student must	be able to		
1	Describe the	concepts of Java Programming lar	nguage		
2	Demonstrate	the concepts of Polymorphism and	d Inheritance		
3	Develop rob	ust applications using Exception ha	andling.		
4	Develop mu	ltithreaded applications with synch	ronization		
5	Design GUI	based applications and Applets for	web applications.		
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VII Sem	VLSI Design	B18EC21	L/T/P :3/0 /0	3
After learn	ing the conten	ts of this subject, the student must	be able to		
1	-	IC technology and basic electrical		and BiCMOS.	
2		design process of VLSI circuit			
3		design the gate level circuits.			
4		owledge to design data path subsyst	tems like Adders,	Shifters, ALUs et	2
5		ferent programmable logic devices			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VII Sem	<b>Business Intelligence and Big</b>	B18CS37	L/T/P :3/0 /0	3
		Data			
After learni	ing the conten	ts of this subject, the student must	be able to		
1	Learn the ba	sics concepts and fundamentals of	big data analysis a	and examine its va	rious
	types	F			
2	types	the key technologies such as manip	oulating, storing, a	nd analyzing big o	
2 3	types Understand	the key technologies such as manip			
	types Understand Understand		lore its extensions		
3	types Understand Understand Explore vari	the key technologies such as manip the concept of map reduce and exp	lore its extensions l problems		
3 4	types Understand Understand Explore vari	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world	lore its extensions l problems analysis in the rea		
3 4 5	types Understand t Understand t Explore vari Understand t Semester	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b>	lore its extensions l problems	l world. No. of Hours	lata.
3 4 5 Course	types Understand Understand Explore vari Understand	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data	lore its extensions l problems analysis in the rea <b>Subject Code</b>	l world.	lata. Credits:
3 4 5 Course Outcome	types Understand t Understand t Explore vari Understand t Semester VII Sem	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b>	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b>	l world. No. of Hours	lata. Credits:
3 4 5 Course Outcome	types Understand Explore vari Understand Semester VII Sem ing the conten	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b>	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to	l world. No. of Hours L/T/P :0/0 /2	lata. Credits:
3 4 5 Course Outcome	types Understand to Explore vari Understand to Semester VII Sem ing the conten Demonstrate	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b> ts of this subject, the student must	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to g of Microprocess	l world. <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> or.	lata. Credits: 1
3 4 5 Course Outcome After learni 1	types Understand Explore vari Understand Semester VII Sem ing the conten Demonstrate Exhibit micr	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b> ts of this subject, the student must experimentally basic programmin roprocessor interfacing with various	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to g of Microprocess s peripherals for v	l world. <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> or. arious application	lata. Credits: 1
3 4 5 <b>Course</b> <b>Outcome</b> After learni 1 2	types Understand t Explore vari Understand t Semester VII Sem ing the conten Demonstrate Exhibit micr Demonstrate	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b> ts of this subject, the student must experimentally basic programmin oprocessor interfacing with various experimentally basic programmin	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to g of Microprocess s peripherals for v g of microcontroll	l world. <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> or. arious application er.	lata. Credits: 1 s.
3 4 5 <b>Course</b> <b>Outcome</b> After learni 1 2 3	types Understand t Explore vari Understand t Semester VII Sem ing the conten Demonstrate Exhibit micr Demonstrate	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b> ts of this subject, the student must experimentally basic programmin roprocessor interfacing with various	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to g of Microprocess s peripherals for v g of microcontroll	l world. <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> or. arious application er.	lata. Credits: 1 s.
3 4 5 <b>Course</b> <b>Outcome</b> After learni 1 2 3 4	types Understand Explore vari Understand Semester VII Sem ing the conten Demonstrate Exhibit micr Demonstrate	the key technologies such as manip the concept of map reduce and exp ous big data solutions to real world the ethics and practices of big data <b>Subject Name</b> <b>Microprocessors and</b> <b>Microcontrollers Lab</b> ts of this subject, the student must experimentally basic programmin oprocessor interfacing with various experimentally basic programmin	lore its extensions l problems analysis in the rea <b>Subject Code</b> <b>B18EC29</b> be able to g of Microprocess s peripherals for v g of microcontroll s peripherals for v	l world. <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> or. arious application er. arious application	lata. Credits: 1 s.

1	Get the basic	c simulation knowledge o	n electric:	al subject	ts				
2	Learn the tir	ne response and frequenc	y respons	e analysi	s				
3	Conduct loa	d flow analysis							
4	Gain workin	g knowledge on PSPICE	software						
Course	Semester	Subject Name		Subject Code No. of Hours Cree					
Outcome	VII Sem	Advanced Engli		-	EN03	L/T/P :		1	
		Communication Ski							
After learn	ing the conter	ts of this subject, the stud		be able to	0				
1	<u> </u>	and vocabulary and its pro							
2	<u> </u>	ir for Writing and felicity	•		•				
3	Enhance job	<u> </u>							
4	ě	ctive speaking abilities.							
Course	Semester	Subject Name		Subject (	odo	No. of Ho	IIFG	Credits: 2	
Outcome	VII Sem	Mini Project and Sum		B18EE43		L/T/P :0/0		Cieuits. 2	
Outcome	v II Sem	Internship	mer r	518EE43	, 1	L/1/P:0/0	0		
1	Students wil	1 be able to practice acqui	ired know	ledge wi	thin the	chosen area	a of tech	nology for	
	project deve							8,	
2	+	cuss and justify the techni	ical aspec	ts of the	chosen r	project with	a com	orehensive	
	-	tic approach.	· · · · · · · · · · · · · · · · · · ·		ľ	J	I		
3	•	improve and refine techni	cal aspect	ts for eng	ineering	projects			
4		individual or in a team in					l Comn	nunicate	
		ffectively project related a	-		-	[ · <b>J</b> · · · · ·			
Course	Semester	Subject Name	Subject		-	f Hours	Cr	edits: 4	
Outcome	VII Sem	-	B18EE44	l	L/T/P	:0/0 /8			
1	Identify the	problem by applying a	cquired l	knowled	ge.				
2		lan and implement an i				nental proj	ect.		
3		ill to use some laborato							
4		ommunicate results, co					en and	oral form.	
Course	Semester	Subject Name		Subjec	t Code	No. of H	Iours	Credits:	
Outcome	VIII Sem	Neural Networks and	Fuzzy	B18	EE45	L/T/P:	3/0 /0	3	
		Systems							
After learn	ing the conten	ts of this subject, the stud	lent must	be able to	С	•		•	
1	Understand	the concepts of feed forw	ard neural	Networ	ks				
2	Acquire ade	quate knowledge about fe	edback no	etworks.					
3	Get knowled	lge about the concept of f	uzziness i	nvolved	in vario	us systems	and abc	out fuzzy	
	set theory.								
4	Gain knowle	edge of fuzzy logic contro	and ada	ptive fuz	zy logic	and to desi	gn the f	uzzy	
	control using	g genetic algorithm.			-				
5	Explore kno	wledge of application of t	fuzzy logi	c control	to real t	time system	ns in eng	gineering.	
Course	Semester	Subject Name		Subjec	t Code	No. of I	Iours	Credits:	
Outcome	VIII Sem	Utilization of Elect		_	EE46	L/T/P:	3/0 /0	3	
		Energy							

1	Choose a rig	ght drive for a particular applicatio	n				
2	Identify Hea	Identify Heating and welding schemes for given application.					
3	Explain the	Explain the basics of lighting and methods of illumination and its parameters					
4	Understand	Understand the different schemes of traction systems, its characteristics and its main					
	components						
5	Analyze ele	ctrical energy consumption for trad	ction system.				
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VIII Sem	Smart Grids	B18EE47	L/T/P :3/0 /0	3		
After learni	ing the content	s of this subject, the student must	be able to				
1	Understand t	echnologies for smart grid and fea	tures of Smart Gri	d in the context o	f Indian		
	Grid.						
2	Assess the ro	le of automation in Transmission/	Distribution/subst	ation			
3	Know variou	s communication technologies inv	volved in smart gri	ds and importance	e of		
	PMUs, EMS	, WAMS, SCADA					
4	Classify vari	ous Smart Distribution Technolog	ies				
5	Clarify the re	egulations and market models for s	smart grid and vari	ious tariffs			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VIII Sem	Entrepreneurship	B18MB03	L/T/P :3/0 /0	3		
		Development					
After learni	ing the content	s of this subject, the student must	be able to				
1	Understand t	he qualities and skills of entrepren	eurship				
2	Explore varie	ous aspects that promotes entrepret	neur in the society				
3		he necessity of ethical guidelines i					
4	Understand t	he basics of corporate governance	and its mechanism	n			
5	Understand t	he impact of social responsibility of	of a entrepreneur				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VIII Sem	Embedded Systems	B18EC31	L/T/P :3/0 /0	3		
After learni	ing the content	s of this subject, the student must	be able to				
1		he basics of an embedded system					
2	Learn the me	thod of designing an embedded sy	stem for any type	of applications.			
3		he operating systems concepts, typ		RTOS.			
4		ypes of memory and interacting to	external world.				
5	Learn embed	ded firmware design approaches.					
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VIII Sem	Power Plant Engineering	B18ME36	L/T/P :3/0 /0	3		
After learni	0	s of this subject, the student must					
1		he layout of power generation unit					
2		rent subsystem and systems of por		ctor.			
3	(	sting and emerging alternative ene					
4	÷	opportunities in contributing toward		energy crisis.			
5		ral arrangement of power distribut		r			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VIII Sem	Intellectual Property Rights	B18MB06	L/T/P :3/0/0	3		

After learning the contents of this subject, the student must be able to								
1	Understand the basics and importance of intellectual property rights							
2	Explore the F	Purpose and function of	trade ma	rks and rel	ated p	rocesses		
3	Understand t	he importance of copy i	right and	the issues	involv	ed in its viola	ation	
4	Analyze the t	rade secrets and its asso	ociated la	WS				
5	Explore the r	new developments in IP	'R					
Course	Semester	Subject Name		Subject (	Code	No. of Ho	ours	Credits: 1
Outcome	VII Sem	Technical Seminar		<b>B18EE48</b>		L/T/P :0/0	/0	
1	Identify and	analyze the real time	Electric	al Engine	ering	problems		
2	Acquire awa	areness on latest techn	nology aı	nd current	trend	ls in the fiel	d of E	lectrical
	Engineering	,.						
3	Participate i	n discussions for enha	ancemen	t of know	ledge			
4	Apply comr	nunication skills and	Docume	nt and pre	esent t	echnical rep	orts f	ollowing
	professional	ethics.	-					
Course	Semester	Subject Name	Subjec	et Code	No.	of Hours	C	redits: 8
Outcome	VII Sem	Project Stage – II	<b>B18EE</b> 4	49	L/T/I	P :0/0 /16		
1		problem by applying						
2	Ability to pl	an and implement an	investig	ative or d	evelop	omental pro	ject.	
3	In-depth ski	ll to use some laborat	ory, mod	lern tools	and te	echniques		
4	Ability to co	ommunicate results, c	oncepts,	analyses	and id	leas in writte	en and	l oral form.

#### VAAGDEVI COLLEGE OF ENGINEERING AUTONOMOUS DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING M.TECH. (Software Engineering)

#### **COURSE STRUCTURE**

(R18 Regulations applicable for the batches admitted from Academic Year 2018-19 onwards)

#### **I-SEMESTER**

Course Outcome S.No	Year/Semes terI Sem	Subject Name (Subject Code) Data Structures and Algorithms(M18CS01)	No. of HoursL:3 T:0 P:0	Credits: 3		
1	Understand the basi	cs of Algorithms and Analyze the performance	e and complexity of	f Algorithms		
2		s of basic data structures: Linear and Non Line of data is done on these data structures.	ear and compare ho	w the		
3	Gain knowledge about applications of data structures including creating, inserting, deleting, searching and sorting of data for each data structure.					
4	Experiment with us applications.	ing linear data structures like stacks, queues an	d linked list for real	l time		
5	Distinguish betweer	n Trees and Graphs and the areas where best ap	pplicable.			
6	Be able to decide an	n appropriate data structure for any specific pro	oblem.			
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	Sem	Software Development Methodologies (M18SW01)	L:3 T:0 P:0			
1	Review the basics of software engineering, processes, models and practices.					
2	Understand softwar	e requirement engineering and its application u	using various model	s.		
3	Understand design thinking at varied levels i.e architectural and component level and to also user interface					
4	C C	and its theoretical background along with met intenance of application	trics to test source	code,		
5		d on risks, risk identification, risk projection, aling with change management, survey few too				
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	Sem	Cloud Computing (M18CS05)	L:3 T:0 P:0			
1	Discuss main conce	pts key strengths, and limitations for cloud con	nputing			
2		cture along with specific infrastructure on cloud private cloud, hybrid cloud, etc	l computing includin	ng SaaS,		
3	Explain the issues of	on cloud computing along with security, private	cy, and interoperabi	lity		
4	Choose and use the	appropriate technology, methods on these issu	es			
5	Identify problems, a	and explain, analyze, and evaluate various clou	d computing solution	ons.		
6	Provide the appropr	iate solutions on cloud computing based on th	e application.			
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	Sem	Component Based Software Engineering (M18SW02)	L:3 T:0 P:0			

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1	Understand compo	onent based software development, models and	approaches			
2	Demonstrate the role of team in building component based software development.					
3	Identify the processes involved in Design of Software Component Infrastructures and study existing models.					
4	•	earnt principles in effective reuse and maintenar	nce of software			
5		es that support implementation of component ba		lonment		
Course	Year/SemesterI Subject Name (Subject Code) No. of Hours Credits: 3					
Outcome	Sem	Internet Technologies and services(M18SW03)	L:3 T:0 P:0			
1	Survey client side	technologies for web development.		_		
2		cle of a java servlet and apply it to a develop so	oftware.			
3	-	ding on JSP and enhance the solution using JS				
4	-	on Struts framework and its application, devel		on using this		
	framework.					
5	Introduce web services and service oriented architecture to develop seamless applications that are portable and highly interoperable.					
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits:		
		Software requirements and Estimation				
Outcome	Sem	(M18SW04)	L:3 T:0 P:0			
1	To develop an understanding of software requirements and asses their nature.					
2	To analyze software requirement management.					
3		nate the cost of software development by under	•	ethods.		
4	To be able to draw	conclusions on effort, schedule and cost estimate	tion			
5	Survey tools for requirements management, software estimation tools.					
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits:		
Outcome	Sem	Object Oriented Software Engineering (M18SW05)	L:3 T:0 P:0			
1	To understand Sco Software Process.	ope of Object-Oriented Software Engineering, S	oftware Life-Cycle	e Models,		
2	5	teams, tools for the trade, testing.				
3		te reusable and portable applications.				
4	To be able to draw	v conclusions from requirement workflow.				
5	Design and impler	nent workflow and maintain post delivery				
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	Sem	Information Theory and Coding (M18SW06)	L:3 T:0 P:0			
1		out information and entropy				
2		out Hamming weight, minimum distance decoc	ling and different t	upos of		
2		arn about syndrome calculation and design of ar	-			
3	Understanding the	sequential search and Viterbi algorithm				
4	Apply knowledge	on text compression techniques. They also learn	n about speech and	audio codin		
5	Apply knowledge standards.	on image compression, graphics interchange fo	rmat, JPEG and M	PEG		
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Research Methodology(M18MC01)	No. of Hours L:2 T:0 P:0	Credits: 2		
1		e on Research Design and statistical methods ir				
2		as methods in Data Collection, Data Organization		proaches		

M.Tech-S			<b>R18-R</b> 6	egulations	
3	a. R b. D	basic concepts required to prepare esearch synopsis Dissertation Writing a good research proposal			
4	Interpret the Scope	e of Patent Rights and Administration of Patent	System.		
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) English for Research Paper Writing(M18AC01)	No. of Hours L:2 T:0 P:0	Credits: 0	
1	Obtain complete knowledge on Definition of a research paper, Purpose of writing any research paper, its Scope and Benefits.				
2		ndard English formats .for scripting the best res	A A		
3	Analyze all the Qualitative and Quantitative Research Methodologies and the ethics of plagiarism.				
4	Explain the detailed process of writing and publishing any research paper and perform a case study on paper writing.				
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Software Development Methodologies Lab (M18SW07)	No. of Hours L:0 T:0 P:4	Credits: 2	
1	Review the basics	of software engineering, processes, models and	practices.		
2	Understand softw	are requirement engineering and its application	using various mod	lels.	
3	Understand design userinterface.	thinking at varied levels i.e architectural and	component level a	nd to also	
4		and its theoretical background along with metri aintenance of application	cs to test source of	code,	
5	Develop an understand on risks, risk identification, risk projection, Risk refinement, risk management and dealing with change management, survey few tools for configuration management.				
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Cloud Computing Lab (M18CS10)	No. of Hours L:0 T:0 P:4	Credits: 2	
1		ecture along with specific infrastructure on clou cloud, private cloud, hybrid cloud, etc.	id computing, include	uding SaaS,	
2	Explain the issues	on cloud computing along with security, privac	cy, and interoperab	ility.	
3	Identify problems,	and explain, analyze, and evaluate various clou	id computing solut	ions.	
4	Provide the approp	priate solutions on cloud computing based on th	e application.		

# **II - SEMESTER**

Course Outcome S.No	Year/Semes terII Sem	Subject Name (Subject Code) Software Quality Assurance and Testing (M18SW08)	No. of Hours L:3 T:0 P:0	Credits: 3		
1	Apply modern software testing processes in relation to software development and project management.					
2	Create test strategies and plans, design test cases, prioritize and execute them.					
3	Ability to learn and manage incidents using software testing tools.					
4	Contribute to efficient delivery of software solutions and implement improvements in the software development processes.					
5	To gain expertise in processes.	designing, implementation and development or	To gain expertise in designing, implementation and development of computer based systems and IT			

<u>M.Tech-SV</u> 6	× <b>v</b>		<u>K18-K</u>	gulations
Course Outcome	Year/SemesterII Sem	Software Project and Project Management (M18CS18)	No. of Hours L:3 T:0 P:0	Credits: 3
1	-	b execute projects based on required standards.		
2		ge of tools used on project management.		
3	, , , , , , , , , , , , , , , , , , ,	pts related on project governance and methodol	ogies.	
4		ysis on solving problems and planning process.		
5	1 0	Risk and issues management.		
6	Plan process, pragi	matic planning service delivery and quality assu	irance	
Course Outcome	Year/SemesterII Sem	Subject Name (Subject Code) Software Architecture and Design Patterns (M18SW09)	No. of Hours L:3 T:0 P:0	Credits: 3
1	To understand the	concept of patterns and the Catalog.		
2 3	To discuss the Presvalidation and cons	sentation tier design patterns and their affect on		
4				
		volution of patterns.		
5		Id functionality to designs while minimizing co		0 14 1
Course	Year/SemesterII	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	Sem	Agile Software Development(M18SW10)	L:3 T:0 P:0	
1	Understand the archi	tecture, creating it and moving from one to any, dif	ferent structural patt	erns.
2	Analyze the architec	ture and build the system from the components.		
3		d structural patterns.		
4	Learn about behavio	ral patterns.		
5	Do a case study in u	tilizing architectural structures		
Course Outcome	Year/Semester IISem	Subject Name (Subject Code) Bigdata Analytics (M18SW11)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Understand what	Big Data is and why classical data analysis tech	hniques are no lon	ger adequate
2	Understand the ber	nefits that Big Data can offer to businesses and	organizations	
3	Understand concep	tually how Big Data is stored		
4	Understand how B	ig Data can be analysed to extract knowledge		
5	Communicate with	data scientists		
		Subject Name (Subject Code)	No. of Hours	
Course	Year/Semester	Subject Name (Subject Code)		Credits: 3
Course Outcome	11 Sem	Software Security Engineering (M18SW12)	L:3 T:0 P:0	Credits: 3
Outcome 1	II Sem		L:3 T:0 P:0	Credits: 3
Outcome	<mark>II Sem</mark> An ability to analy	Software Security Engineering (M18SW12)	<b>L:3 T:0 P:0</b> ns.	Credits: 3
Outcome 1	II Sem An ability to analy An ability to condu	Software Security Engineering (M18SW12) ze security and privacy and properties of system	L:3 T:0 P:0 ns. g.	
Outcome           1           2	II Sem An ability to analy An ability to condu An ability to under An understanding	Software Security Engineering (M18SW12) ze security and privacy and properties of system act user-cantered design for security engineering estand programming constraints with systems sec of limitations and advantages of security proto	L:3 T:0 P:0 ns. g. courity. cols, functional and	
Outcome           1           2           3           4	II Sem An ability to analy An ability to condu An ability to under An understanding perspectives, passw	Software Security Engineering (M18SW12) ze security and privacy and properties of system act user-cantered design for security engineering estand programming constraints with systems se of limitations and advantages of security proto word authentication and various alternative syste	L:3 T:0 P:0 ns. g. courity. cols, functional and	
Outcome           1           2           3	II Sem An ability to analy An ability to condu An ability to under An understanding perspectives, passw	Software Security Engineering (M18SW12) ze security and privacy and properties of system act user-cantered design for security engineering estand programming constraints with systems sec of limitations and advantages of security proto	L:3 T:0 P:0 ns. g. courity. cols, functional and	d attacker

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M.Tech-SV		1		gulations			
Outcome	Sem		L:3 T:0 P:0				
1	*	nproved innovative business processes from gap		*			
	0 11	of a company's strategic objectives in a socially	*	•			
2	Develop business 1	models that support a company's strategic object	ctives.				
3	Articulate the interdependence between financial and operational metrics used in value chain						
	analysis to key dec	analysis to key decision makers.					
4	Appraise the impact on financial and operational performance of specific						
5	Evaluate the opport	rtunities for business process and supply chain	n improvement bas	sed on			
	currentbest practice	es across industries, as well as new breakthroug	h thinking.				
6	Analyze the key business processes that drive the value chain of an organization thr						
	theentire product li	fe cycle.					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:			
	IISem	Cyber Security(M18CN12)	L:3 T:0 P:0				
Outcome			L:3 1:0 P:0				
1		ferent kinds of security attacks					
2	Define a internetw	ork security model and identify the TCP					
3	Identify and classify the different types of attacks and suggest appropriate conventional encryption algorithms to be applied.						
4	Gain complete knowledge in number system and areas of applications in public key cryptography algorithms.						
5	Interpret the importance of digital signatures, digital Certificates, Certificate Authority for electronic document transfer on internet.						
6		curity architecture and explain how Pretty Good	d Privacy (PGP) an	d S/MIME			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:			
Outcome	II Sem	Stress Management (M18AC02)	L:2 T:0 P:0				
				1 ' C			
1	effects.	wareness log. Include identification of causes, s	symptoms, and ana	lysis of			
2	Gather information	n on current stress management techniques and	evaluate personal r	elevance.			
3	Practice specific te	echniques, track effectiveness, and revise to me	et personal preferer	nces.			
4	Create an adaptab techniques.	le stress management plan for academic succ	cess incorporating	selected			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2			
		Software Testing Lab(M18SW14)	L:0 T:0 P:4				
Outcome	II Sem						
1	Understanding Sel	enium tool to perform testing					
	Understanding Selenium tool to perform testing						
2	Writing test suits for applications Construct and test simple programs.						
		**					
2 3 4	Construct and test	simple programs.					
3 4	Construct and test Understanding the	simple programs. use of bug tracking and testing tool					
3 4 5	Construct and test Understanding the Ability to learn any	simple programs. use of bug tracking and testing tool y open source Testing tool	No. of Hours	Credits: 2			
3 4	Construct and test Understanding the	simple programs. use of bug tracking and testing tool	No. of Hours L:0 T:0 P:4	Credits: 2			
3 4 5 <b>Course</b>	Construct and test Understanding the Ability to learn any Year/Semester II Sem	simple programs. use of bug tracking and testing tool y open source Testing tool Subject Name (Subject Code) Bigdata Analytics Lab (M18SW15)	L:0 T:0 P:4				
3 4 5 Course Outcome	Construct and test Understanding the Ability to learn any Year/Semester II Sem Understand what E	simple programs. use of bug tracking and testing tool y open source Testing tool Subject Name (Subject Code) Bigdata Analytics Lab (M18SW15) Big Data is and why classical data analysis technology	L:0 T:0 P:4 niques are no longe				
3 4 5 <b>Course</b> 0utcome 1 2	Construct and test Understanding the Ability to learn any Year/Semester II Sem Understand what E Understand the ber	simple programs. use of bug tracking and testing tool y open source Testing tool Subject Name (Subject Code) Bigdata Analytics Lab (M18SW15) Big Data is and why classical data analysis technologies that Big Data can offer to businesses and	L:0 T:0 P:4 niques are no longe				
3 4 5 Course Outcome 1	Construct and test Understanding the Ability to learn any Year/Semester II Sem Understand what E Understand the ber Understand concep	simple programs. use of bug tracking and testing tool y open source Testing tool Subject Name (Subject Code) Bigdata Analytics Lab (M18SW15) Big Data is and why classical data analysis technology	L:0 T:0 P:4 niques are no longe				

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M.Tech-S	W		R18-R	Regulations		
Course Outcome	Year/SemesterII Sem	Subject Name (Subject Code) Mini Project(M18SW16)	No. of Hours L:0 T:0 P:2	Credits: 2		
1	Enhance students	Enhance students' knowledge in current technology				
2	Develop leadersh	Develop leadership ability and responsibility to execute the given task				
3	Enhance their en	Enhance their employability skills along with real corporate exposure				
4	Elaborate the completed task and compile the report.					

## **III-SEMESTER**

Course	Year/Semester IIISem	Subject Name (Subject Code) Information Retrieval Systems (M18SW17)	No. of Hours L:3 T:0 P:0	Credits: 3		
Outcome		• • •				
1	· ·	ce model, understand various similarity coefficie				
2	Develop an Unders Analysis, Thesauri	standing on Relevance feedback, , Clustering, Roll.	egression			
3	Apply various Retr	rieval Utilities for Information Retrieval.				
4	Develop an Unders	standing about Signature files, Duplicate docume	ent detection.			
5	Apply IR principle	Apply IR principles to locate relevant information large collection of data.				
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Principles of Information Security (M18SW18)	L:3 T:0 P:0			
1	Understand the imp	portance of Information Security.				
2		and role of network security.				
3	Deploy the security	y Technologies and adapt various firewalls and I	ntrusion detection s	systems.		
4		nniques used in cryptography.				
5	Plan methods for in	nformation security and demonstrate it with Real	Time problems.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Computer Foreinsics (M18SW19)	L:3 T:0 P:0			
1	Understand the cor	ncepts of E-Commerce consumer application.				
2		ronic payment systems using smart cards & amp; porate Data warehouses.	Analyze broad vie	w of		
3		ply chain management and digital documents &a	amp; Adapt advertis	se and		
4		nods and strategy for E-commerce infrastructure				
5	Discuss issues on p processing	privacy and legal E-commerce & amp; Develop e	lectronic and deskt	op video		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Advanced Optimization Techniques (M18MA01)	L:3 T:0 P:0			
1	Describe problem	clearly, identify and analyze the individual fund	ctions.			
2	Analyze study on s	solving optimization problem.				
3		ormula on optimization problem.				
4	Design algorithms,	, reliably to find an approximate solution.				
5		pare the performance of an algorithm.				
6		understand and solve optimization techniques u	sing algorithms.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Waste Management (M18SE27)	L:3 T:0 P:0			
	III Sem	Evaluate the subject from the technical, legal and economical points .				
1		$\perp$ ct from the technical, legal and economical point	nts.			

M.Tech-SV	W		R18-Re	gulations			
3	Describe environn	Describe environment for sound management.					
4	Understand a mun	Understand a municipal solid waste management system.					
5	Plan a solid waste	management system for decision makers.					
6	Design an incinera	Design an incineration facility.					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	IIISem	Embedded System Design (M18VL07)	L:3 T:0 P:0				
1	Explain the differed designing them.	Explain the different embedded system design techniques and the metrics or challenges in designing them.					
2	Understand the co	mplete architecture of 8051 and Advanced Proc	essor.				
3	Demonstrate Softw	vare programming in Assembly language and H	igh Level Languag	e.			
4		Develop code for object oriented Programming, Embedded Programming using Macros and Functions in c++ and java.					
5		ent Real Time Operating System (RTOS), RTO	S Vx Works, Wind	ows CE.			
6	-	nbedded Software Development Process and To					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:			
Outcome	III Sem	Dissertation Phase-I (M18SW20)	L:0 T:0 P:20	10			
1	Identify the	problem by applying acquired knowledge.					
2	Analyze and	d categorize executable project modules.					
3	Choose effi	cient tools for designing project modules.					
4	Combine al	l the modules through effective team work at	fter efficient testir	ıg			
5		ne completed task and compile the project rep					

# **IV-SEMESTER**

	Year/Semester IV Sem	Subject Name (Subject Code) Dissertation Phase-II (M18SW21)	No. of Hours L:0 T:0 P:32	Credits: 16		
1	Identify the problem by applying acquired knowledge.					
2	Analyze and	Analyze and categorize executable project modules.				
3	Choose effi	Choose efficient tools for designing project modules.				
4	Combine all the modules through effective team work after efficient testing					
5	Elaborate th	Elaborate the completed task and compile the project report.				

M.Tech-SW

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		Autonomous			
an -	El al	Bollikunta, Warangal Urban-506 005 (T.S)			
Vis	WAMBHARA LOUCHINGS	DEPARTMENT OF CIVIL ENGINEERING			
<u>CO</u>	URSE OUTCOMI	ES (CO's) FOR B.TECH –	CIVIL ENGINEER	LING (R18)	
G	V / C	Subject Name (Code):	N. GH		
Course Outcome	Year / Semester : I / I-Sem	Linear Algebra and	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	
		Calculus(B18MA01)			
After the co	-	rse, the students should be a			
1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.				
2	Find the Eigen values and Eigen vectors and Reduce the quadratic form to canonical form using orthogonal transformations.				
3	Analyze the nature of sequence and series.				
4	Solve the applications on the mean value theorems and Evaluate the improper integrals using Beta and Gamma functions.				
5	Find the extreme values of functions of two variables with/ without constraints.				
Course	Year / Semester	Subject Name (Code):	No. of Hours :		
Outcome	: I / I-Sem	English (B18EN01)	L: 2 T: 0 P: 0	Credits: 2	
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	Use English Language effectively in spoken and written forms.				
2	Comprehend the given texts and respond appropriately.				
3	Communicate confidently in various contexts and different cultures.				
4	Acquire basic proficiency in English including reading and listening				
	_	ting and speaking skills.	1 .1 1 1	4	
5	in speaking & writin	nunicates by stating main ideas	s relevantly and coheren	tiy	
		Subject Name (Code):			
Course	Year / Semester	Engineering Chemistry	No. of Hours :	Credits: 4	
Outcome	: I / I-Sem	(B18CH01)	L: 3 T: 1 P: 0		
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	Recall previous knowledge regarding atomic and molecular structure.				
2	The knowledge of organic reaction mechanisms and polymers.				
3	The required principles and concepts of electro chemistry and batteries.				
4	The knowledge of water treatment and corrosion.				
5	Apply phase rule and absorption to construct the materials by analyzing their compositions.				
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Engineering Graphics (B18ME01)	No. of Hours : L: 1 T: 0 P: 4	Credits: 3	

1	Learn the principles	of Engineering graphics and th	neir significance.		
2	Perform projection of lines inclined to one or two planes.				
3	Perform the projections and views on the planes and solids.				
4	Development of surfaces on solids and draw different sections.				
5	Convert orthographic views into isometric views and explore various computer technologies.				
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Programming for Problem Solving (B18CS01)	No. of Hours : L: 4 T: 0 P: 0	Credits: 4	
After the co	ompletion of this cou	urse, the students should be a	ble to	1	
1	Understanding how problems are posed and how they can be analyzed for obtaining solutions.				
2	Understanding the fundamentals of C programming.				
3	Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.				
4	Implementing different operations on arrays and creating and using of functions to solve problems.				
5	Ability to design and implement different types of file structures using standard methodology.				
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): English Language Communication Skills Lab (B18EN02)	No. of Hours : L: 0 T:0 P: 2	Credits: 1	
After the co	ompletion of this cou	rse, the students should be a	ble to	1	
1	Better understanding of nuances of English language through audio- visual experience and group activities				
2	Speaking with clarity and confidence which in turn enhances their employability skills				
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Programming for Problem Solving Lab (B18CS02)	No. of Hours : L: 0 T:0 P: 2	Credits: 1	
After the co	ompletion of this cou	urse, the students should be a	ble to	-	
1	Design the fundame	entals of C programming.			
2	Write C programs using operators				
3	Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.				
4	Implementing different operations on arrays and creating and using of functions to solve problems.				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Differential Equation and Vector Calculus (B18MA02)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	

1	Identify whether the	given differential equation of	first order is exact or no	t	
2	Solve higher differential equation and apply the concept of differential equation to real world problems				
3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and gravity for cubes, sphere and rectangular parallel piped.				
4	Evaluate the Gradient, Divergence and Curl of vector field to predict areas and volumes.				
5	Evaluate the line, surface and volume integrals and converting them from one to another				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Physics (B18PH03)	No. of Hours : L: 4 T: 0 P: 0	Credits: 4	
fter the co	ompletion of this cou	rse, the students should be a	ble to		
1	The student learns about transformation concept.				
2	The student gains knowledge on basics of rigid body dynamics.				
3	Learns about basics of quantum mechanics.				
4	Characterization and study of properties of optodevices helps the students to prepare new materials for various engineering applications.				
5	Gain knowledge about lasers which leads to new innovations and improvements.				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Mechanics (B18CE01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	
fter the co	ompletion of this cou	rse, the students should be a	ble to		
1	Understand the force	e system and Degree of freedor	m		
2	Understand the special force system				
3	Develop algebraic relationships among Key physical parameters and variables based on analysis of a specifiedsystem				
4	Apply the principles of mechanics for solving practical problems related to equilibrium of rigid bodies and particle inmotion.				
5	Apply the dynamic ,motion principles in engineering field				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): OOP's and Data Structures (B18CS50)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cou	rse, the students should be a	ble to		
	To find the differen	ce between structured program	ming and object oriented	Inrogramming	

2	To explain and apply the major object oriented concepts to implement object oriented programs in C++.				
3	To build the basic knowledge to handle operations like insertions, deletions, searching, and traversing mechanisms in linear data structures.				
4	Examine with advanced data structure such as hash tables and priority queue data structures.				
5	Ability to have knowledge on trees, balanced trees, graphs and developing C++ code for non- linear data structures, and different sorting techniques.				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Workshop & IT Workshop (B18ME02)	No. of Hours : L:0T:0P: 3	Credits: 1.5	
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	Know the fundamental knowledge of various trades and their usage in real time Applications.				
2	Gain knowledge of Foundry, Welding, Black smithy, Fitting, Machine shop and house wiring.				
3	Understand the basis for analyzing power tools in construction and wood working, electrical engineering and mechanical engineering.				
4	Use basic concepts of computer hardware for assembly and disassembly.				
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Physics Lab (B18PH04)	No. of Hours : L:0T:0P: 3	Credits: 1.5	
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	The laboratory course helps the student how to operate different equipments related to engineering.				
2	It also allows the student to develop experimental skills to design new experiments in engineering.				
3	The course enlightens the student about modern equipment like solar cell, optical fibre etc.,				
4	With the exposure to these experiments, the student can compare the theory and correlate with experiment.				
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> OOP's and Data Structures Lab (B18CS51)	No. of Hours : L:0T:0P: 2	Credits: 1	
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	Apply the oops concepts like inheritance, polymorphism, abstraction and many more to solve probles using c++.				
2	Understand basic data structures such as arrays, linked lists, stacks and queues.				
3	Able to write programs on hash functions and concepts of collision and its resolution methods , graphs, trees and heaps.				
4	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.				

Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Probability and Statistics (B18MA04)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cou	rse, the students should be a	ble to	
1	Use probability theo	ory and deals with modelling un	ncertainty and apply dis	crete and continuous
1		to evaluate the probability of 1		
2		bbability distributions and its a Binomial and Poisson Distribut		se techniques to
3	Develop continuous generate data from N	probability distributions and in Normal Distribution.	ts applications, and use	these techniques to
4	relationship that may	analysis, in order to estimate the y exist between two variables of the of change in one variable d	of interest, Perform regr	ession analysis to
5	tests concerning pop	e interval estimates for popula pulation parameters, for single orm Student T-test, F-test and Σ	and multiple population	* 1
Course Outcome	Year / Semester : II /III-Sem	<b>Subject Name (Code):</b> Strength of Materials–I (B18CE02)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cou	rse, the students should be a	ble to	I
1	Outline the various	stresses and strains.		
2		e and Bending moment diagrar	n for different beams.	
3	Evaluate the flexura	l and shear stresses for various	s sections.	
4	Calculate the slope a	and deflection of determinant b	beams.	
5	dentify the concepts	of torsion and spring subjecte	d to loading.	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Fluid Mechanics (B18CE03)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cou	rse, the students should be a	ble to	
1	Demonstrate the bas	ic properties of fluids and the	principles of manomete	r.
2	Compute dimension	al flows of a pipe applying cor	ntinuity equation.	
3	*	ent of flow by Eulers and Berr	1 1	
4	Differentiate lamina	r and turbulent flow and variou	us losses in pipe flow.	
5	Determine drag forc	e and lift force of hydraulic str	ructure.	
		Subject Name (Code).	No. of Hours :	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Surveying (B18CE04)	L: 3 T: 0 P: 0	Credits: 3
Outcome	: II / III-Sem	- · · ·	L: 3 T: 0 P: 0	Credits: 3
Outcome	: II / III-Sem	Surveying (B18CE04)	L: 3 T: 0 P: 0 ble to	

3	Understand the process of control surveying and adjustments.			
4	Know the concept of	of Hydrographic and Astronomi	cal surveying.	
5	Understand the prin	ciple of Total station and GPS	surveying.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Basic Electrical and Electronics Engineering (B18EE02)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this co	urse, the students should be a	ble to	
1		NA		
2	NA			
3		NA		
4		NA		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Strength of Materials Lab (B18CE05)	No. of Hours : L:0T:0P: 2	Credits: 1
After the co	ompletion of this co	urse, the students should be a	ble to	
1	Identify the bending	g behavior of beams using bend	ing test.	
2	Determine the behavior of material under torsion.			
3	Determine the hard	ness of materials using differen	t test.	
4		teristic of material using compre		r test.
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Surveying Lab (B18CE06)	No. of Hours : L:0T:0P: 3	Credits: 1.5
After the co	ompletion of this co	urse, the students should be a	ble to	
1	Calculate area of gi	ven plot/points using chain surv	vey.	
2	Determine the angle	e/distance of given points using	compass survey.	
3		distance and height of the given		e
4	Determine the dista	nce of the given points using T	otal station	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Basic Electrical and Electronics Engineering Lab (B18EE03)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5
After the co	ompletion of this co	urse, the students should be a	ble to	
1	Learn to simplify co KCL laws.	omplex electric and electronic c	ircuits by applying the	KVL and
2	Identify the optimal	loading on the system.		
3	Analyze the perform	nance of DC machines.		
4	Identify and analyzed devices.	e the performance and operation	n of semi conducting	

Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Environmental Sciences (B18MC02)	No. of Hours : L: 2 T: 0 P: 0	Credits: 0			
After the co	ompletion of this cou	urse, the students should be a	ble to				
1	Recall previously le in the environment.	arned ecosystem and find how	the biodiversity change	s went			
2		Demonstrate outlines of types of pollutions and related to day-to-day life.					
3		seminars on natural resources.	<u>_</u>				
4		od chains and energy flow mod	els to solve the identifie	ed			
5		f pollutants and distinguish the ke part in the environment.	functions of sustainable	2			
Course Outcome	Year / Semester : II / IV-Sem	<b>Subject Name (Code):</b> Building Materials and Construction Planning (B18CE0)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3			
After the co	ompletion of this cou	urse, the students should be a	ble to				
1	Categorize stone and	d brick material with their prop	erties				
2	Contrast the importa	ance of concrete and its propert	ies				
3	Outline the different	t building components					
4		ilding services and NBS/IS not	rms				
5		out masonry and finishing wor					
		Subject Nome (Code).					
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Strength of Materials – II (B18CE08)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3			
Outcome	: II / IV-Sem	Strength of Materials - II	L: 3 T: 0 P: 0	Credits: 3			
Outcome	: II / IV-Sem	Strength of Materials – II (B18CE08) rrse, the students should be a	L: 3 T: 0 P: 0	Credits: 3			
Outcome After the co	: II / IV-Sem <b>ompletion of this cou</b> Analysis the fixed a	Strength of Materials – II (B18CE08)	L: 3 T: 0 P: 0	Credits: 3			
Outcome After the contract of	: II / IV-Sem mpletion of this cou Analysis the fixed a Evaluate the direct a	Strength of Materials – II (B18CE08) rrse, the students should be a nd continuous beams.	L: 3 T: 0 P: 0 ble to				
Outcome After the co 1 2	: II / IV-Sem <b>ompletion of this cou</b> Analysis the fixed a Evaluate the direct a Determine the critic cylinders.	Strength of Materials – II (B18CE08) arse, the students should be a nd continuous beams. and bending stresses of differer	L: 3 T: 0 P: 0 ble to at structures. a developed in thick and				
Outcome After the co 1 2 3	<ul> <li>: II / IV-Sem</li> <li>Dependence of this could be an address of the second s</li></ul>	Strength of Materials – II (B18CE08) arse, the students should be a nd continuous beams. and bending stresses of differen al load of columns and stresses	L: 3 T: 0 P: 0 ble to at structures. developed in thick and rain energy.	thin			
Outcome After the co 1 2 3 4	<ul> <li>: II / IV-Sem</li> <li>mpletion of this course</li> <li>Analysis the fixed a</li> <li>Evaluate the direct a</li> <li>Determine the critic cylinders.</li> <li>Understand the cond</li> <li>Analyze the unsymmetric cond</li> </ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st	L: 3 T: 0 P: 0 ble to at structures. developed in thick and rain energy.	thin			
Outcome After the co 1 2 3 4 5 Course Outcome	<ul> <li>: II / IV-Sem</li> <li>Dependence of this could and the second analysis the fixed and the direct and the direct and the conditional analyzes of the unsymmetry section.</li> <li>Year / Semester</li> <li>: II / IV-Sem</li> </ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st netrical bending of beams and Subject Name (Code): Hydraulics & Hydraulic	L: 3 T: 0 P: 0 ble to t structures. developed in thick and rain energy. shear centre for differer No. of Hours : L: 3 T: 0 P: 0	thin			
Outcome After the co 1 2 3 4 5 Course Outcome	<ul> <li>: II / IV-Sem</li> <li>mpletion of this course</li> <li>Analysis the fixed a</li> <li>Evaluate the direct a</li> <li>Determine the critic cylinders.</li> <li>Understand the constant of the constant</li></ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st netrical bending of beams and s Subject Name (Code): Hydraulics & Hydraulic Machinery (B18CE09)	L: 3 T: 0 P: 0 ble to nt structures. developed in thick and rain energy. shear centre for differer No. of Hours : L: 3 T: 0 P: 0 ble to	thin tt Credits: 3			
Outcome After the co 1 2 3 4 5 Course Outcome After the co	<ul> <li>: II / IV-Sem</li> <li>mpletion of this course</li> <li>Analysis the fixed a</li> <li>Evaluate the direct a</li> <li>Determine the critic cylinders.</li> <li>Understand the constant of the constant</li></ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st netrical bending of beams and Subject Name (Code): Hydraulics & Hydraulic Machinery (B18CE09) urse, the students should be a knowledge in open-channel hydraulicy	L: 3 T: 0 P: 0 ble to at structures. a developed in thick and rain energy. shear centre for differer No. of Hours : L: 3 T: 0 P: 0 ble to draulics in Civil Engine	thin tt Credits: 3			
Outcome After the co 1 2 3 4 5 Course Outcome After the co 1 2 2 3 4 5 Course C	<ul> <li>: II / IV-Sem</li> <li>Dependence of this course</li> <li>Analysis the fixed a</li> <li>Evaluate the direct a</li> <li>Determine the critic cylinders.</li> <li>Understand the constant of the consta</li></ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st netrical bending of beams and st <b>Subject Name (Code):</b> Hydraulics & Hydraulic Machinery (B18CE09) urse, the students should be a knowledge in open-channel hy- al analysis and similarity to dev	L: 3 T: 0 P: 0 ble to at structures. a developed in thick and rain energy. shear centre for differer No. of Hours : L: 3 T: 0 P: 0 ble to draulics in Civil Engine velop hydraulic model.	thin nt Credits: 3			
Outcome After the co 1 2 3 4 5 Course Outcome After the co 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<ul> <li>: II / IV-Sem</li> <li>&gt; mpletion of this course</li> <li>&gt; Analysis the fixed a</li> <li>&gt; Evaluate the direct a</li> <li>&gt; Determine the critic cylinders.</li> <li>&gt; Understand the cond</li> <li>&gt; Analyze the unsymmetric section.</li> <li>&gt; Year / Semester</li> <li>: II / IV-Sem</li> <li>&gt; mpletion of this course</li> <li>&gt; Apply fundamental</li> <li>&gt; Describe dimension</li> </ul>	Strength of Materials – II (B18CE08) urse, the students should be a nd continuous beams. and bending stresses of differer al load of columns and stresses cept of principal stresses and st netrical bending of beams and Subject Name (Code): Hydraulics & Hydraulic Machinery (B18CE09) urse, the students should be a knowledge in open-channel hydraulicy	L: 3 T: 0 P: 0 ble to t structures. developed in thick and rain energy. shear centre for differer No. of Hours : L: 3 T: 0 P: 0 ble to draulics in Civil Engine velop hydraulic model. velop hydraulic model.	thin nt Credits: 3			

Course Outcome	Year / Semester : II / IV-Sem	<b>Subject Name (Code):</b> Structural Analysis – I (B18CE10)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3		
After the co	mpletion of this cou	rse, the students should be a	ble to			
1	Build knowledge ab	out energy principles and comp	puting deflection of bea	ams.		
2	Analyze the different types of arches.					
3	Gain knowledge abo	out cables and suspension bridg	ges.			
4	Analyses the proppe	d cantilever and continuous be	eam.			
5	Contrast the concept	t of plastic analysis of structure	es.			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Engineering Geology (B18CE11)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3		
After the co	mpletion of this cou	rse, the students should be a	ble to			
1	of basic sciences and	es of rocks within the frameword d with emphasis on their practi	cal utility in civil engin	eering.		
2	quantification.	mechanical properties of rocks	Ç	1		
3	Justify importance or redistribution of stree	f residual stresses in rock masses during.	s and to model the			
4	geophysical investig					
5	Apply geological pridams and tunnels.	inciples for mitigation of natur	al hazards and select si	tes for		
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Basic Mechanical Engineering (B18ME52)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3		
		rse, the students should be a				
1		Energy sources and IC engine				
2		noval process using Lathe, drill		ions.		
3 4		ation and usage of various engine of operation of Impulse and	-			
5		nce of engineering materials.	reaction turbille.			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Fluid Mechanics & Hydraulic Machinery Lab (B18CE12)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1		
After the co		rse, the students should be a				
1		uring devices used in pipes, ch				
2	-	al understanding of the minor a ze laminar and turbulent flows	-	ре		
3	Demonstrate a pract	ical working of Hydraulic mac d other miscellaneous hydraul	hines- different types o	f		
4	Compare the results	of analytical models introduce d flows and draw correct and s	ed in a lecture to the act			

Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Engineering Geology Lab (B18CE13)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1				
After the co	ompletion of this cou	irse, the students should be a	ble to					
1	_	und surface features based on r mental concepts of basic scient						
2	Identify physical and mechanical properties of rocks and minerals and its application in civil engineering uses.							
3		dip of the bedding planes.						
4	-	he sections for geological maps ed beds, folds, faults.	s showing horizontal bee	ls,				
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Building Drawing Lab – CAD (B18CE14)	No. of Hours : L: 0 T: 1 P: 2	Credits: 2				
After the co	mpletion of this cou	irse, the students should be a	ble to					
1	Use the usage of Au	ttoCAD commands.						
2	Draw the plan and e	levation of the building structu	ires.					
3	Draw the 2D & 3D	building elements.						
4	Detail the building of	components in Auto CAD draw	vings.					
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Gender Sensitization	No. of Hours : L: 2 T: 0 P: 0	Credits: 0				
		(B18MC07)						
		irse, the students should be a						
1	Define the need and importance of women empowerment.							
2	Extend the levels of	understanding and classification	on of gender disparities.					
3	Identify the need of	equal distribution of work in the	he entire sector irrespect	ive of gender.				
4	Construct the emerg	ency needs of saving girl child						
5	Improves thinking le realization in the so	evels to find solution to the misciety.	ssing women and bring					
Course Outcome	Year / Semester : III / V-Sem	<b>Subject Name (Code):</b> Design of Steel Structures (B18CE15)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3				
After the co		irse, the students should be a	ble to					
1	Explain and Design		-					
2		the tension, compression mem						
3		n plastic moment and the eccen	tric connections.					
4		der and various stiffeners.						
5	Analyse and Design	the components of roof trusse	s.					
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Geotechnical Engineering (B18CE16)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3				
After the co		rse, the students should be a						
1	solutions through sy							
	solutions through systematic analysis. Analyse the water flow and providing solutions to counter the hydraulic							
2	pressures.			pressures. Awareness of the classical concepts of soil mechanics and its necessity.				

4	Ability to analyze the consolidation settlements.				
5	Understand the principles of compaction to improve the soil stratum.				
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Concrete Technology (B18CE17)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co		rse, the students should be a			
1		cement materials and types of a			
2		f aggregates, properties and its			
3	Design the mix prop	ortion of concrete and learn fr	esh properties of concre	ete.	
4		hardened and durability proper			
5	Obtain knowledge o	f special concretes and its appl	lication.		
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Engineering Hydrology (B18CE18)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	Determine the quant	ity of precipitation available for	or a given catchment are	ea.	
2	Apply different met	hods to formulate the velocity	of stream flow.		
3	-	nce of estimation of runoff, and a unit hydrograph, flood hydrog	•		
4	Make use of Techni	ques of the Hydrograph to fore	ecast Flood discharge at	various duration.	
5	Build the necessary their yields.	theoretical background of grou	und water hydrology, ty	pes of aquifers and	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Engineering Hydrology (B18CE18)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	1	ity of precipitation available for		ea.	
2		hods to formulate the velocity			
3		nce of estimation of runoff, and s unit hydrograph, flood hydrog			
4	Make use of Techni	ques of the Hydrograph to fore	ecast Flood discharge at	various duration.	
5	Build the necessary their yields.	theoretical background of grou	and water hydrology, ty	pes of aquifers and	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Structural Analysis-II (B18CE33)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co		rse, the students should be a			
1	Analysis the portal f bending moments di	rames by slope deflection metl agram for frames.	hod and learn to draw th	he shear force and	
2	-	f approach to analysis of portal	l frame by moment distr	ibution method.	
3		ms and frames by Kani's meth			
4		•	* *		
•	Analyze the continuous beam, Pin jointed plane frame using the flexibility of stiffness method. Gain knowledge to calculate the Shear force and bending moment on the				

Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Remote Sensing (B18CE34)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cou	irse, the students should be a	ble to	
1	Understand the term	ninology,concept of remote sen	sing,types of radiation.	
2	Understand differen systems.	t characteristics of platforms,ty	pes of data acquisition	
3	Able to understand	the image formations, analyse t	he corrections.	
4	Apply the linear and	l non-linera techniques in imag	e enhacements.	
5	Apply the remote se	nsing in engineering and scien	ce streams.	
Course Outcome	Year / Semester : III / V-Sem	<b>Subject Name (Code):</b> Environmental Impact Assessment (B18CE35)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co		irse, the students should be a		
1	Acquire the knowle	dge of Environmental impacts,	control and regulations	
2	Understand environ	mental clearances and guideline	es.	
3	Understands environ	nment laws and regulations.		
4		to prepare an audit report.		
5	Prepare EIA reports	and environmental manageme	nt plans.	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Managerial Economics and Financial Analysis (B18MB01)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cou	rse, the students should be a	ble to	
1	Understand the natu	re, scope and importance of M	anagerial Economics.	
2		nd, analyze demand and how e luate methods for forecasting o		sed for pricing
3	Know how producti how to analyze cost	on function is carried out to ac	hieve least cost combin	ation of Inputs and
4		acteristics of different kinds of on and analyze how capital bud		
5	Know how to prepa statements using rat	re final accounts and how to in io analysis.	terpret them, analyze ar	nd interpret financial
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Concrete Technology Lab (B18CE19)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1
After the co		rse, the students should be a		
1		e test on cement and aggregate		
2		bility of fresh the Concrete.		
3		gth characteristics of harden co		
4	Gain knowledge of	non-destructive test on concrete	e	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Geo Technical Engineering Lab (B18CE20)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1

After the co	mpletion of this cou	urse, the students should be a	ble to		
1	Classify soils and ap	ppropriately designate them.			
2	Calculate the permeability value of soil.				
3	Determine engineering properties of soil and suggest suitable field improvements.				
4	Determine the shear	strength properties of soil.			
a	Subject Name (Code):				
Course	Year / Semester	Indian Constitution	No. of Hours :	Credits: 0	
Outcome	: III / V-Sem	(B18MC04)	L: 2 T: 0 P: 0		
After the co	mpletion of this cou	rse, the students should be a	ble to		
	-	edge and legal literacy about In		here by it helps to	
1	take up competitive	examinations & to manage/fac	e complex societal issue	es in society.	
	Understand state and central policies( Union and State Excutive), fundamental Rights & their				
2	duties.	r	····· ,,, · · · · ,,	0	
3		al Process and special provision	ns in Constitution.		
4		endments in Indian Constitution			
		and functions of Municipalitie		erative	
5		an Rights and NHRC.	.,,,		
a	V. / G. /	Subject Name (Code):			
Course	Year / Semester	Design of RC Structures	No. of Hours :	Credits: 3	
Outcome	: III / VI-Sem	(B18CE21)	L: 3 T: 0 P: 0		
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	Design the singly re	inforced, doubly reinforced and	d flange sections.		
2	Design the RC bean	ns under flexure, shear and tors	sion.		
3	Design the one-way	slab, two-way slab and stairca	se.		
4	Design the axially lo	paded, uniaxial and biaxial ben	ding columns.		
5	Design the isolated	square, rectangular and circula	r footings		
Courses	Veen / Competen	Subject Name (Code):	No. of House		
Course	Year / Semester : III / VI-Sem	Irrigation Engineering	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
Outcome	. III / v1-Selli	(B18CE22)	L: 3 1: 0 P: 0		
After the co		irse, the students should be a			
1	-	s, techniques and modernizatio	-	-	
1		on-farm development and comr			
2	Distribution systems	s for canal irrigation and the ba	asics of design.		
3	Unlined and lined in	rigation canal design			
4	Analyze gravity and				
5	Plan and design dive	ersion Headworks.			
Course	Year / Semester	Subject Name (Code):	No. of Hours :		
Outcome	: III / VI-Sem	Highway Engineering	L: 3 T: 0 P: 0	Credits: 3	
Outcome	. III / VI-Sein	(B18CE23)	L. 5 1. 01. 0		
After the co		irse, the students should be a			
1		g process required for highway			
2		ment: sight distance, horizontal	=	ion,	
3		f traffic volume and importanc			
4		e highway materials and desigr			
	Design overlay, analyze the causes for failure of flexible and rigid pavement				
5	8 5/	Subject Name it mar			
		Subject Name (Code): Foundation Engineering	No. of Hours ·		
5 Course Outcome	Year / Semester : III / VI-Sem	Foundation Engineering (B18CE36)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	

1	Understand soil exploration methods and calculate the bearing capacity of soils.				
2	Detect the failures in slopes and suggest appropriate improvement methods.				
3	Determine the earth pressures and provide sustainable retaining structures.				
4	Analyze and design	shallow foundations.			
5	Analyze and design	deep foundations.			
G	V. / G	Subject Name (Code):			
Course	Year / Semester	Advanced Surveying	No. of Hours :	Credits: 3	
Outcome	: III / VI-Sem	(B18CE37)	L: 3 T: 0 P: 0		
After the co	mpletion of this cou	rse, the students should be a	ble to		
1		ngulation method, system, basel			
2	Apply different methods to find locations				
3	Understand the basi	c principles of theodolite, photo	ogrammetric		
4		inology and concepts of astron	•	rent	
5		e of Total Station and GPS in a			
		Subject Name (Code):			
Course	Year / Semester	Ground Improvement	No. of Hours :	Credits: 3	
Outcome	: III / VI-Sem	Techniques (B18CE38)	L: 3 T: 0 P: 0	Cituits. 5	
fter the ee		rse, the students should be a	hla 4a		
1		provement technique which is		lfor	
-				11 101	
2		niques based on the various typ	pes of sons m-situ.		
3	Design reinforced ea				
4		e of geo-synthetic material for	-		
5	Apply the knowledg	e of modification by confinem	ent.		
		Subject Name (Code):			
Course	Year / Semester	Rehabilitation & Retrofitting	No. of Hours :	<b>A 1</b> <sup>1</sup> <b>4 2</b>	
Outcome	: III / VI-Sem	of Structures (B18CE39)	L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	rse, the students should be a	ble to		
1		stress & damage of structures.			
2	Understand about pr				
3	1	prosion of steel reinforcement.			
4		fferent techniques of repairs of			
-		Ith Monitoring of Structures by			
5			/ Schsors.		
C	V / C	Subject Name (Code):	N. CHART		
Course	Year / Semester	Geographical Information	No. of Hours :	Credits: 3	
Outcome	: III / VI-Sem	System (B18CE40)	L: 3 T: 0 P: 0		
A1					
		rse, the students should be a	Die to		
1		ncept Of Cadastral Maps.	<u></u>		
2		ound Points, Different Sources	Of Map Information.		
3		The Points Through Digital.			
4	Understand The Bas	sics Of Open Source Software.			
5	Applying The GIS I	n The Maps With Alignemts.			
		Subject Neme (Cade):			
Course	Year / Semester	Subject Name (Code):	No. of Hours :	C 124 - 2	
Outcome	: III / VI-Sem	Construction Management	L: 3 T: 0 P: 0	Credits: 3	
		(B18CE41)			
	1				
fter the co	mpletion of this cou	rse, the students should be a	ble to		

2	Understand network techniques, management and its applications CPM & PERT.				
3	Able to get knowledge on resource planning, methods of budgets.				
4	Understand the cond	cepts of contract, types of contra	act.		
5	Learn about legal an	d financial aspects, safety system	ems.		
		Subject Name (Code):			
Course	Year / Semester	Human Values and	No. of Hours :		
Outcome	: III / VI-Sem	Professional Ethics	L: 3 T: 0 P: 0	Credits: 3	
		(B18EN04)			
After the co		rse, the students should be a			
1	It ensures students s skills.	ustained happiness through ide	entifying the essentials of	of human values and	
2	It facilitates a correct	t understanding between profe	ssion and happiness.		
3	It helps students und	lerstand practically the importa	nce of trust, mutually s	atisfying human	
5		ing interaction with nature.			
4	Ability to develop a	ppropriate technologies and ma	anagement patterns to cr	reate	
5	Learn ethichs in Glo	bal Issues and problems in ext	ortion.		
Course	Year / Semester	Subject Name (Code):	No. of Hours :		
Outcome	: III / VI-Sem	Database Management	L: 3 T: 0 P: 0	Credits: 3	
Outcome	. 111 / 1-50111	System (B18CS04)			
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	Ability to understan	d the fundamental concepts of	database management.		
	Ability to analyze da	atabase models & Entity Relation	onship models and to d	raw	
2	the E-R diagram for	the given case study.	-		
	Apply relational Database Theory, and be able to write relational algebra				
3	expressions for quer		6		
4		ge of basics of SQL and constr	uct queries using SOL.		
		n Process to construct the datal		ies of	
5	transaction processi		I		
	_	Subject Name (Code):			
Course	Year / Semester	Power Plant Engineering	No. of Hours :	Credits: 3	
Outcome	: III / VI-Sem	(B18ME36)	L: 3 T: 0 P: 0	creatis. 5	
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	-	ut of power generation units fo		rs.	
2	Identify different su	hsystem and systems of power	generation sector		
	Identify different subsystem and systems of power generation sector.				
	-	· · · · · ·	-		
3	Compare existing an	d emerging alternative energy	sources	isis.	
3 4	Compare existing an Analyze the opportu	ad emerging alternative energy nities in contributing towards t	sources the solving of energy cr	isis.	
3	Compare existing an Analyze the opportu	d emerging alternative energy nities in contributing towards t ngement of power distribution	sources the solving of energy cr	isis.	
3 4 5	Compare existing ar Analyze the opportu Discuss general arra	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b>	sources the solving of energy cr		
3 4 5 Course	Compare existing ar Analyze the opportu Discuss general arra Year / Semester	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English	sources the solving of energy cr No. of Hours :	isis. Credits: 1.5	
3 4 5	Compare existing ar Analyze the opportu Discuss general arra	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab	sources the solving of energy cr		
3 4 5 Course Outcome	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03)	sources the solving of energy cr No. of Hours : L:0T:0P: 3		
3 4 5 Course Outcome	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem mpletion of this cou	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be a</b>	sources the solving of energy cr No. of Hours : L:0T:0P: 3 ble to	Credits: 1.5	
3 4 5 Course Outcome After the co 1	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem <b>mpletion of this cou</b> Developing effective	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be al</b> ely and appropriate vocabulary	No. of Hours : L:0T:0P: 3 ble to to be used contextually	Credits: 1.5	
3 4 5 Course Outcome After the co 1 2	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem <b>mpletion of this cou</b> Developing effective Inculcating flair for	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be a</b> ely and appropriate vocabulary Writing and felicity in written	No. of Hours : L:0T:0P: 3 ble to to be used contextually	Credits: 1.5	
3 4 5 Course Outcome After the co 1 2 3	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem <b>mpletion of this cou</b> Developing effective Inculcating flair for Enhancing job prosp	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be a</b> ely and appropriate vocabulary Writing and felicity in written pects.	No. of Hours : L:0T:0P: 3 ble to to be used contextually	Credits: 1.5	
3 4 5 Course Outcome After the co 1 2	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem <b>mpletion of this cou</b> Developing effective Inculcating flair for Enhancing job prosp Acquiring effective	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be al</b> ely and appropriate vocabulary Writing and felicity in written beets.	sources sources the solving of energy cr No. of Hours : L:0T:0P: 3 ble to to be used contextually expression.	Credits: 1.5	
3 4 5 Course Outcome After the co 1 2 3	Compare existing ar Analyze the opportu Discuss general arra Year / Semester : III / VI-Sem <b>mpletion of this cou</b> Developing effective Inculcating flair for Enhancing job prosp	ad emerging alternative energy nities in contributing towards to ngement of power distribution <b>Subject Name (Code):</b> Advanced English Communications Skills Lab (B18EN03) <b>rse, the students should be a</b> ely and appropriate vocabulary Writing and felicity in written pects.	No. of Hours : L:0T:0P: 3 ble to to be used contextually	Credits: 1.5	

After the co	mpletion of this cou	rse, the students should be a	ble to	
1		ement materials based on prop		
2	_	trol tests on pavement material		
3		basic understanding of mix des		
4	-	ent features of traffic studies.	8	
Course	Year / Semester	Subject Name (Code):	No. of Hours :	
Outcome	: III / VI-Sem	Structural Design and	L: 0 T: 0 P: 3	Credits: 1.5
		Detailing Lab (B18CE25)		
After the co	mpletion of this cou	rse, the students should be a	ble to	
1		detailing of reinforcement in fo		
2		detailing of reinforcement of d	-	18
3		detailing of reinforcement of d		
4	Draw the steel struc		v 1	
		Subject Name (Code):		
Course	Year / Semester	Logical Reasoning and	No. of Hours :	
Outcome	: III / VI-Sem	Quantitative Aptitude	L: 2 T: 0 P: 0	Credits: 0
		(B18MC05)		
After the co	mpletion of this cou	irse, the students should be a	ble to	
		gical thinking in terms of gener		
1	concepts.			
	To improve students	s to compete in academic as we	ell as competitive levels	
2	-	ents are able to solve the real w	-	
3	To make quick deci	sions to face the critical proble	ms.	
-	Improve their mathe	ematical skills in various genera	al aspects to solve real v	vorld
4	problems.	sinaitear sittiis in various genere		, ond
G	V. / G	Subject Name (Code):		
Course	Year / Semester	Estimation and Valuation	No. of Hours :	Credits: 4
Outcome	: IV / VII-Sem	Practice (B18CE26)	L: 3 T: 1 P: 0	
After the co	mpletion of this cou	rse, the students should be a	ble to	
1		d estimate of RC building.		
2	Evaluate the rate for	construction activities.		
3	Prepare the report a	nd tender for the contact works	5.	
4	Understands what ty	pe of contract is used for a spe	ecific work.	
5	Understands the imp	portance of valuation.		
Comme	Veen / Commenter	Subject Name (Code):	No of Harris	
Course	Year / Semester	Environmental Engineering	No. of Hours :	Credits: 3
Outcome	: IV / VII-Sem	(B18CE27)	L: 3 T: 0 P: 0	
After the co	ompletion of this cou	irse, the students should be a	ble to	
1	Acquire the knowle	dge of the water borne diseases	s and Serve the commun	ity by
1	making people awar	e with the different pollution re	elated problems.	
2	Demonstrate the ste	ps involved in water filtering.		
3	Acquire the knowle	dge of water distribution syster	n and their fittings.	
4		collection systems & design se		
	-	the different processes of water		e
5	-	design of the water treatment p		
		- 1		

Course	Year / Semester	Subject Name (Code): Watershed Management	No. of Hours :	Cueditor 2
Outcome	: IV / VII-Sem	(B18CE42)	L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cou	irse, the students should be a	ble to	
1	Comprehend the pha watershed.	ysical, biological and environm	nental aspects and their i	nterrelations within
2	Identify the causes of			
3		er harvesting and groundwater		
4	Choose and apply a	vailable system tools for system	natic intervention.	
5		and design a sustainable waters towards the multiple use of lar ability.		
Course Outcome	Year / Semester : IV / VII-Sem	<b>Subject Name (Code):</b> Transportation Engineering (B18CE43)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cou	irse, the students should be a	ble to	
1	Understand various	components and characteristics	s of traffic.	
2	Conduct different tr	affic studies and analyze the da	ata.	
3	Analyze and determ	ine the LOS of highway.		
4	Analyze and design	the intersections.		
5	To know various tra	ffic control devices and princip	oles of highway safety.	
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Bridge Engineering (B18CE44)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cor	irse, the students should be a	ble to	
1		of bridges and its loading.		
2		o and T-Beam bridges.		
3		s and design of plate girder and	d steel truss bridges.	
4	-	bearing and design of piers an		
5		e of bridge inspection and main		
5		Subject Name (Code):		
Course Outcome	Year / Semester : IV / VII-Sem	Pre stressed Concrete (B18CE45)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cou	irse, the students should be a	ble to	
1		ciples and types of prestressing		
2	-	of prestressing and losses of pr		
3		alyze of beams in flexure and sl		
4	-	of prestresses force in member		
5		site beam and deflection.		
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Earthquake Engineering (B18CE46)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
outcome	, , , 11-50111	(BIOCLTO)	1.51.01.0	
After the co		rse, the students should be a		
1		causes of earthquake, Theory		
2	-	the load path, ductility and ear		ments.
3	Analyze and design	of earthquake resistant RC stru	ictures.	

4	Anaalye and design	of earthquake resistant masonr	y structures.		
5		nethodology of structural and r	-		
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Reinforced Earth and Geotextiles (B18CE47)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	irse, the students should be a	ble to		
1		ory and mechanism of reinforce			
2	Become aware about situations where geosynthetics can be used.				
3	Know about various	s types of geosynthetics and the	eir functions.		
4	Be able to do dimple earth beds.	e design of reinforced soil retai	ning walls and reinforce	ed	
5	Able to apply differ	ent types of analysis in simple j Subject Name (Code):	problems.		
Course Outcome	Year / Semester : IV / VII-Sem	Entrepreneur Development (B18MB03)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	irse, the students should be a	ble to		
1		entrepreneur and relate the ski			
2	Classify SWOT and	summarize the sources of fina	nce		
3		idelines for business			
4	Identify the shadow	economy and political issues			
5	Assess the issues of	corporate governance and Imp	rove the professional etl	nics.	
Course Outcome	Year / Semester : IV / VII-Sem	Industrial Management (B18MB05)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	irse, the students should be a	ble to		
1	Define Entrepreneu	rship and Organization.			
2	Design Organization	nal structures and its uses.			
3	Estimate the cost an	d time for projects with the hel	p of PERT and CPM.		
4	Explain the work an	d make use of work study tech	niques.		
5	Solve the various pr	oblems in operation manageme	ent.		
Course Outcome	Year / Semester : IV / VII-Sem	<b>Subject Name (Code):</b> Digital Image Processing (B18EC24)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co		irse, the students should be a			
1	Gain the knowledge of digital image fundamentals and image transforms.				
1					
2	Discuss the analysis	of image enhancement in spat	ial and frequency domain	n.	
-	Discuss the analysis Understand the diffe	of image enhancement in spat erent methods to restore an ima	ial and frequency domainge.		
2 3 4	Discuss the analysis Understand the diffe Inspect different im	of image enhancement in spat erent methods to restore an ima age segmentation techniques ar	ial and frequency domainge. Ind understand morpholog		
2 3	Discuss the analysis Understand the diffe Inspect different im	of image enhancement in spat erent methods to restore an ima	ial and frequency domainge. Ind understand morpholog		
2 3 4	Discuss the analysis Understand the diffe Inspect different im	of image enhancement in spat erent methods to restore an ima age segmentation techniques ar	ial and frequency domainge. Ind understand morpholog		
2 3 4 5 Course Outcome	Discuss the analysis Understand the diffe Inspect different im Analyze the differen Year / Semester : IV / VII-Sem	of image enhancement in spat erent methods to restore an ima age segmentation techniques ar at image compression technique <b>Subject Name (Code):</b> Environmental Engineering	ial and frequency domain ge. Ind understand morphologies. No. of Hours : L: 0 T: 0 P: 2	gical	
2 3 4 5 Course Outcome	Discuss the analysis Understand the diffe Inspect different im Analyze the differen Year / Semester : IV / VII-Sem	s of image enhancement in spat erent methods to restore an ima- age segmentation techniques ar at image compression technique <b>Subject Name (Code):</b> Environmental Engineering Lab (B18CE28)	ial and frequency domainge. Ind understand morphologies. No. of Hours : L: 0 T: 0 P: 2 ble to	gical	
2 3 4 5 Course Outcome	Discuss the analysis Understand the diffe Inspect different im Analyze the differen Year / Semester : IV / VII-Sem	s of image enhancement in spat erent methods to restore an ima- age segmentation techniques ar in image compression technique <b>Subject Name (Code):</b> Environmental Engineering Lab (B18CE28) <b>urse, the students should be a</b> ewater samples to determine pl	ial and frequency domainge. Ind understand morphologies. No. of Hours : L: 0 T: 0 P: 2 ble to	gical	
2 3 4 5 Course Outcome After the co	Discuss the analysis Understand the different im Analyze the different Year / Semester : IV / VII-Sem <b>Ompletion of this cou</b> Test water and wast	s of image enhancement in spat erent methods to restore an ima- age segmentation techniques ar nt image compression technique <b>Subject Name (Code):</b> Environmental Engineering Lab (B18CE28) <b>rse, the students should be a</b> ewater samples to determine pl d COD of water.	ial and frequency domainge. Ind understand morphologies. No. of Hours : L: 0 T: 0 P: 2 ble to	gical	

		Subject Name (Code):				
Course	Year / Semester	Pavement Design	No. of Hours :			
Outcome	: IV / VIII-Sem	(B18CE48)	L: 3 T: 0 P: 0	Credits: 3		
A. 64 (1						
		irse, the students should be a	ble to			
1	Contrast the factors effecting the pavements. Expose to the analysis concepts and procedures for stresses, strains and					
2						
3		cept of soil modification and its				
4		ge of design of flexible and rig		nt		
5	Illustrate the design	of pavement for low volume re	oads and overlays			
		Subject Name (Code):				
Course	Year / Semester	Solid Waste Management	No. of Hours :			
Outcome	: IV / VIII-Sem	(B18CE49)	L: 3 T: 0 P: 0	Credits: 3		
After the co	mpletion of this cou	urse, the students should be a	ble to			
1		dge of solid waste management				
2		disposal techniques.				
3	Acquire the knowle	dge of Biomedical waste dispos	sal techniques.			
		te method for solid waste colle				
4	redistribution and d					
5	Acquire the knowle	dge of e- waste disposal technic	aues.			
	1	Subject Name (Code):	1			
Course	Year / Semester	Finite Element Method	No. of Hours :	Credits: 3		
Outcome	: IV / VIII-Sem	(B18CE50)	L: 3 T: 0 P: 0	ci cuito: o		
After the co	mpletion of this cou	urse, the students should be a	ble to			
1	Introduction to finit	e element method and define st	ress strain equation.			
2	Derive equations in	finite element methods for 1Da	and 2Dproblems.			
3	Formulate and solve	basic problems in structural m	echanics using differen	t elements.		
	Identify and formula	ate mathematical models for so	lution of simple and con	mmon engineering		
4	problems into finite					
5	Appreciate the impo	ortance of ethical issues pertain	ing to the effective utili	zation of FEA		
3		Subject Name (Code):				
Course	Year / Semester	Intellectual Property Rights	No. of Hours :			
Outcome	: IV / VIII-Sem	(B18MB06)	L: 3 T: 0 P: 0	Credits: 3		
After the co	mpletion of this cor	rse, the students should be a	ble to			
1		ng importance of intellectual pr				
2		tion procedures and trade mark				
3		ht principles and rights	registration process			
	1 10	patents and patent ownership.				
4 5						
3	Develop the trade se	cret and maintenance. [Subject Name (Code):				
Course	Year / Semester	Nanotechnology (B18ME25)	No. of Hours :			
Outcome	: IV / VIII-Sem		L: 3 T: 0 P: 0	Credits: 3		
After the co	 	l urse, the students should be al	hle to			
Arter the co		lamentals of Nanotechnology.				
2						
3	Analyze the different classes of nano materials. Differentiate techniques involved in Nanotechnology.					
4	Compare nanotechnology potentialities.					
4	compare nanotechin	ology potentianties.				

5	Estimate oxidation and metallization Mask and its application.				
Course Outcome	Year / Semester : IV / VIII-Sem	Subject Name (Code): Non-Conventional Energy Sources (B18ME42)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cou	rse, the students should be a	ble to		
1	Apply the technology to capture the energy from the renewable sources like sun,				
2	Compare different renewable energy sources to produce electrical power minimize the use of conventional energy sources to produce electrical energy.				
3	3 Identify the fact that the conventional energy resources are depleted.				
4	Understand direct energy conversion.				
5	Differentiate limitations and principles of direct energy conversion.				



#### Course Outcomes for B.Tech – ECE-R18 for the academic year 2018-19 onwards

Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4		
Outcome	I/I Sem	LINEAR ALGEBRA AND CALCULUS			
		(B18MA01)			
After the c	ompletion of this co	urse, the students should be able to			
1	Write the matrix repr system of equations	esentation of a set of linear equations and to an	alyse the solution of the		
2	Find the Eigen value using orthogonal tra	s and Eigen vectors and Reduce the quadratic ansformations.	form to canonical form		
3	Analyse the nature o	f sequence and series.			
4	Solve the applicatio using Beta and Gan	ns on the mean value theorems and Evaluate nma functions.	the improper integrals		
5	Find the extreme valu	ues of functions of two variables with/ without of	constraints.		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4		
Outcome	I/I Sem	PROGRAMMING FOR PROBLEM SOLVING (B18CS01)			
After the co	mpletion of this cours	e, the students should be able to			
1	Understand how problems are posed and how they can be analyzed for obtaining solutions.				
2	Jnderstanding the fundamentals of C programming.				
3	Learn the sequencin scientific and engin	ng, branching, looping and decision makin eering problems.	g statements to solve		



4	mplement different operations on arrays and creating and using of functions to solve problems.					
5	Design and implement	Design and implement different types of file structures using standard methodology.				
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) APPLIED PHYSICS (B18PH01)	L:4 T: 0 P: 0 C: 4			
After the co	mpletion of this cours	e, the students should be able to				
1	llustrate fabrication of	semi conductors, photo detectors, design basis of qu	antum mechanics			
2	Recall facts of wave op	Recall facts of wave optics extend & construct basics of wave optics.				
3	nterpret about lasers, v	which leads to new innovations and improvements				
4	Elaborate and formulate the study of characterization properties of opto-devices, organize the students to prepare new materials for various engineering applications					
5		Apply basic knowledge on principles and recalls facts of light properties, and motivate for new innovations. analyze applications of optical fibers				
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGLISH (B18EN01)	L: 2 T: 0 P: 0 C: 2			
After the co	mpletion of this cours	e, the students should be able to	1			
1	Recall the enrichment of comprehension and fluency will be adaptable.					



2	Gain confidence in using language in varied situations					
3	Develops neutralization	Develops neutralization of accent for intelligibility.				
4	Adapt effective speaki	ng abilities.				
5	Develops and Commun	nicates by stating main ideas relevantly and coher	ently in speaking & writing.			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) APPLIED PHYSICS LAB (B18PH02)	L: 0 T: 0 P: 3 C: 1.5			
After the co	mpletion of this cours	se, the students should be able to				
1		oments related to light & electronics.				
2	Develop experimental	skills to design new experiments & circuit design				
3	Jnderstand about mod	ern equipment like solar cell, optical fiber etc.,				
4	Have Exposure to deve	elop novel semi conductor devices.				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 1.5			
Outcome	I/I Sem	ENGINEERING WORKSHOP & IT				
Outcome						
		WORKSHOP (B18ME02)				
After the co	mpletion of this cours	se, the students should be able to				
1	Know the usage of various tools and their applications in carpentry, tin smithy.					
2	Jnderstand the usage of various tools and their application in black smithy, foundry, welding and house wiring.					
3	Make lap joint and dove tail joint in carpentry, scoope, funnel and tray items in tin smithy.					



Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 2 C: 1				
Outcome	I/I Sem	PROGRAMING FOR PROBLEM					
		SOLVING LAB (B18CS02)					
After the co	After the completion of this course, the students should be able to						
1	Jnderstand how prob	plems are posed and how they can be analyzed	d for obtaining solutions				
2	Understand basic stru	acture of the C programming, declaration and	usage of variables.				
3		sing operators. Implement different operatio ons to solve problems.	ns on arrays and creating				
4	Learn the sequencing, branching, looping and implement different types of file structures and decision making statements to solve scientific and engineering problems.						
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4				
Outcome	I/II Sem	DIFFERENTIAL EQUATIONS AN VECTOR CALCULUS (B18MA02)	D				
After the c	ompletion of this co	urse, the students should be able to					
1	dentify whether the	given differential equation of first order is ex	act or not				
2	Solve higher order or real world problems	lifferential equation and apply the concept os	of differential equation to				
3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelopiped						
4	Jtilize the concept of gradient divergence and curl of a vector field to predict area and volumes.						
5	Evaluate the line, sur	face and volume integrals and converting the	m from one to another.				



Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4		
Outcome	I/II Sem	ENGINEERING CHEMISTRY (B18CH01)			
After the co	mpletion of this cours	se, the students should be able to			
1	•	vledge regarding atomic and molecular structure			
2	Design polymeric en	gineering materials. Recall basic organic reaction	ons		
3	Construct batteries a e.t.chelp them to	and classify different electronics and electrical construct different electrical/ electronic parts.	like cells, electrodes,		
4		of impurities is present in water, specification on behavior/ activity of metals.	of drinking water and		
5	Apply phase rule and	adsorption to construct the materials by analyz	ing their compositions.		
Course	Year / semester	Subject Name (Subject Code)	L: 1 T: 0 P: 4 C: 3		
Outcome	I/II Sem	ENGINEERING GRAPHICS (B18ME01)			
After the co	mpletion of this cours	se, the students should be able to			
1	Learn the development	t of surfaces.			
2	Jnderstand the project	ions of solids			
3	Jnderstand the isomet	ric projections.			
4	Jnderstand the orthographic projections.				
5	Make the use of drawings, dimensioning, scales and conic sections.				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
Outcome	I/II Sem	ELECTRICAL CIRCUITS(B18EE04)			



After the co	ompletion of this cours	se, the students should be able to			
1	Learn basic concepts of electrical circuits, electrical parameters etc				
2	Relate the learned ba	sics to understand the AC and DC circuits			
3	Analyse and solve th	e electric and magnetic circuits			
4	Learn to demonstrate	e various network theorems and resonance condi	tion		
5	Apply various netwo	ork theorems to solve real time application			
6	Assess various above	e concepts in real world problems			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
Outcome	I/II Sem	ELECTRONIC DEVICES AND CIRCUITS(B18EC01)			
After the co	mpletion of this cours	se, the students should be able to			
1.	Explain the semicon diode.	ductor theory and characteristics of the PN jun	nction diode and Zener		
2.	Compare and contrast the rectifiers with and without filters.				
3.	Understand the construction and voltage- current characteristics of Junction Transistor and illustrate the different configurations of transistor				
4.	Design and analyze t	he different biasing circuits and amplifier circui	ts.		

5.	Acquire knowledg MOSFET.	e about the construction, theory and charact	teristic	s of FET and	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T	<b>: 0 P: 2 C: 1</b>	
Outcome	I/II Sem	ELECTRONIC DEVICES AND			
		CIRCUITS LAB (B18EC02)			
After the co	mpletion of this cou	rse, the students should be able to			
1	dentify and find the	e values of resistors, capacitors and inductors.			
2	Measure voltage, fr	equency and phase of any waveform using CRO			
3	Demonstrate the ch	aracteristics and operation of electronic devices.			
4	Demonstrate variou	s amplifier circuits.			
Course	Year / semester	Subject Name (Subject Code)		L: 0 T: 0 P: 2	
Outcome	I/II Sem	ENGLISH LANGUAGE & COMMUNICATI	ONS	C: 1	
		SKILLS LAB (B18EN02)			
After the co	mpletion of this cou	rse, the students should be able to			
1	Capable in Better Un activities.	derstanding of nuances of language through audio-visu	ual exp	erience and group	
2	Able to develop Neutralization of accent for intelligibility.				
3	Capable to Speak out with clarity and confidence thereby enhances the employability skills of the students by acquiring knowledge and techniques.				
4	Extends to speak fluent English, through advanced vocabulary to improve quality in speaking.				
Course	Year / semester	Subject Name (Subject Code)		L: 0 T: 0 P: 2	
Outcome	I/II Sem			<b>C: 0</b>	



### VAAGDEVI COLLEGE OF ENGINEERING

#### **UGC-Autonomous**

	ENVIRONMENTAL SCIENCE (B18MC02)
After the	completion of this course, the students should be able to
1	Recall previously learned ecosystem and find how the biodiversity changes went in the environment.
2	Demonstrate outlines of types of pollutions and explain in related to day to day life.
3	Apply models of food chains and energy flow models to solve the identified parameters.
4	Classify the types of pollutants and distinguish the functions of sustainable development that take part in the environment.
5	Design the experiments with BOD,COD, OD and estimate the micro organisms which cause contamination and can propose solutions.



#### VISWAMDHATA Educational Society VAAGDEVI COLLEGE OF ENGINEERING UGC-Autonomous Department of Electronics and Communication Engineering

# Systems Course Outcomes for M.Tech – VLSI SYSTEM DESIGN (R18) for the year 2018-19 onwards

Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3			
Outcome	I/I Sem	CMOS DIGITAL INTEGRATED				
		CIRCUIT DESIGN (M18VL01)				
After the com	After the completion of this course, the students should be able to					
1	Relate, compare, i	nterpret and make the use of the best CMOS	design techniques for			
		nalysis & design of Combinational MOS logi	0 1			
2	<b>.</b>	nterpret and make the use of the best CMOS				
2		nalysis & design of Sequential MOS logic cir	0 1			
3		ent types of memories and compare performance				
5		ules so they can be able to think & justify ho				
		king different structures.				
4		-	and investigate			
4		z justify which dynamic logic circuit can be u	ised investigate			
	CMOS circuits.					
5	Recommend various CMOS techniques and also other device technologies based on					
	circuit constraints	requirement.				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3			
Outcome	I/I Sem	CMOS ANALOG INTEGRATED				
		CIRCUIT DESIGN (M18VL02)				
After the com	pletion of this cours	se, the students should be able to				
1	Define the parame	ters of MOS Devices & can predict the perfo	rmance or behavior			
	of Analog VLSI circuit.					
2		models of MOS transistors to evaluate their b	U			
	requirements	suitable design approaches while trading off c	conflicting			
3		erize analog devices and systems & Designin	ng CMOS analog			
	-	performance specifications	-0			
		performance specifications				



4	Understand design	issues related to analog VLSI system 7&wo	rking of MOS based	
	data converter circuits.			
5	Make the significant use of knowledge of subject in research or on project in VLSI			
5	0	in use of knowledge of subject in research or	on project in vLSI	
	domain.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	DIGITAL SYSTEM DESIGN USING		
		HDL(M18VL03)		
After the com	pletion of this cours	se, the students should be able to	<u> </u>	
1	Design and analyz	e combinational, sequential and arithmetic ci	rcuits using HDL.	
2	Understand digital	system design flow, timing, synthesis and Fl	PGA implementation	
	issues.			
3	Solve engineering	problems in the area of digital system design	& Examine or	
	Inspect for an opti	mum layout for IC layout at VLSI backend d	esign.	
4	Design, analyze &	c can predict the performance characteristics	s of logic gates using	
	NMOS, PMOS &	CMOS technology at VLSI backend design.		
5	Tell an optimum tr	rade with respect to three basic parameters of	VLSI design for	
	VLSI circuit at fro	ntend or backend VLSI design		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	VLSI SIGNAL PROCESSING		
		(M18VL04)		
After the com	pletion of this cours	se, the students should be able to		
1	Apply the concepts of pipelining, parallel processing, retiming, folding and			
	unfolding to optimize digital signal processing architectures			
2	Use of proper techniques for parallel processing design for scaling and round off			
2	noise computation		Dalaanidana '	
3	11.5 1	Apply all techniques to improve implementations of several DSP algorithms, using both ASICs and off –the -shelf programmable digital signal processors		
4		, low-area, and low-power VLSI systems for		
+	DSP applications	, tow area, and tow-power vest systems for		
	251 uppheutions			



5	Minimize the computational complexity using fast convolution algorithms & Make the significant use of knowledge of subject in research or on project in VLSI domain			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	VLSI TECHNOLOGY (M18VL05)		
-	-	se, the students should be able to		
1	Build circuits usin	g IC's.		
2	In depth knowledg	ge of applying the concepts in real time applied	cations.	
3	Understand the m	ain elements of hierarchical IC design nam	ely interested circuit	
	technology, appro	aches to system design, architectural issues.		
4	Design implement	ation and layout & Use of tools for efficient	designing.	
5	Make the signification	ant use of knowledge of subject in research of	or on project in VLSI	
	domain.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	ALGORITHM FOR VLSI DESIGN		
		AUTOMATION(M18VL06)		
After the comp	pletion of this cours	e, the students should be able to	I	
1	Describe and form	ulate the flow of VLSI Design for any applic	ation.	
2	Explain the algori	thms for partitioning, floor planning, placeme	ent and routing the	
		rontend level & at backend VLSI Design leve		
3	-	us scheduling algorithms & Analyze & solve	the issues related to	
4	logic synthesis &		· 1 · · · 1	
4	MCM modules	hms for partitioning, floor planning, placeme	and routing the	
5		ontribution in the research in based on design	n of CAD tool for	
	VLSI design			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	EMBEDDED SYSTEM DESIGN		
		(M18VL07)		
After the comp	bletion of this cours	e, the students should be able to	1	



1	Know the Basic Concept of Embedded Systems.			
2	Interpret the difference between Microcontrollers and Microprocessors.			
3	Apply the Softwar	Apply the Software for Embedded System Design & concepts of Embedded OS.		
4	Explain and apply	the concept of Embedded Firmware, RT	OS Based Embedded	
	System Design and	-		
5		contribution in the research in applications	based on embedded	
	system design.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/I Sem	DEVICE MODELING (M18VL08)		
After the com	pletion of this cours	e, the students should be able to		
1	Understand the ph	ysics of and design elements of silicon MOS	FETs.	
2		ons, approximations and techniques available		
		perties, for a general device characteristic w	ith known qualitative	
	theory			
3		ormance issues & inherent trade off involv		
	-	ualitative understanding of the physics of	a new device and	
4	conversion of this understanding into equations.			
4		ctor models to analyze carrier densities and	-	
	SYNOPSYS	Simulate characteristics of a simple device using MATLAB, SPICE and		
5		alyze the inner working of semiconductor p-	n diodes, Schottky	
		advanced MOSFET technology		
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0	
Outcome	I/I Sem	ENGLISH FOR RESEARCH PAPER		
		WRITING (M18AC01)		
After the com	pletion of this cours	e, the students should be able to		
1	Understand the nu	ances of language and vocabulary in writing	a Research Paper	
2	Develop the context	Develop the content, structure and format of writing a research paper		
3	Analyze and pract	ice writing a Research Paper		
4	Enable the student	s to plan for original research papers without	subjected to	
L	1			



## VAAGDEVI COLLEGE OF ENGINEERING UGC-Autonomous

	plagiarism		
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 2
Outcome	I/I Sem	RESEARCH METHODOLOGY	
		(M18MC01)	
After the comp	oletion of this cours	se, the students should be able to	
1	Develop an understanding of IPR/ research methodology in the process of		
	creation of patents	through research	
2	Develop further	research capabilities	
3	Design Important	Concepts Related to Research Design	
4	Learn better repo	ort writing skills and Patenting	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C: 2
Outcome	I/I Sem	HDL PROGRAMMING LABORATORY	
		(M18VL09)	
After the comp	oletion of this cours	se, the students should be able to	
1	Apply the knowled	lge in Simulation and Synthesis of Digital Cir	rcuits.
2	Design Various Co	ombinational and Sequential circuits using Ve	erilog HDL & HDL
3	Explain the System	n Modeling with Tasks and Functions.	
4	Design of digital c	ircuits using FPGA/CPLD boards.	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C: 2
Outcome	I/I Sem	Digital IC Design Laboratory (M18VL10)	
After the comp	oletion of this cours	se, the students should be able to	I
1	Design CMOS inv	erters, logic circuits and transmission gates to	o specifications.
2	Design latches and	l flip-flops asthe basic circuit for Random-Ac	cess- Memory
	(RAM) and Read-	Only-Memory (ROM) cells.	
3	Understand the Design of Bi-CMOS Inverter, logic circuits.		
4	Design post Layout of Different logic circuits.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0



## VAAGDEVI COLLEGE OF ENGINEERING UGC-Autonomous

Outcome	I/II Sem	CMOS Mixed Signal Circuit Design	C: 3
		(M18VL11)	
After the comr	letion of this cours	e, the students should be able to	
-			In anylada an filtan
1	_	ll circuits like DAC, ADC, PLL etc &Gain	-
	design in mixed signal mode &To acquire knowledge on design different architectures in mixed signal mode.		
2		t and linear test engineers to the mixed signal	world by teaching
2		g and mixed signal test methods. Sampling Th	
		nd Digital Signal Processing	leory, rrequency
3	-	mental concepts to different test methods an	d data validation for
		ameters together with debugging, noise re	
	interface technique	25.	
4	Deal with the theory	ry and design skills of CMOS op-amps, volta	ge reference circuits,
	switched capacitor	circuits, sample-and- hold circuits, and A/I	D & D/A converters
		mmunication systems and consumer electronic	-
5	-	xed-signal IC blocks: comparators and data of	
	-	top-down and bottom-up design methodologie	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	I/II Sem	VLSI Design Verification and Testing	
A ft an the comm	lation of this course	(M18VL12)	
After the comp	I	e, the students should be able to	
1	Gain knowledge on digital testing as applied to VLSI design &Acquire knowledge		
	-		Acquire knowledge
2	on testing of algori	thms for digital circuits.	
2	on testing of algori Learn various testi	thms for digital circuits. ng methods for digital circuits & process of n	
2	on testing of algori Learn various testi verification, and te	thms for digital circuits. ng methods for digital circuits & process of n st.	nodern VLSI design,
	on testing of algori Learn various testi verification, and te Develop and under	thms for digital circuits. ng methods for digital circuits & process of n	nodern VLSI design, ts in modern VLSI
	on testing of algori Learn various testi verification, and te Develop and under	thms for digital circuits. ng methods for digital circuits & process of nest. erstanding for the advanced design concep	nodern VLSI design, ts in modern VLSI
	on testing of algori Learn various testi verification, and te Develop and unde technologies & Le called checker	thms for digital circuits. ng methods for digital circuits & process of nest. erstanding for the advanced design concep	nodern VLSI design, ts in modern VLSI etected by subcircuit
3	on testing of algori Learn various testi verification, and te Develop and unde technologies & Le called checker Gain the knowled	thms for digital circuits. ng methods for digital circuits & process of nest. erstanding for the advanced design conceptarn self-checking circuits where faults are design conceptarn self-checking circuits where faults are design conceptare.	nodern VLSI design, ts in modern VLSI etected by subcircuit
3	on testing of algori Learn various testi verification, and te Develop and under technologies & Le called checker Gain the knowled concepts for combi	thms for digital circuits. ng methods for digital circuits & process of methods for digital circuits & process of methods. erstanding for the advanced design concept arn self-checking circuits where faults are design design of testing and verification in VLSI design concept are design of testing and verification in VLSI design concept are design of testing and verification in VLSI design concept are design of testing and verification in VLSI design concept are design of testing and verification in VLSI design concept are design concept at the second concept are design of testing and verification in VLSI design concept are design concept at the second concept are design concept at the second concept are design concept at the second concept	nodern VLSI design, ts in modern VLSI etected by subcircuit sign process, ATPG
3	on testing of algori Learn various testi verification, and te Develop and under technologies & Le called checker Gain the knowled concepts for combi	thms for digital circuits. ng methods for digital circuits & process of methods for digital circuits & process of methods for the advanced design concept arn self-checking circuits where faults are design of testing and verification in VLSI destinational and sequential circuits	nodern VLSI design, ts in modern VLSI etected by subcircuit sign process, ATPG
3 4 5	on testing of algori Learn various testi verification, and te Develop and unde technologies & Le called checker Gain the knowled concepts for combi Specific technique	thms for digital circuits. ng methods for digital circuits & process of methods for digital circuits & process of methods for the advanced design concept arn self-checking circuits where faults are defined of testing and verification in VLSI destinational and sequential circuits so for designing high-speed, low-power, and each sequential circuits are defined of the speed, low-power, and each sequential circuits are defined of the speed, low-power, and each sequential circuits are defined of the speed, low-power, and each sequential circuits are defined of the speed, low-power, and each sequential circuits are defined of the speed, low-power, and each sequential circuits are defined of the speed of the specific test of test of the specific test of test o	nodern VLSI design, ts in modern VLSI etected by subcircuit sign process, ATPG asily-testable circuits



1	Design Low power CMOS designs, for digital circuits & Gains knowledge on low power circuit design styles for VLSI circuits.			
2	-	· ·	SI airavita & aguaga	
2	Understand power estimation and optimization methods for VLSI circuits & causes of the power dissipation in digital ICs			
3	of the power dissipation in digital ICs.Exploring the low power circuits and architectures for VLSI system.			
4	Understand the compower design	ncept of VLSI circuit of low power operation	h & case study of low	
5	Design various cire	cuits for optimize power		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/II Sem	Optimization Technique In VLSI Design (M18VL14)		
After the com	letion of this cours	se, the students should be able to		
1		n Optimization techniques involved in VLSI	circuits.	
2	Analyze methods of	of optimization to engineering students, inclu	ding linear	
	•	linear programming, and heuristic methods	C	
3	Understand balance	ce between theory, numerical computation, p	roblem setup for	
	solution by optimize	zation software, and applications to engineer	ng systems.	
4	Studies General op	timization algorithm; necessary and sufficien	nt conditions for	
	optimality			
5	Demonstrate the C	concept of Genetic Algorithms and Routing P	rocedures	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/II Sem	High Speed VLSI Design (M18VL15)		
After the comp	oletion of this cours	se, the students should be able to		
1	Gain knowledge of	n circuits and techniques involved in high spe	ed VLSI circuits.	
2	Explore various design strategies to be followed for designing a high speed VLSI			
3	circuits.	gic styles for designing a high speed VI SI	circuit & Learn the	
5	Understand the logic styles for designing a high speed VLSI circuit & Learn the basics of VLSI design for high speed processing			
4	Apply methods f	for logical efforts, logic styles, latching	strategies, interface	
	techniques and rela	ated issues.		
5	Acquire knowledg	e about High Speed VLSI Circuits Design &	& Learn the basics of	
1				
	VLSI design for hi	gh speed processing		



## VAAGDEVI COLLEGE OF ENGINEERING UGC-Autonomous

Outcome	I/II Sem	ASIC Design (M18VL16)		
After the comp	letion of this cou	rse, the students should be able to		
1	To learn the fundamentals of ASIC and its design methods			
2	To gain knowled ASIC	ge on programmable architectures for ASICs	& physical design of	
3	To prepare the stu designer	udent to be an entry level industrial standard ce	ell ASIC or FPGA	
4	To give the stud design.	ent an understanding of issues and tools rel	ated to ASIC/FPGA	
5	-	nt for implementation, including timing, perfor ification and manufacturing test	mance and power	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/II Sem	System On Chip Architecture (M18VL17)		
After the comp	letion of this cou	rse, the students should be able to		
1	Learn System on	chip fundamentals, their applications		
2	Gain knowledge	on SOC design & computation models of SOC	S.	
3	Learn the basic concepts of NoC design by studying the topologies, router design and MPSoC styles & sample routing algorithms on a NoC with deadlock and livelock avoidance			
4	Understand the r NoC design	ole of system-level design and performance r	netrics in choosing a	
5	Understand the relationship between semiconductor technology, computer architecture and computer networking in the design of the communication network for a MPSoC or a many-core design			
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0	
Outcome	semester	Semiconductor Memory Design & Testing	<b>C: 3</b>	
	I/II Sem	(M18VL18)		
After the comp	letion of this cou	rse, the students should be able to		
1	Know the design of MOS memories and the various precautionary methods to be used in their design			
2	Learn overview	of memory chip design, DRAM circuits,	voltago gonoratora	



	performance analy	sis and design issues of ultra-low voltage me	mory circuits	
3	Acquire knowledge about High-Performance Subsystem Memories & Analyse RAM and DRAM Design			
4	Demonstrate Advanced Memory Technologies and High-density Memory Packing Technologies & Gains knowledge on various testing methods of semiconductor memories			
5	Get an overview o	n reliability of semiconductors and their testi	ng	
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0	
Outcome	I/II Sem	Stress Management (M18AC02)		
After the com	pletion of this cours	e, the students should be able to	1	
1	Enhance of Ph	ysical strength and flexibility.		
2	Learn to relax and focus.			
3	Relieve physical and mental tension			
4	Improve work	Improve work performance/ efficiency.		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	
Outcome	I/II Sem	Analog IC Design Laboratory (M18VL19)	<b>C: 2</b>	
After the com	pletion of this cours	e, the students should be able to		
1	Design Various Cl	naracteristics of MOS Logic		
2	Design Various A	nplifier circuits using CMOS Logic		
3	Design Various cir	cuits using Different Logic Styles		
4	Design Layout of	Different logic circuits		
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 2	
Outcome	I/II Sem	Mini Project (M18VL21)		
After the com	pletion of this cours	e, the students should be able to	1	
1	Demonstrate a sou	nd technical knowledge of their selected proj	ject topic.	
2	Identify and summ	arize an appropriate list of literature review,	analyze previous	
	researchers' work	and relate them to current project.		



3	Present the project	outlining the approach and expected results	using good oral and	
C	written presentation skills.			
	Ĩ			
4	Apply critical and creative thinking in the design of engineering projects not only			
	limited to electron	ics and communication engineering domain b	out if possible to	
	other interdisciplin	ary domains as well.		
5	Design and develo	p a functional product prototype while worki	ng in a team	
6	Communicate with	n engineers and the community at large in write	itten and oral forms.	
7	Consider the busin	ess context and commercial positioning of de	esigned devices or	
	systems			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C: 2	
Outcome	I/II Sem	Mixed Signal VLSI Laboratory		
		(M18VL20)		
After the com	lation of this cours	se, the students should be able to		
	-			
1	Design Various Ai	mplifier circuits using CMOS Logic		
2	Design Various Co	omplex circuits using Different Logic Styles		
3	Design Layout of	Different logic circuits		
4	Digital/analog circ	uits are to be designed and implemented usin	g CAD tools.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	II/I Sem	High Speed VLSI Architectures for DSP		
		Applications (M18VL22)		
After the com	pletion of this cours	se, the students should be able to	I	
1	Know about the gr	raph representations of DSP algorithms, Conv	volution algorithms	
	and the concept of parallel recursive and adaptive filters			
2	Analyze The graph representations of DSP algorithms, Convolution algorithms &			
2		recursive and adaptive filters	ttion filton structures	
3	Gain the idea of scaling and round off noise and about digital lattice filter structures			
4		wledge in the design of parallel recursive and	-	
5	Demonstrate varia	ble description of digital filters and digital lat	tice filter structures	



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Course	e Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:3		
Outcom	ne II/I Sem	Nano materials & Nano Technology			
		(M18VL23)			
After the	completion of this cour	se, the students should be able to			
1	Understand the fundamental function of cells, and how nanotechnologies interact &				
	Describe the various applications of nanotechnology in biotechnology &				
2	cells.	fault accomply from single melocyles into	nononartialas		
		f self-assembly – from single molecules into			
3	-	how nanoparticles are fabricated and charact			
4	-	le drugs, proteins or nucleic acids (DNA/RN) the scientific basis and medical benefits for u			
4	for treating diseases	the scientific basis and medical benefits for t	ising hanoteenhology		
5	e	otechnology-based innovation can drive bett	er medicine and a		
	stronger economy				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
Outcome	II/I Sem	RF Circuit Design (M18VL24)			
After the	completion of this cour	se, the students should be able to			
1	Understand important	and unique engineering issues at microwave	e and millimeter wave		
	frequencies.				
2	Learn microwave netwo	ork theory and the use of scattering matrix			
3	Learn design criteria fo	r waveguide and coaxial microwave compon	ents.		
4	Learn the application o	f these components in the design of useful s	ystems such as radars,		
	receivers, etc.				
5	Work in small teams a	and design, fabricate and test a useful mice	rowave component or		
	device, which may be designed using microstripline technology.				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
Outcom	II/I Sem	Soft Computing Techniques (M18CS12)			
e					



1	Iden	tify and describe	soft computing techniques and their roles in build	ling intelligent		
	machines					
2	Reco	Recognize the feasibility of applying a soft computing methodology for a particular				
	prob	problem				
3	App	ly fuzzy logic and	l reasoning to handle uncertainty and solve engine	eering problems .		
4	App	ly genetic algorit	hms to combinatorial optimization problems & ne	eural networks to		
	patte	ern classification	and regression problems			
5	Effe	ctively use existing	ng software tools to solve real problems using a so	oft computing		
	appr	oach.				
Course		r / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0		
Outcom	II/I	Sem	Graph Theory & Optimization Techniques	C: 3		
е			(M18MA02)			
After the	comp	letion of this co	urse, the students should be able to			
1		Understand the	concepts of probability & statics			
2		Identify the strength and weakness of different theories				
3		Design and emp	loy appropriate method for solving computing pr	oblems		
4		Analyze and con	mpare the methods.			
5		Solve computin	g problems independently.			
Cours	e	Year / semester	Subject Name (Subject Code)         I	L: 3 T: 0 P: 0 C: 3		
Outcon	ne	II/I Sem	Waste Management(M18CE27)			
After the	comp	letion of this co	urse, the students should be able to			
1	Ac	Acquire the knowledge of waste management				
2	Ex	Explain solid waste disposal techniques				
3	Ac	Acquire the knowledge of Bio medical waste disposal techniques				
4	Ac	quire the knowle	dge of e- waste disposal techniques			



5	Select the appropriate and disposal	method for solid waste collection, transpor	tation, redistribution		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 20 C:10		
Outcome	e II/I Sem	Dissertation Phase-I (M18VL25)			
After the co	ompletion of this cours	e, the students should be able to			
1	Demonstrate a sound t	echnical knowledge of their selected projection	ct topic.		
2	Identify and summariz	e an appropriate list of literature review, a	nalyze previous		
	researchers' work and	relate them to current project.			
3	Formulate clearly a we	ork plan and procedures.			
4	Present the project out	lining the approach and expected results us	sing good oral and		
	written presentation skills.				
5	Undertake problem ide	entification, formulation and solution.			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 32 C:16		
Outcome	II/II Sem	Dissertation Phase-II (M18VL26)			
After the co	ompletion of this cours	se, the students should be able to	·		
1	Apply critical and crea	ative thinking in the design of engineering	projects not only		
		and communication engineering domain bu	t if possible to other		
	interdisciplinary domains as well.				
2		eledge, skills and attitudes of a professional	engineer when		
	working in a team				
3	Design and develop a	Design and develop a functional product prototype while working in a team			
4	Communicate with engineers and the community at large in written and oral forms.				
5	Consider the busines systems	s context and commercial positioning of	f designed devices or		



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## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## <u>Course Outcomes for M.Tech – Power Electronics (43) for</u> <u>the year 2015-16</u>

After the completion	I/I Sem	Machine Modelling and Analysis(A943101)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
	n of this course, the student					
1		ds and assumptions in modeling of n	nachines.			
2	-	erent frames for modeling of AC ma				
3		ge and torque equations in state spac		nt machines		
4		ematical models of various DC mad				
5	Study various transformations adopted in 3 phase machines and explore its starting methods					
6		oped models in various reference fra	mes through simu	lation study		
7		e dynamics in various operating con-		internet states		
8		uits analysis with d-q model of mach				
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Modern Control Theory (A943102)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
	n of this course, the student					
1	Learn various ter and design of con	ms of basic and modern control systems.	tem for the real ti	me analysis		
2	Learn the basic m	athematical preliminaries for modeli	ng a control syste	m		
3		ables analysis for any real time syste				
4		linear system model using various to				
5		t of optimal control to any system.	*			
6		for its stability, controllability and c	bservability.			
7		principles and techniques in designin		stems.		
8		solve deterministic optimal cont				
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Power Electronic Devices and Circuits (A943103)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
After the completion	n of this course, the student		•			
1	Understand the ch electronics devices	aracteristics and principle of operations.	on of modern pow	er		
2	Compare the featu	res of various power electronic devic	ces			
3	*	concepts of different power converte		ation		
4	_	river circuits and its heat manageme				
5	*	source and load inductance on the o		n		
6	•	gn the switched mode regulator for va	<u> </u>			
7		ower factor improvement controllers		rr noution		
8		nic simulation packages for analysin	g and designing p	ower		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4		



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Outcome	I/I Sem	Special Machines (A943104)	Total: 4				
After the completio	on of this course, the student		1 .1 1 0	. 1 0			
1	stepper motor.	ctional features, principle of operation	and methods of	control of			
2	Realize the need f	or stepper motors and the various app	lications in indu	stries.			
		ybrid stepping motor					
2		of the operational characteristics and	the applications	of Switched			
3	Reluctance Motor	-	11				
	Know the various	s types of PMBLDC motors, rotor pos	ition sensors, me	thods of			
4	control and their a		,				
5		Get a clear idea of the features, control and the applications of PMSM					
		Explore the concept of linear induction motor and develop a double sided LIM from					
6	rotory induction n	-	- F				
7		ctional details of permanent magnet as	xial flux machine	es (PMAF)			
8		ations of various special machines in					
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4			
Outcome	I/I Sem	HVDC Transmission (A943105)	0 Total: 4				
	on of this course, the student	s should be able to	0 100000 1				
1		ower handling capabilities of HVDC	lines				
2		configurations and conversion		static powe			
	converters			Ĩ			
3	Learn the rectifi	er and inverter operations, commu	itation process	at converte			
	stations.	<b>1</b> <i>i</i>	Ĩ				
4	Apply AC/DC filt	ters for harmonic elimination in HVD	C link				
5	Explore various c	ontrols adapted in HVDC converters					
6		nstability problems in HV AC and DC	C system				
7		er voltage problems in multi-terminal					
8		ous converter faults and protection cir					
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4			
Outcome	I/I Sem	Programmable Logic Controllers	0 Total: 4				
		and their Applications (A943106)					
	on of this course, the student						
1	-	ive knowledge of using advanced con	trollers in measu	irement and			
	control instrument						
2		ata acquisition - process of collecting	information from	n field			
	instruments.						
3		mable Logic Controller (PLC), IO Mo		al features.			
4	1 0	ramming in Ladder Logic, addressing	g of I/O.				
5	Apply PID and its	5					
6		gic programming for simple process					
7		nd test programs developed for digital					
8	Reproduce block	diagram representation on industrial a	pplications using	g PLC			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4			
Outcome	I/I Sem	Microcontrollers and Applications	0 Total: 4				
Outcome	I/I Dem	(A943107)					



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1	Relate the basic ar	chitecture and addressing modes of a	microcontroller.				
2		of computers & microcontrollers and e					
_		icrocontroller software development		-p			
3	•	nbly language programs for the 8-bit,	16-bit and 32-b	it			
-		assembly language code for high-level					
	IF-THENELSE ar		8				
4		Analyze a typical I/O interface and to discuss timing issues					
5		e Applications of Microcontrollers & I		OS for			
	Microcontrollers.	Microcontrollers.					
6	Translate Hardwar	Translate Hardware applications using Microcontrollers.					
7	Gain working kno	wledge of ports and interrupts					
8	Introduce the need	Introduce the need and use of interrupt structure, timers in respective applications					
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4			
Outcome	I/I Sem	Embedded Systems (A943108)	0 Total: 4				
After the completio	n of this course, the student			-			
1		sics of an embedded system					
2		sues in embedded software developme	**				
3	Learn the method	of designing an embedded system for	any type of appl	lications			
4	Understand the op	erating systems concepts, types and cl	hoosing RTOS				
5	Design, implemen	t and test an embedded system					
6	Understand types	of memory and interacting to external	world				
7		irmware design approaches					
8	Use ICE and softw	vare tools to address the issues in embe	edded systems				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4			
Outcome	I/I Sem	Digital Control Systems (A943109)	0 Total: 4				
		a abaula ba abla ta					
	n of this course, the student		1 .				
1	Deduce the contro	l system to block diagram for various					
1 2	Deduce the contro Acquire a strong f	l system to block diagram for various oundation in sampling and reconstruct	tion Z-transform				
1	Deduce the contro Acquire a strong f Apply knowledge	l system to block diagram for various	tion Z-transform				
1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems.	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c	tion Z-transform				
1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms.	tion Z-transform liscrete time con				
$ \begin{array}{r} 1\\ 2\\ 3\\ \hline 4\\ 5\\ \hline \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co	tion Z-transform liscrete time con ntrol system.				
$ \begin{array}{r} 1\\ 2\\ 3\\ \hline 4\\ 5\\ 6\\ \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont	tion Z-transform liscrete time con ntrol system.				
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       7 \\       7       \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers	tion Z-transform liscrete time con ntrol system. trol systems				
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol			
1 2 3 4 5 6 7 8 <b>Course</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and Subject Name (Subject Code)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:				
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:	trol			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4	trol			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b> <b>I/I Sem</b> n of this course, the student Study the need of	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems	trol			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues	trol Credits: 4			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues constrained case	trol Credits: 4			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un-	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s			
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> 1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c and reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un- odern intelligent optimisation technique iques to real world problems such as t	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s			



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7	Apply methods of	sensitivity analysis and validate post	processing resul	ts	
8		al time optimization problems.	1 0		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Digital control systems (A943111)	0 Total: 4		
	on of this course, the student	s should be able to	0 200000		
1	Deduce the control	l system to block diagram for various	analysis		
2		oundation in sampling and reconstruc		IS.	
3		of mathematics, Z-plane analysis to			
	systems.				
4	Know sampling an	nd reconstruction, Z -transforms.			
5	Replace the conve	Replace the conventional control system with Digital control system.			
6	Evaluate to Apply	Z-plane analysis of discrete time con	trol systems		
7		ack controllers and observers	•		
8		n stability using root locus, bode and	l Nyquist plots		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Renewable energy systems	0 Total: 4		
		(A943112)			
After the completion	n of this course, the student		lastrical anargy		
2	-	enewable energy sources to produce el		actions	
		eristics of PV cell- photo voltaic modu			
3 4		f wind energy conversion systems and			
4	_	Vave energy conversion machines - O	cean Thermal Er	lergy	
~	conversion schem		1 1 6 1	11	
5		hybrid energy systems such as geothe			
6		of various renewable energy sources of			
7		nergy and to avoid the environmental	pollution		
8		mental effects of energy conversion			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P: 0 Total: 4	Credits: 4	
	on of this course, the student		0 10tal. 4		
1		ower handling capabilities of HVDC	lines		
2	Explore various			static power	
	converters	······································	rk	F	
3	Learn the rectifi	er and inverter operations, commu	itation process	at converter	
	stations.				
4	Apply AC/DC file	ters for harmonic elimination in HVD	C link		
5	Explore various c	ontrols adapted in HVDC converters			
6	Identify various in	nstability problems in HV AC and DC	C system		
7	Study various ove	er voltage problems in multi-terminal	DC system		
8		ous converter faults and protection cir			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4	
Outcome	I/I Sem	Analysis of Power Electronic Converters (A943114)	Total: 4		
After the completio	on of this course, the student				
1		characteristics and principle of or	peration of mo	dern power	
_	semiconductor de			1	
	semiconductor de				



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	a 1 1 1	C 11 CC	1.1	
2		oncepts of different power converter	**	
3	-	ortance of AC voltage controllers an	d cyclo-converte	rs for various
	industrial applicat			
4		n switched mode power electronic c	onverters for vari	ous
	industrial applicat			
5		th modulated inverters which are us		ed drives
6		e device for a particular converter to	<u> </u>	
7	-	conic simulation packages for ana	lyzing and desi	gning power
	converters.			
8		te power converter topologies and	design the powe	er stage and
		ers for various applications		
Course	Year / semester	Subject Name (Subject Code) Embedded Systems (A943115)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	-	Total: 4	
	n of this course, the student			
1		sics of an embedded system		·
2	<u>.</u>	sues in embedded software develop	11	
3		of designing an embedded system for		lications
4	-	erating systems concepts, types and	choosing RIOS	
5	<b>U</b> 1	t and test an embedded system	1 11	
6		of memory and interacting to extern	al world	
7		irmware design approaches		
8		vare tools to address the issues in em		
Course	Year / semester	Subject Name (Subject Code) Power Converters Simulation Lab	L: 0 T: 0 P: 4	Credits:4
Outcome	I/I Sem	(A943116)	Total:4	
After the completio	n of this course, the student			
1	Able to simulate f	ull converter circuits for various type	es of loading	
2	Acquire programm	ning knowledge to study the systems	s dynamics in stat	e space
	model			
3	Able to assess the	frequency response of the system		
4	Analyse the system	n stability and PID controller application	ation for steady st	ate system
	operation.			
Course	operation. Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4
Course Outcome		Seminar-I (A943117)	L: 0 T: 0 P: 4 Total:4	Credits:4
	Year / semester	Seminar-I (A943117) Subject Name (Subject Code)	Total:4	Credits:4 T: 0 P: 0 C:
Outcome Course Outcome	Year / semester I/I Sem Year/Semester I/II Sem	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943	Total:4	
Outcome Course Outcome After the completio	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to	Total:4           3201)         L: 4           4	
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics device	Total:4         3201)       L: 4         4         ess.	
Outcome Course Outcome After the completio 1 2	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics deviced lvanced modulation techniques and	Total:43201)L: 44es.its applications	T: 0 P: 0 C:
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced lyanced modulation techniques and ration of multi-level inverters with	Total:43201)L: 44es.its applications	T: 0 P: 0 C:
Outcome Course Outcome After the completio 1 2 3	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A942) s should be able to is advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with S.	Total:43201)L: 44es.its applicationsswitching strate	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to as advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with s. lesign of resonant converters and sw	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5 6	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o Develop and analy	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to as advanced power electronics deviced advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu vze various converter topologies.	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application Comprehend the d Gain knowledge o Develop and analy Design AC or DC	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high



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Course	Year / semester	Subject Name (Subject Code) Power Electronic Control of DC Drives	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	(A943202)	4
After the completion	on of this course, the student		
1	Learn basic prelin	ninary requirements for operating DC drives	
2	_	ectifier fed DC drives	
3	Study the continue	ous and discontinuous modes of operation of s	single phase semi
	and full converter	for DC drives	
4	Study the continue	ous and discontinuous modes of operation of t	hree phase semi and
	full converter for		-
5	Perform steady sta	ate analysis of three phase converter controlled	DC motor drive
6		urrent and speed controllers	
7	Perform steady sta	ate analysis of chopper controlled DC motor dr	rive
8		mics of speed controlled DC motor drives	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Electronic Control of AC Drives	4
		(A943203)	
After the completio	on of this course, the student		11 0
1	_	orque characteristics variable voltage and varia	ble frequency
2	operation	<u> </u>	11 1 1
2	• •	on of induction motor in constant torque and fie	eld weakening
2	regions		
3		ator side controls employed for induction drive	2S
4		l flux control in current fed inverter drive	
5		ency of the drive by applying optimization co	
6		es of vector control methods in rotor of induct	
7		s speed control schemes in synchronous motor	
8	~	eristics and control of variable reluctance moto	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Quality (A943204)	4
After the completio	on of this course, the student		•
1		t terms and concepts of electric power quality	in power systems.
2	-	opplications of non-linear load.	1
3	· · ·	y the difference between system failures, outag	ge and interruptions
4		ort and long interruptions	
5		calculate the magnitude the single and three p	hases Voltage sag in
	the system		
6		gate the power quality problems	
7		oplication of FACTS device on DG side.	
8		t characteristics of electric power quality in po	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0
Outcome	I/II Sem	Advanced Digital Signal Processing	C:3
After the completion	on of this course, the student	(A943205)	
1		tal knowledge of analysing and processing of	digital systems
2		ship between continuous time and discrete tim	
<i>L</i>	systems	sing between continuous time and discrete time	o signais and
	systems		



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5 6 Course	Understand dynan Year / semester I/II Sem	nic modeling of electrical machines Subject Name (Subject Code) Instrumentation & Control (A943210)	L: 3 T: 0 P: 0 C:
	Understand dynan		
5		· · · · · · · · · · · · · · · · · · ·	
_	Understand behav	ior of electrical machines under steady state an	d transient state.
	characteristics.	-	
4		basic mathematical analysis of electrical	
3	0	e's equation solution of Electro dynamical equa	ations.
2		modeling of all electrical machines	
1		e theory of all types of machines	
	n of this course, the student	-	~
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
6		ted inductors and self capacitance for high freq	mency applications
5		mers for fly-back converters in CCM	
4		y stored in coupled inductors of transformers	
3		effects that exists the round conductor carrying	AC currents
2		rties of magnetic core materials	
1		entals of magnetic devices	
After the completie	n of this course, the student	(A943208)	
Outcome	I/II Sem	High-Frequency Magnetic Components	3
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
6	Explore the conce	pt of UPFC and its application.	
5	Learn various seri	es compensators such as TCSC, TSSC	
4	Learn various shu	nt compensation using SVC and STATCOM	
3	Study the impact of	of FACTS devices in the power flow in the AC	system
2	Learn various con	verters employed for FACTS controllers	
1		s and types of FACTS controllers	
After the completio	n of this course, the student		
Outcome	I/II Sem	(A943207)	3
Course	Year / semester	Subject Name (Subject Code) Flexible AC Transmission Systems	L: 3 T: 0 P: 0 C:
6		rious protection aspects for the converters.	
5		ect of Electromagnetic interference (EMI).	
4		nent practical circuits for UPS, SMPS.	
3	Explore various co		
2		esign considerations.	
1		oncepts of power electronics for designing conv	verters.
After the completio	n of this course, the student		
Outcome	I/II Sem	(A943206)	3
Course	Year / semester	Subject Name (Subject Code) Switched Mode Power Supplies (SMPS)	L: 3 T: 0 P: 0 C:
6	_	th FFT algorithms, multi-rate signal processing	-
5		vorld signal processing applications	
4		ligital filters form analysis to synthesis	
	interrelationships.		
	1	entals of time, frequency and Z-Plane analysis	



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After the completio	n of this course, the student	s should be able to	
1		ethods of power generation	
2		portance of instrumentation in power genera	tion
3		easuring and supervising systems involved in	
5		boiler and turbine units	n thormal power plant
4		is controls employed in boiler	
5		prature and pressure controls in turbine	
6	· · ·		
		power plant instrumentation Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Course	Year / semester	Intelligent Control (A943211)	
Outcome	I/II Sem n of this course, the student		3
1		ture of Intelligent control	
2		tificial neural network and its mathematical n	nodel
3		neural network with various configurations.	liouei
4		orithm for various optimisation problems	
5		l different system with fuzzy logic controller	<b>T</b> 11
6		ower system problem and apply GA, NN and	
Course	Year / semester	Subject Name (Subject Code) Smart grid technologies (A943212)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem		3
After the completio	n of this course, the student		
1	conditions.	re of an electricity market in either regulated	or deregulated marke
2	Understand the a distribution	advantages of DC distribution and develo	ping technologies ir
3	Discriminate the system.	trade-off between economics and reliability	of an electric power
4	Differentiate varie	ous investment options (e.g. generation cap d-side resources, etc) in electricity markets.	pacities, transmission
5		opment of smart and intelligent domestic sys	tems
6		e of an electricity market in either regulated	
-	conditions.		
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) AI Techniques in Electrical Engineering (A943213)	L: 3 T: 0 P: 0 C: 3
After the completio	n of this course, the student		
1	Ŭ	on soft computing techniques such as artificia	I neural networks,
	Fuzzy logic and ge	· · ·	
2		s of feed forward neural networks and feedba	
3	-	f fuzziness involved in various systems and correctly logic control and to design the fuzzy rules	omprehensive
4		knowledge on genetic algorithm including	three genetic
5	<u> </u>	ower system problems which can utilize these	AI techniques
		bility using AI techniques	
6	ASSESS SYSTEM Star		
6 Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:



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1	To identify the gen building	neration system model and recursive relation	for capacitive model
2	0	valent transitional rates, cumulative probabili	ty and cumulative
3	Evaluate cumulat	ive probability and cumulative frequency of and merging generation and load	non-identical
4	Distinguish variou generation reserve	s approaches to evaluate operating reserves	and bulk power
5	Analyse the reliab	ility indices on radial and weakly meshed dis	stribution networks
6		f short circuits in substation and switching sta	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Energy Auditing, Conservation & Management (A943215)	L: 3 T: 0 P: 0 C: 3
After the completion	on of this course, the student		
1		y of conservation of energy	
2		thods of energy management	
3	Illustrate the facto	rs to increase the efficiency of electrical equi	ipment
4	Detect the benefits	s of carrying out energy audits.	
5	Analyze the powe	r factor and to design a good illumination sys	stem
6	Determine pay bac	ck periods for energy saving equipment.	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power Converters and Drives Lab (A943216)	L: 0 T: 0 P: 4 C: 2
After the completion	on of this course, the student		
1	Learn basic speed	measurement and implement closed loop co	ntrol in PMDC motor
2	Experience the im conventional contri	proved control of thyristor drive for PMDC rol	motor over
3	Learn to generate	PWM signals using DSP	
4		er controls for solar PV systems	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Seminar-II (A943217)	L: 0 T: 0 P: 4 C:2
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code) Comprehensive Viva-Voce (A943301)	L: 0 T: 0 P: 0 C:4

#### COURSE OUTCOMES FOR B.TECH-CSE R20 FOR THE YEAR 2020-2021

				Credits: 4
Course	Year/Semester	Subject Name (Subject Code) LINEAR ALGEBRA AND CALCULUS	No. of Hours	Cicuits. 4
Outcome	I Sem	(B20MA01)	L:3 T:1 P:0	
On successf	ful completion of th	is course, students will be able to:		
1	Understand the print using multiple met	nciples of matrix to calculate the characteristic hods.	s of system of line	ar equations
2	Determine Eigen v	alues, Eigenvectors of matrices.		
3	Analyse the nature	of sequence and series to identify the converge	ence.	
4		ingle-variable functions graphically and compared and Gamma functions.	utationally. Analy	se improper
5	Calculate Partial de	rivatives, extreme of functions of multiple var	iables.	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	MODERN PHYSICS (B20PH01)	L:3 T:0 P:0	
On success	sful completion o	f this course, students are able to:		
1	Understands the ba	sic concepts and hypothesis of quantum mecha	anics	
2	Describes the chara	cteristics and working of lasers and their use ir	n various fields.	
3	Analyze and apply	the concepts of wave optics for accurate determined	mination of theinte	erference in
	thin films, Newton	's rings and the diffraction in single slit etc.		
4	Classify the materi	als on the basis of energy band gap, and eval	uates the carrierco	oncentration of
	given semiconduct	ors for device applications		
5	Apply the concepts	of the light propagation in optical fibres in optical	ticalcommunicatio	on systems
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING(B20EE01)	No. of Hours L:3 T:0 P:0	Credits:3
After the c	ompletion of this a	course, the students should be able to		
1	•	orems, mesh and nodal analysis, series and par	allel networks. El	ectricalpower
2				conneurpower.
	Gain knowledge on Factor	AC circuits, reactance, Impedance, Susceptance		-
3	Factor			-
	Factor Learn the working	AC circuits, reactance, Impedance, Susceptance		-
3	Factor Learn the working Study the character	AC circuits, reactance, Impedance, Susceptano		-
3	Factor Learn the working Study the character	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode		-
3 4 5	Factor Learn the working Study the character Learn the basic of A	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	ce and Admittance	andPower
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code)	ce and Admittance	andPower
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01)	No. of Hours L:4 T:0 P:0	e andPower Credits: 4
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem completion of this of Understanding how Learning of sequen	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making	ce and Admittance No. of Hours L:4 T:0 P:0	credits: 4
3 4 5 Course Outcome After the c 1	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem completion of this of Understanding how Learning of sequen engineering proble	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making ms.	vzed for obtaining statements tosolve	e andPower Credits: 4 solutions. scientific and
345CourseOutcomeAfter the c12	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem Completion of this of Understanding how Learning of sequen engineering proble Implementing diffe	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making	vzed for obtaining statements tosolve	e andPower Credits: 4 solutions. scientific and

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem	ENGINEERING DRAWING (B20ME01)	L:0 T:0 P:4	
After the o	completion of this (	course, the students should be able to		I
1	-	commands, modify the applications and object	t properties in AU	TOCAD
2		tions of Points and solids		
3	Estimate the use of	drawings, dimensioning, scales and conic sect	tions	
4	Compare the Conve	ersion of Isometric views to Orthographic view	7	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:
Outcome	I Sem	PHYSICS LAB (B20PH05)	L:0 T:0 P:3	1.5
After the c	completion of this a	course, the students should be able to	1	
1		ency of tuning for and AC supply with the help	of stretched string	IS
2		s compare the intensity distribution of interf	,	
3	-	istics of electrical and electronic circuits and		-
	parameter		I I I I I I I I I I I I I I I I I I I	
4	Explore and unders	stand the applications of semiconducting device	es	
5	Evaluates the wav	elength and radius of curvature of Plano con	vex lens by New	ton's rings
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	I Sem	PROGRAMMING FOR PROBLEM	L:0 T:0 P:3	
Outcome	1 Sem	SOLVING LAB(B20CS02)	1.01.01.3	
After the o	completion of this o	course, the students should be able to		
1	Understand basic s	tructure of the C Programming, data types, dec	laration and usage	e of variables,
	control structures a	nd all related concepts.		
2	Ability to understa	nd any algorithm and Write the C programming	g code in executab	le form
3	Implement Program	ns using functions, pointers and arrays, and use	the pre-processor	s to solvereal
	time problems			
4	Ability to use file s	tructures and implement programs on files.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	II Sem	DIFFERENTIAL EQUATIONS AND	L:3 T:1 P:0	
Outcome	II Selli	VECTOR CALCULUS(B20MA02)	L.3 1.11.0	
After the o	completion of this o	course, the students should be able to		
1	Apply the fundame	ntal concepts of ordinary differential equations	to real time proble	ems
2	Find the complete	solution of a non homogeneous differential equ	ations and applyi	ng its concep
	inEngineering prob	olems		
3	Evaluate the multip	le integrals in various coordinate systems.		
4	Apply the concepts	of gradient, divergence and curl to formulate l	Engineering proble	em
5	Analyse line, surfa	ce and volume integrals using fundamental the	orems.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	II Sem	MODERN CHEMISTRY	L:3 T:0 P:0	
		(B20CH04)		
After the o	completion of this a	course, the students should be able to	1	1
1	-	electro chemical cells, different batteries		
2	ę	principles and concepts in corrosion & it's con	trol methods.	
3	The knowledge of			
4	ů.	Amino acids, Proteins and Nucleic acids		
5	-	principles and concepts in Forensic drug chem	victry and it's analy	7010
5	The knowledge of	principles and concepts in Forensic drug chem	nsuly and it's analy	y 515.

Voor / somester	Subject Name (Subject Code)	No of Hours	Credits: 4
			Creuits. 4
II Sem	ALGORITHMS(B20CS04)	L:4 1:0 P:0	
ompletion of this c	ourse, the students should be able to		
Define the basic tec	chniques of algorithm analysis		
Examine the linear	and non linear data structures.		
Develop Priority Q	ueues and Balanced Trees		
Understand Hashing	g Techniques and Graph applications		
Apply suitable algo	rithms for sorting Technique		
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4
II Sem	PYTHON PROGRAMMING(B20CS03)	L:4 T:0 P:0	
ompletion of this c	ourse, the students should be able to		
_			
Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.
ů.			
	· · ·	code robust byha	ndling errors
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
II Sem	DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)	L:0 T:0 P:3	
ompletion of this c	ourse, the students should be able to	1	I
-	*	d its applications	
Apply suitable algo	rithms for sorting Techniques		
Choose appropriate	algorithm for Searching and Hashing		
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
II Sem	PYTHON PROGRAMMING LAB(B20CS07)	L:0 T:0 P:3	
ompletion of this c	ourse, the students should be able to	·	
-	e Python scripting elements such as variables a	and flow control st	ructures.
Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.
Expressing the Core Apply Python funct		and flow control st	ructures.
Expressing the Core Apply Python funct Extending how to v	e Python scripting elements such as variables a ions to facilitate code reuse		
Expressing the Core Apply Python funct Extending how to v	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the		
Expressing the Core Apply Python funct Extending how to v Implement file ope and exceptions prop	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly.	e code robust byh	andling errors
Expressing the Core Apply Python funct Extending how to v Implement file ope	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION		
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02)	e code robust byha No. of Hours	andling errors
Expressing the Core Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to	e code robust byha No. of Hours L:0 T:0 P:3	andling errors Credits: 1.5
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem ompletion of this c Understand the nua	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual	e code robust byha No. of Hours L:0 T:0 P:3 experience and g	andling errors Credits: 1.5 roupactivities.
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem ompletion of this c Understand the nua Speak with clarity a	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual and confidence which in turn enhances their em	e code robust byha No. of Hours L:0 T:0 P:3 experience and g ployability skills.	andling errors Credits: 1.5 roupactivities.
Expressing the Cord Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem Ompletion of this c Understand the nua Speak with clarity a Develop their listen	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual	e code robust byha No. of Hours L:0 T:0 P:3 experience and g ployability skills.	andling errors Credits: 1.5 roupactivities.
	Define the basic tec Examine the linear Develop Priority Q Understand Hashin Apply suitable algo Year / semester II Sem Defining the funda Expressing the Corr Apply Python funct Extending how to v implement file oper and exceptions prop Year / semester II Sem Defining the linea implement non-line Apply suitable algo Choose appropriate Year / semester II Sem	II SemDATA STRUCTURES AND ALGORITHMS(B20CS04)ompletion of this course, the students should be able to Define the basic techniques of algorithm analysis Examine the linear and non linear data structures.Develop Priority Queues and Balanced TreesUnderstand Hashing Techniques and Graph applicationsApply suitable algorithms for sorting TechniqueYear / semester II SemSubject Name (Subject Code) PYTHON PROGRAMMING(B20CS03)Ompletion of this course, the students should be able to Defining the fundamentals of writing Python scripts.Expressing the Core Python scripting elements such as variables a Apply Python functions to facilitate code reuse.Extending how to work with lists and sequence data.mplement file operations such as read and write and Adapting the and exceptions properly.Year / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to Data STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to Explaining the linear data structures such as Trees, Graphs and itsApply suitable algorithms for sorting TechniquesChoose appropriate algorithm for Searching and HashingYear / semester II SemII SemSubject Name (Subject Code) PYTHON PROGRAMMING LAB(B20CS07)	II SemDATA STRUCTURES AND ALGORITHMS(B20CS04)L:4 T:0 P:0mpletion of this course, the students should be able to Define the basic techniques of algorithm analysis Examine the linear and non linear data structures.Develop Priority Queues and Balanced TreesDiderstand Hashing Techniques and Graph applicationsApply suitable algorithms for sorting TechniqueNo. of Hours L:4 T:0 P:0Year / semester II SemSubject Name (Subject Code) PYTHON PROGRAMMING(B20CS03)No. of Hours L:4 T:0 P:0Dompletion of this course, the students should be able to Defining the fundamentals of writing Python scripts.Expressing the Core Python scripting elements such as variables and flow control st Apply Python functions to facilitate code reuse.Extending how to work with lists and sequence data. mplement file operations such as read and write and Adapting the code robust byha und exceptions properly.No. of Hours L:0 T:0 P:3Year / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)No. of Hours L:0 T:0 P:3pyly suitable algorithms for sorting TechniquesNo. of Hours L:0 T:0 P:3Apply suitable algorithm for Searching and HashingYear / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)No. of Hours L:0 T:0 P:3Pythetion of this course, the students should be able toExplaining the linear data structures such as Trees, Graphs and its applications mplement non-linear data structure such as Trees, Graphs and its applicationsApply suitable algori

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	II Sem	ENGINEERING & IT	L:0 T:0 P:3	Cituits. 1.5
Outcome	II Selli	WORKSHOP LAB(B20ME03)	L:01:0F:5	
After the o	-	course, the students should be able to		
1		ntal knowledge of House wiring and soldering	and their usage ir	n real time
	Applications.			
2	-	electronic components and measuring instrum		
3	Use basic concepts	of computer hardware for assembly and disasse	embly.	
4	Use Microsoft tool	s for exercise.	1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DESIGN AND ANALYSIS OF	L:3 T:0 P:0	
		ALGORITHMS(B20CS10)		
After the o		course, the students should be able to	ild now solution a	laorithma
1	-	b few known methods of solution processes, bu otic performance of algorithms and to write rig		-
	algorithms.	one performance of argorithms and to write fig	jorous correctness	proofs for
2	÷	e data structures and algorithm design methods	for specified class	ses of
2	applications;		for specifica clus	505 01
3	~ ~	hoice of data structures and algorithm design n	nethods would im	pact the
	performance of pro	grams and how to compare them.		
4	Design methods su	ch as the greedy method, divide and conquer, d	ynamic programn	ning,
	backtracking and b	ranch and bound		
5	Perceive methods t	o deal with logarithmic type, polynomial type a	and non-polynom	ial type of
	classesof problems	and Synthesis of efficient algorithms in comm	on engineering de	sign situations
	would bediscussed			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DIGITAL LOGIC DESIGN & MICRO	L:3 T:0 P:0	
		PROCESSORS(B20EC09)		
		course, the students should be able to		
1	Understand the bas algebra.	ic concepts of different Number systems and b	asic theorems usin	ng inBoolean
2	<b>U U</b>	cuits using basic logic gates by reducing the B	oolean expression	s with thehelp
	of Karnaugh Map.			
3	5	pes of combinational and sequential circuits.		
4		pes of sequential circuits.		
5	Understand the inte	ernal organization of popular8086 microprocess	sors	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	MATHEMATICAL FOUNDATIONS OF	L:3 T:0 P:0	
		COMPUTER SCIENCE(B20CS11)		
After the o	completion of this o	course, the students should be able to	1	
1	-	s of propositions, predicate formulae, Rules of	inference.	
2	Illustrate and descr	ibe various types of Relations and Functions.		
3		of Mathematics, Combinations & Permutations	Binomial Multir	omial
5			, 2moniur iviuitii	()IIIIIII
	theorems, Pigeon h			
4	Develop to solve the	e recurrence relations by using various method	ls	
5	Perceive the basic of	concepts of graph theory and apply for real time	e examples.	
		· • • • •	-	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	JAVA PROGRAMMING (B20CS12)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Understand the use	of OOP concepts and solve real world problem	is using OOP tech	niques.
2	Solve the inter-disc	ciplinary applications using the concept of inher	itance.	
3	Develop robust and	l faster applications by applying different excep	tion handling me	chanisms.
4	Understand the mu	ltithreading concepts and develop efficient appl	ications.	
5	Design GUI based	applications and develops applets for web appli	cations.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	III Sem	ENGLISH FOR EFFECTIVE	L:2 T:0 P:0	
		COMMUNICATIONS(B20EN01)		
		course, the students should be able to		
1		digital text to summarize it for future reference.		
2 3		ke notes according to their needs. ge effectively in spoken and written forms.		
4		idently in various contexts and different culture		
5	Acquire basic profi	ciency in English including reading and listenin	ng comprehension	, writing and
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome		DIGITAL LOGIC DESIGN & MICRO	L:0 T:0 P:3	
		PROCESSORS LAB(B20EC10)		
		course, the students should be able to	NOD YOD YA	
1	flops.	is types of logic gates (AND, OR, NOT, NANI		(OR) and flip
2		a various types of combinational and sequential		
3	Develop microproc	sessor based programs for Arithmetic and Logic	al Operations	
4	Develop microproc	essor based programs for various problems.		
Course		Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	III Sem	DESIGN AND ANALYSIS OF	L:0 T:0 P:3	
		ALGORITHMS LAB(B20CS13)		
After the o		course, the students should be able to		
1		ppropriate algorithm design techniques for solv	ing problems.	
2		n in an effective manner		
3		erative and recursive algorithms		
4	Ability to analyze t	he performance of algorithms.	ſ	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	III Sem	JAVA PROGRAMMING LAB(B20CS14)	L:0 T:0 P:3	
After the o	completion of this o	course, the students should be able to		
1	Use the Java SDK o	environment to create, debug and run simple Ja	va programs.	
2	Write Java program	ns to implement error handling techniques using	g exception handl	ng
3	-	aded applications with synchronization.		
4	Design simple Grap	phical User Interface applications and event dri	ven programming	

Course	Year / semester	Subject Name (Subject Cade)	No. of Hours	Credits:3
Course		Subject Name (Subject Code) OPERATING SYSTEMS		Creans:5
Outcome	IV Sem	(B20CS16)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Compare various (	Deperating Systems architectures, IO structures, I	Network Structure	;
2	Analyze the virtual	l memory, paging and memory allocation techni	iques for variousa	pplications
3	Apply Deadlock p	revention and Deadlock Detection algorithms and	nd perceive the w	orking of an
	operating system as	s a File manager, I/O manager, Process manage	r.	
4	Understand the over	erview of Disk Storage Structure.		
5	Analyze assess acc	ess controls to protect files.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	IV Sem	FORMAL LANGUAGES AND AUTOMATA THEORY(B20CS17)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Explain basic conc	epts in formal language theory, grammars, auto	mata theory(DFA	&NFA),
	computability theo	ry, and complexity theory.		
2	Know the production rules of regular expressions and grammars, including context:free and			free and
	context: sensitive grammar			
3	Construct a pushdo	Construct a pushdown automata and context free, regular, normal form grammars todesign		
	computer language			
4		or various problems using a theoretical comput	er (Turing machin	ne)for a
	computer language			
5	<u>^</u>	nship among language classes and grammars wi	•	
	Chomsky Hierarch	y, and Distinguish between decidability and uno	lecidability.	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	COMPUTER ORGANIZATION & ARCHITECTURE(B20CS18)	L:3 T:0 P:0	
After the c	completion of this	course, the students should be able to	I	I
	-	ucture, function of various functional units of co	omputer.	
2	Understand the bas	sic design of Computer, and its organization		
3	Perceive control un	it operations and Micro Program example.		
4	Understand differe	ent computer arithmetic algorithms for various a	rithmetic operation	on
5	Identity and compa	re different methods of input-output.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	DATABASE MANAGEMENT	L:3 T:0 P:0	
Outcome	I v Sem	SYSTEMS(B20CS19)	L.5 1.01.0	
		course, the students should be able to		
1		mental concepts of database management.		
2	Analyze database r	nodels & Entity Relationship models and to dra	w the E-R diagram	m forthe given
	case study.			
3	Apply relational D	atabase Theory, and be able to write relational a	algebra expression	ns forqueries
4	Apply Normalizati	on Process to construct the database and explain	n Basic Issues of	ransaction
	processing			
5	Compare the basic	Database storage structures and access techniqu	ies: File	
	•	ing methods including B- Tree and Hashing		
	Organizationindex	mg methous menualing D- 1100 and mashing		

Course				
Outcome	Year / semester	<mark>Subject Name (Subject Code)</mark> PROBABILITY AND	No. of Hours	Credits:3
outcome	IV Sem	STATISTICS(B20MA07)	L:3 T:0 P:3	
After the c	completion of this	course, the students should be able to	1	
1		ory and deals with modeling uncertainty in ord	er to evaluateThe	probability of
	real world events.			
2		robability distributions and its applications, and l and Poisson Distributions.	use the technique	es togenerate
3	Use the techniques Distributions.	of continuous probability distributions to gener	ate data from Nor	rmal
4		n and regression analysis, in order to estimate th	he nature and thes	trength of the
		between two variables.		e
5	Construct confiden	ce interval to estimates population parameters t	to test the hypothe	sis.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	IV Sem	OPERATING SYSTEMS	L:0 T:0 P:3	
		LAB(B20CS20)		
After the o		course, the students should be able to		
1		ling algorithms, Page replacement algorithms.		
2	-	lgorithm for Dead Lock Avoidance & Dead Lo	ock Prevention	
3	Describe the conce	pts of paging and segmentation.		
4	Make use of Linux	commands		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS LAB(B20CS21)	L:0 T:0 P:3	
After the c	completion of this	course, the students should be able to	1	
1		hema for given Application.		
2	Transform ER Mod	del to Relational Model.		
3	Apply the normalized	zation techniques for development of application	n software to real	isticproblems.
4	Construct SQL que	ries to retrieve information from database		
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome		WEB TECHNOLOGIES LAB(B20CS22)	L:0 T:0 P:3	Creation
		ourse, the students should be able to	1.01.0	
	-	,	6.1	11 / /
1	Design and implen	nent dynamic websites with good aesthetic sens w's	e of designing an	d latest
2	Understand, analyz	e and apply the role of languages like HTML,	CSS, XML, JavaS	cript, PHPand
	•	orkings of the web and web applications		<b>x</b> · ·
3	Create dynamic we	b pages using JavaScript		
4	Build web applicat			
		Subject Name (Subject Code)	N. CTT	Creative C
Course	Year / semester	SOFTWARE ENGINEERING(B20CS29)	No. of Hours	Credits:3
Outcome	V Sem		L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to		
1		ngineering and list core principles of software e	ngineering and ur	nderstand
	various process mo			
23		tanding of software requirements and be able to		
3	Understand softwa and be able to mod	re design engineering process using structural a lel	ind object oriented	approaches
4		chniques of verification and validation in the pa	rocess of software	edevelopment,
		trategies on different level of implementation (		
5		le to compute quality measures and develop a s	oftware quality as	ssurance plan
	for a software deve	elopment.		

			1	1 1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	DATA COMMUNICATIONS AND	L:3 T:0 P:0	
A. 6( ) (1		COMPUTER NETWORKS(B20CS30)		
After the co		ourse, the students should be able to		
1	Illustrate basic cor reference model.	nputer network technology, functions of each	layer in the OSI	and TCP/IP
2	Gain the knowledg	e on error control and flow control mechanisms		
3	Obtain the skills of	f subnetting and routing mechanisms.		
4	Analyze the feature	es and Operations of TCP/UDP, congestion cor	ntrol and QoS Tec	hniques.
5	Familiarity with t network design and	he essential protocols of application layer, a d implementation.	nd how they can	be used in
Course Outcome	Year / semester V Sem	Subject Name (Subject Code) DATA WAREHOUSING AND DATA MINING(B20CS24)	No. of Hours L:3 T:0 P:0	Credits:3
After the o	completion of this	course, the students should be able to		
1	Develop an unders various operations.	tanding of data warehouse, designing and using	-	Ç
2		ing concepts and develops understanding of dat		
3		k of Association rule mining, association rule m		d their
4	Develop an under	e sample data sets, evaluate these methods base standing of classification and prediction, class le sample data sets, evaluate these methods base	sification method	ls and their
5		al understanding of clustering, various clustering at a sets, evaluate these methods based on need.	ng methods and t	heirapplication
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VSem	ARTIFICIAL INTELLIGENCE (B20AI03)	L:3 T:0 P:0	
After the co	ompletion of this co	ourse, the students should be able to		
1	Possess the ability	to formulate an efficient problem space for a pr	oblem expressed	in English.
2	Possess the ability	to select a search algorithm for a problem.	-	
3	Possess the skill fo	r representing knowledge using the appropriate	technique	
4		to apply AI techniques to solve problems of Ga		
5	Possess the Expert	Systems, Machine Learning and Natural Langu	age Processing	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VSem	COMPILER DESIGN(B20CS31)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-I)		
After the co		ourse, the students should be able to		
1	Apply the knowled	lge of modern phases of compiler and its feature	es.	
2	Identify the similar	rities and differences among varies parsing tech	niques.	
3	Explain semantic a	nalysis in the context of the compilation proces	58.	
4	Design a symbol ta	ble format for the language defined by a gramn	nar	
5		generation algorithm		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	PRINCIPLES OF PROGRAMMING LANGUAGES (B20CS32) (PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to	1	
1	Able to analyze sy	ntax-related concepts including context-free gra vith function implementations.	ammars, parse tree	es, semantic
2		ign issues of various reference types and its im	plementation rela	ted to these
3		I the concepts of Abstraction and Encapsulation	constructs of class	sses, interfaces,
		s Language Examples.		
4		nd the nature and implementation of object-orie	ented languages.	
5	Able to Compare the	he Functional Programming Languages and Log	gic Programming	Languages.

	•			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	NETWORK PROGRAMMING (B20CS33)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-I)		
After the co	mpletion of this co	ourse, the students should be able to		
1	Demonstrate advar	aced knowledge of OSI layers, TCP & UDP con	ncepts	
2	Networking. Sumr	narize the TCP socket functions and Byte Order	ring.	
3	Make use of TCP c	lient server applications and analyze I/O Multip	lexing and socke	t options.
4	Define about the E	lementary UDP sockets and Address conversio	ns.	
5		er networking information, Pseudo -Terminals		s, Control
	Terminals.	C C		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	V Sem	DATA COMMUNICATIONS AND	L:0 T:0 P:3	
Outcome	v Sem	COMPUTER NETWORKS LAB(B20CS34)	1.01.01.3	
After the co	mpletion of this co	ourse, the students should be able to		
1	Implement data lin	k layer farming methods.		
2	Analyze error dete	ction and error correction codes.		
3	Implement and ana	alyze routing and congestion issues in network of	design.	
4	Implement Encodi	ng and Decoding techniques used in presentation	n layer.	
Course	-	Subject Name (Subject Code)	No. of Hours	Credits:1.5
	V Sem	ARTIFICIAL INTELLIGENCE LAB	L:0 T:0 P:3	ci cuits.i.s
Outcome	v Sem	(B20AI04)	L:0 1:0 P:5	
After the co	mpletion of this co	ourse, the students should be able to		
1	Demonstrate Know	ledge of the building blocks of AI as presented	in terms of intelli	gent agents.
2	Analyze and forma	lize the problem as a state space, graph and desi	gn heuristics	
3	Develop intelligent	algorithms for constraint satisfaction problems	and also design ir	ntelligent
	systemsfor game p	laying.		
4	Attain the capabilit	y to represent various real life problem domains	using logicbased	techniques
	anduse this to perfe	orm inference or planning.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	V Sem	INDIAN CONSTITUTION(B20MC03)	L:2 T:0 P:0	
A 64 41				
After the co	mpletion of this co	burse, the students should be able to		
1	-	Durse, the students should be able to ndamental rights and duties of a citizen		
	Demonstrate the fu	•		
1	Demonstrate the fu Classify the admin	ndamental rights and duties of a citizen		
1 2	Demonstrate the fu Classify the admin Identify the power	ndamental rights and duties of a citizen istrative structure of the Indian union	nsibilities	
1 2 3	Demonstrate the fu Classify the admini Identify the power Categorize the vari	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions	nsibilities	
1 2 3 4 5	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of electio	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo n commission and its roles		Credits:3
1 2 3 4 5 <b>Course</b>	Demonstrate the fu Classify the admin Identify the power Categorize the vari Functions of election Year / semester	ndamental rights and duties of a citizen strative structure of the Indian union of state government and make use of positions ous department and local administrations respo	No. of Hours	Credits:3
1 2 3 4 5	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of electio	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code)		Credits:3
1 2 3 4 5 <b>Course</b> Outcome	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo in commission and its roles Subject Name (Subject Code) MACHINE LEARNING	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06)	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) ourse the students should be able to : underlying machine learning	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem Dempletion of this construction Explain the theory Learn beyond bina	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) ourse the students should be able to : underlying machine learning	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co 1 2	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election <b>Year / semester</b> <b>WSem</b> <b>Ompletion of this constant of the semester</b> Explain the theory Learn beyond bina Recognize and imp	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) Durse the students should be able to : underlying machine learning ry classification.	No. of Hours L:3 T:0 P:0	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	CLOUD COMPUTING	L:3 T:0 P:0	
After the co		(B20CS36) ourse, the students should be able to		
1	-	nd various service delivery models of a cloud co	omputing archites	turo
2		nd the ways in which the cloud can be program		
2 3	•	ud Computing Architecture and Management	inieu anu uepioye	u
	-	· · · ·		
4	-	ud service Models		
5	Understanding clo	ud service providers.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	INTERNET OF THINGS(B20CS37)	L:3 T:0 P:0	
After the co	ompletion of this c	ourse, the students should be able to		
1	Interpret the vision	n of IoT from global context.		
2	Perceive building	blocks of Internet of Things and its characterist	ics.	
3	Learn the basic cor	ncepts of Python. Implement the python program	nming using Rasp	berry.
4	Perceive the applie Cloud &Sensor No	cation areas of IoT. Realize the revolution of Ir etworks	nternet in Mobile	Devices,
5	Determine the Ma for IoT.	rket perspective of IoT. Develop Python web a	pplications and cl	oud servers
Course	Year / semester		No. of Hours	Credits:3
Outcome	VI Sem	SOFTWARE PROJECT MANAGEMENT (PROFESSIONAL ELECTIVE-II) (B20CS38)	L:3 T:0 P:0	
After the co	mpletion of this c	ourse, the students should be able to		
1	Gain knowledge o	f software economics, phases in the life cycle o	f software develo	oment, project
	-	project control and process instrumentation.		
2	Summarize softwa	pre economics, software development life cycle, points, project organization and responsibilities,	—	
3		oftware development approach. Compare variou	us project organiz	ations and
4	perspective.	and minor milestones, artifacts and metrics for	-	
5	Design software management.	product using conventional and modern	principles of so	ftware projec
Course	Year / semester		No. of Hours	Credits:3
Outcome	VI Sem	NETWORK SECURITY AND CRYPTOGRAPHY (B20CS39) (PROFESSIONAL ELECTIVE-II)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to	J	1
1	Identifies various t	ypes of vulnerabilities, attacks, mechanisms and	d security services	
2	Compare and cont	rast symmetric and asymmetric encryption algo	orithms.	
3	Implementation of	message authentication, hashing algorithms and	d able to understa	nd kerberos.
4	Explore the attacks	s and controls associated with IP, transport level	l, web and E-mail	security.
5	Develop intrusion	detection system, solutions for wireless network	ks and designing of	of varioustype
	of firewalls.			

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	WEB SERVICES (B20CS40)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-II)		
After the o		course, the students should be able to		
1	·	ervice client and server with interoperable syste SOA, WSDL, UDDI and EBXML	ms like core distri	buted
2		ze the principles of SOAP.		
3	Perceive the imple	ment Web Services life cycle, Anatomy of WSI	DL definition docu	iment.
4		semantics of web services. Working with UDDI	, programming wi	th UDDI,
	UDDIdata structur			
5	Explore interopera webservices	bility between different frameworks. Design we	b based applicatio	ons that use
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	MACHINE LEARNING LAB (B20AI08)	L:0 T:0 P:3	
After the o		course, the students should be able to		
1		pplication on Machine Learning problems.		
2		lgorithms on Machine Learning mentioning its		
3	· ·	mance of Machine Learning algorithms with dif	ferent parameters	
4		est issues raised by current researchers.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	CLOUD COMPUTING LAB(B20CS41)	L:0 T:0 P:3	
After the co		ourse, the students should be able to		
1		mputing fundamentals, technologies, applicatio	ns and implement	ation of
		Oracle VM Virtual box.	0 111 0	
2	Development know and Networking.	vledge of cloud computing using Amazon Web	Services like Cor	npute, Storage
3	Providing Security	to the Cloud System using Identity Access Ma	anagement(IAM).	
4	Attain the Capabili Web Services.	ty of design, development of agile and highly a	vailable systems ı	ısingAmazon
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	INTERNET OF THINGS LAB(B20CS42)	L:0 T:0 P:3	
	mulation of this a	avera the students should be able to		
After the cu		ourse, the students should be able to y of life of humans through IoT technology for the	hat student closer	interaction
1		ment and the society.	hat student closer	Interaction
2		onents that forms part of IoT specific Application	on.	
3		t appropriate IoT Devices and Sensors based on		
4	Improve the Python	n programming skills for writing IoT Application	on	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	VI Sem	LOGICAL REASONING AND	L:2 T:0 P:0	
		QUANTITATIVE APTITUDE(B20MC05)		
		course, the students should be able to		
1	Apply quantitative problems.	reasoning and mathematical analysis methodol	ogies to understar	id and solve
2	Apply quantitative	e correctly arrive at meaningful conclusions	regarding their a	nswers and
		ons and formulas in order to solve for the desire		
3	Interpret given inf	ormation correctly, determine which mathemat	tical model best d	escribes the
	data,and apply the	model correctly.		
4		athematical language and notation to explain th solving problems using mathematical or statisti		lying their
5		nematical skills in various general aspects to solv		ms
5	mprove then mat	ioniationi skins ni various general aspects to solv	ve rear time proble	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	VII Sem	DEEP LEARNING(B20AI10)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1		sics of Artificial Neural Networks.				
2		us Learning Networks and Special Networks.				
3	Understand the De	ep Neural Network.				
4	Develop different	parameters for Regularization for Deep Learnin	g.			
5		for training Deep Models				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	VII Sem	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS(B20MB01)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1	Understand the nat	ure, scope and importance of Managerial Econo	mics.			
2	Know what deman	d is, analyze demand and how elasticity of dema thods for forecasting demand.		cingdecisions		
3		tion function is carried out to achieve least cost	combination of			
	Inputsand how to a					
4		racteristics of different kinds of markets and ou		m		
	-	ation and analyze how capital budgeting technic	ques are used for			
	investment decisio					
5		are final accounts and how to interpret them, and	alyze and interpre	tfinancial		
	statements using ra					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	VII Sem	SOFTWARE TESTING(B20CS44)	L:3 T:0 P:0			
		(PROFESSIONAL ELECTIVE – III)				
After the c	completion of this (	course, the students should be able to				
1	Design test cases s	uitable for a software development for different	domains.			
2	Prepare test planni	ng based on the document.				
3		sts to be carried out.				
4	-	and test cases designed.				
5	Use of automatic to	6				
		<u> </u>				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	VII Sem	SOFTWARE ORIENTED ARCHITECTURE (PROFESSIONAL ELECTIVE – III) (B20CS45)	L:3 T:0 P:0			
After the c	ompletion of this	course, the students should be able to				
1						
	Design various ser		ation			
2	invouer service can	lidate derived from existing business documenta	auon.			
1		sition of S()A				
3	Design the compos			Design application services for technology abstraction.		
4	Design the compose Design application	services for technology abstraction.				
4 5	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation.		1		
4	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation. Subject Name (Subject Code)	No. of Hours	Credits:3		
4 5	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation.	No. of Hours L:3 T:0 P:0	Credits:3		
4 5 Course Outcome	Design the compose Design application Principles of Service Year / semester VII Sem	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46)		Credits:3		
4 5 Course Outcome	Design the compose Design application Principles of Service Year / semester VII Sem completion of this of	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III)		Credits:3		
4 5 Course Outcome After the c	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> of Perceive of scripting	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to		Credits:3		
4 5 Course Outcome After the c 1	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple s	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to ng and the contributions of scripting languages.	L:3 T:0 P:0			
4 5 Course Outcome After the c 1 2	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to Ing and the contributions of scripting languages. cripts to automate system administration. If the strengths and weakness of Perl, TCL and R ge for solving a given problem.	L:3 T:0 P:0			
4 5 <b>Course</b> Outcome After the c 1 2 3 3	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua Acquire programm	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to ng and the contributions of scripting languages. cripts to automate system administration. f the strengths and weakness of Perl, TCL and R ge for solving a given problem. ing skills in scripting language	L:3 T:0 P:0 Ruby; and select a	n		
4 5 Course Outcome After the c 1 2 3	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua Acquire programm	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to Ing and the contributions of scripting languages. cripts to automate system administration. If the strengths and weakness of Perl, TCL and R ge for solving a given problem.	L:3 T:0 P:0 Ruby; and select a	n		

After the completion of this course, the students should be able to           1         Explain the foundations, definitions and capabilities of Bigdata.           2         List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, and enabling technologies of big data analytics.           3         Understand concepts on Handoop Ecosystem in Big data.           4         Analyze the Map reduce programming in Big data Analytics.           5         Apply Security big data technologies in business intelligence using geospatial/. data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.           Course         Year / semester           Subject Name (Subject Code)         No. of Hours           Credits:3         Credits:3           Outcome         VII Sem           2         Apply the different algorithms and define the policy.           3         Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.           4         Evaluate the eligibility traces, Eligibility traces used for sampling.           5         Create Function Approximation Methods.           Course         Year / semester           Subject Name (Subject Code)         No. of Hours           Credits:3         Credits:3           6         Create Function Approximation Methods.         L:3 T:0		-			
Outcome       VITSEIN       (PROFESSIONAL ELECTIVE – IV)       L3 1 30 F30         After the completion of this course, the students should be able to       Image: the students should be able to       Image: the definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts, and enabling technologies of big data analytics.       Image: the definitions, concepts, and enabling technologies of big data analytics.         5       Apply Security big data technologies in business intelligence using geospatial/, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours         Course       Vear / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         1       Understand the ky features of Reinforcement Learning.       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these matrics.         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Grept SSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Grept SSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         6       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         6       Create Function Apeproximation Methods. </td <td>Course</td> <td>Year / semester</td> <td></td> <td>No. of Hours</td> <td>Credits:3</td>	Course	Year / semester		No. of Hours	Credits:3
After the completion of this course, the students should he able to         1       Explain the foundations, definitions and capabilities of Bigdata.         2       List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, architectures and challenges in Big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud comuting.         Course Year / semester         VIISEM (PROFESSIONAL ELECTIVE – IV)         After the completion of this course, the students should be able to         1       Understand the key features of Reinforcement Learning.         2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         Subject Name (Subject Code)         Viet semester         Subject Name (Subject Code)         Outcome         VII Sem         Vigter Semester         Subject Name (Subject Code)         Outcome       VII Sem <td>Outcome</td> <td>VII Sem</td> <td></td> <td>L:3 T:0 P:0</td> <td></td>	Outcome	VII Sem		L:3 T:0 P:0	
1       Explain the foundations, definitions and capabilities of Bigdata.         2       List the definitions, concepts, and challing technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial/k data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester       Subject Name (Subject Code) VII Sem       No. of Hours LAS TO P:0         Outcome       VII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L.3 T:0 P:0         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       Credits:3         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       Credits:3         6       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48)       L:3 T:0 P:0         7       Apply the difference scale should be able to       Credits:3         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       Credits:2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       I dentify various sc					
2       List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial. data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         0utcome       VII Sem       REINFORCEMENT LEARNING (B20AII5)       No. of Hours       Credits:3         2       Apply the different algorithms and define the policy.       No. of Hours       Credits:3         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       Subject Name (Subject Code)       No. of Hours       Credits:3         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3       Li:3 T:0 P:0       Credits:3         5       Create Function Approximation Methods.       No. of Hours       L:3 T:0 P:0       Credits:3         6       Utale key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3	After the c	completion of this o	course, the students should be able to		
definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatialλ data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours       Credits:3         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         1       Understand the key features of Reinforcement Learning.       2       Apply the different algorithms and define the policy.       No. of Hours       Credits:3         2       Apply the different algorithms and define the policy.       No. of Hours       Credits:3         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       L:3 T:0 P:0       Credits:3         0utcome       YII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       L:3 T:0 P:0         4       Evaluate the eligibility traces. the students should be able to       I:3 T:0 P:0       Credits:3         5       Create Function Approximation Methods.       I:3 T:0 P:0       Credits:3         6       Utline	1	Explain the founda	tions, definitions and capabilities of Bigdata.		
3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatialλ, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course Year / semester Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)         After the completion of this course, the students should be able to       1.3 T:0 P:0         1       Understand the key features of Reinforcement Learning.       2.4 Paph yhe different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       5         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5         5       Create Function Approximation Methods.       No. of Hours L:3 T:0 P:0         6       Year / semester Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0         7       Create Function Approximation Methods.       1.3 T:0 P:0       Credits:3         6       Valact the eligibility traces, Eligibility traces used for sampling.       5       Create Function approximation Methods.         7       Outfore key trams and concepts in cyber law, intellectual property and cybercrimes.       L:3 T:0 P:0       Credits:3         1       Outli	2				. Outline the
4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         Analyze multiple criteria for analyzing RL algorithms and belie to       1       Understand the key features of Reinforcement Learning.       2         2       Apply the different algorithms and define the policy.       3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       No. of Hours L:3 T:0 P:0       Credits:3         6       Vill Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         1       Outtome       VII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       Vill Sem       Credits:3         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       Identify various security challenges phased by mobile devices.       Identify various stypes of tools and methods used in cybercrime, develops the secure counter methods to maintain security risk management policies	2			ics.	
5       Apply Security big data technologies in business intelligence using geospatial\u03bb data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Coursee       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Understand the key features of Reinforcement Learning.       2         2       Apply the different algorithms and define the policy.       3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5       Create Function Approximation Methods.         Coursee       Vear / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         4       Evaluate the eligibility traces, the students should be able to       1       Outcome       Vis Sem       Credits:3         5       Create Function Approximation Methods.       Credits:3       Credits:3         6       Utime key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various sec	3	Understand concep	ots on Handoop Ecosystem in Big data.		
bissed analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours       Credits:3         Outcome       VII Sem       REINFORCEMENT LEARNING (B20AI15)       No. of Hours       Credits:3         1       Understand the key features of Reinforcement Learning.       1       L:3 T:0 P:0       Its 3:0         2       Apply the different algorithms and define the policy.       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       No. of Hours       Credits:3         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3       Credits:3         5       Create Function Approximation Methods.       L:3 T:0 P:0       Credits:3         6       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0       Credits:3         7       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       cybercrimes.       L:3 T:0 P:0       Credits:3         2       Explore the vulnerabilities, threats and cybercrime, develops the secure counter methods to maintain security protection       S       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Mini I PROJECT & INTERNSHIP       L					
Outcome         VII Sem         REINFORCEMENT LEARNING (B20A115) (PROFESSIONAL ELECTIVE - IV)         L:3 T:0 P:0           After the completion of this course, the students should be able to         1         Understand the key features of Reinforcement Learning.         2           2         Apply the different algorithms and define the policy.         3         Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.           4         Evaluate the eligibility traces, Eligibility traces used for sampling.         5         Create Function Approximation Methods.         No. of Hours         Credits:3           6         Outcome         VII Sem         Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE - IV)         No. of Hours         Credits:3           7         Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2         Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3         1           3         Identify various security challenges phased by mobile devices.         4         4         10         0utline key terms and concepts in cyber law, intellectual property and cybercrime, develops the secure counter methods to maintain security protection         5         Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         0         Course         Year / semester         Subject Name (Subject Code)	5	based analytics, so	cial networking, Web 2.0, reality mining, and c		a, location-
Outcome       UPROFESSIONAL ELECTIVE – IV)       LST NOTS         After the completion of this course, the students should be able to       1       Understand the key features of Reinforcement Learning.         2       Apply the different algorithms and define the policy.       3         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         Credits:3       Credits:3         Outcome       VII Sem         VIN Sem       CyBER SECURITY & ETHICAL         HACKING (B20CS48)       L:3 T:0 P:0         (PROFESSIONAL ELECTIVE – IV)       After the completion of this course, the students should be able to         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in orde	Course	Year / semester		No. of Hours	Credits:3
1       Understand the key features of Reinforcement Learning.         2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces. Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course Vear / semester Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)         After the completion of this course, the students should be able to       1         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various specurity challenges phased by mobile devices.         4       Identify various security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) (B20CS49)       No. of Hours L:0 T:0 P:0         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4	Outcome	VII Sem		L:3 T:0 P:0	
2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         0utcome       VII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       L:3 T:0 P:0         4       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       Identify various security challenges phased by mobile devices.       Identify various security challenges phased by mobile devices.         4       Identify various security risk management policies in order to adequately protect an organization's critical information and assets.       No. of Hours       Credits:2         Coursee       Year / semester       Subject Name (Subject Code) (Bi2OCS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       Credits:2       Credits:2         2       Year / semester       Subject Name (Subject Code) (Bi2OCS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       Identify various curical information and assets	After the c	-	course, the students should be able to		
3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Outcome         VII Sem       Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         4       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       4         4       Identify various security risk management policies in order to adequately protect an organization's critical information and assets.       5       Credits:2         Course Outcome       Year / semester       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP       No. of Hours L:0 T:0 P:0       Credits:2         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure       4         4       Elaborate the completed task and compile the report.       Credits:1       Credits:1         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their empl					
4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5         5       Create Function Approximation Methods.       No. of Hours       Credits:3         0utcome       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         4       Evaluate the eligibility traces, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Course       Year / semester       Subject Name (Subject Code) (B20CS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1         0utcome       Year / semester       Subject Name (Subject Code) (B20CS49				1 1	
4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         0utcome       VII Sem       Credits:3 (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0       Credits:3         4       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Credits:2         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course	3	<b>v</b> 1	riteria for analyzing RL algorithms and evaluat	e algorithms on t	nese
5       Create Function Approximation Methods.       No. of Hours       Credits:3         Course       Year / semester       Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Credits:2         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B	4		ility traces Eligibility traces used for sampling		
Course Outcome         Year / semester VII Sem         Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)         No. of Hours L:3 T:0 P:0         Credits:3           After the completion of this course, the students should be able to         1         Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2           2         Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3         Identify various security challenges phased by mobile devices.         4           4         Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5         Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Vill Sem         No. of Hours (B20CS49)         Credits:2           1         Enhance students' knowledge in current technology         2         Develop leadership ability and responsibility to execute the given task 3         Enhance their employability skills along with real corporate exposure         4           4         Elaborate the completed task and compile the report.         No. of Hours L:0 T:0 P:3         Credits:1. No. of Hours L:0 T:0 P:3           2         Vear / semester VII Sem         Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)         No. of Hours L:0 T:0 P:3         Credits:1. L:0 T:0 P:3           After the completion of this course, the					
Outcome       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       No. of Hours       Credits:2         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)       No. of Hours L:0 T:0 P:3       Credits:1.         After t	Course			No of Hours	Credits:3
Outcome       VITSem       HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:S 1:0 F:0         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Coefficient Code)       No. of Hours       Credits:2         6       Vil Sem       Subject Name (Subject Code)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       L:0 T:0 P:3         4       Elaborate the completed task and compile the report.       Credits:1.       DieEP LEARNING LAB (B20AI13)       L:0 T:0 P:					Cituits.5
After the completion of this course, the students should be able to         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         MINI PROJECT & INTERNSHIP       L:0 T:0 P:0         1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         Outcome       VII Sem         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability Skills along with real corporate exposure	Outcome	VII Sem		L:3 1:0 P:0	
1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) (DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3         2       Develop leadership ability and responsibility to execute the given task       3       Intervent technology         2       Develop leadership ability and responsibility to execute the given task       3       Intervent technology         3       Enhance their employability Skills along with real corporate exposure </td <td></td> <td></td> <td>(PROFESSIONAL ELECTIVE – IV)</td> <td></td> <td></td>			(PROFESSIONAL ELECTIVE – IV)		
2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various sypes of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:2         0utcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:2         2       Develop leadership ability and responsibility to execute the given task       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours       Credits:1.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         4       Elaborate the completed task and compile the report.       Course       Develop leadership ability and responsibility to execute the given task       1.       Understand the basics of Artificial Neural Networks.       2.         2       Describe the various Learning Networks and Special Networks       3.       Understand the basics of Artificial Neural Networks.       3.       Understand the Deep Neur	After the c	completion of this o	course, the students should be able to		
2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Coursee Outcome       Year / semester       Subject Name (Subject Code) MINI PROJECT Code)       No. of Hours L:0 T:0 P:3         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       Credits:1.       Credits:1.         Outcome       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)       No. of Hours L:0 T:0 P:3         After the complet	1	~	s and concepts in cyber law, intellectual pro	perty and	
3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3       Credits:1.         4       Elaborate the completed task and compile the report.       Credits:1.       Credits:1.         0utcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         4       Elaborate the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks.	2	2	rabilities, threats and cybercrimes posed by		
4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) Mo. of Hours L:0 T:0 P:3       Credits:2         1       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.				••••••	
methods to maintain security protection       Image: Construct of the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester       Subject Name (Subject Code) (B20CS49)       No. of Hours (Credits:2)         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours (Credits:1, DEEP LEARNING LAB (B20AI13))       No. of Hours (Credits:1, DEEP LEARNING LAB (B20AI13))       Credits:1, DEEP LEARNING LAB (B20AI13)         4       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3         3       Understand the Deep Neural Network.       3       Understand the Deep Neural Network.	1	2		welong the secur	counter
Analyze the cyber security fisk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours       Credits:1.         Outcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         6       Liaborate the completed task and compile the report.       Course       Vear / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         0utcome       VII Sem       DEEP LEARNING LAB (B20A113)       L:0 T:0 P:3       Credits:1.         1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.				evelops the secure	counter
Outcome       Year / semester VII Sem       Subject Value (subject Code) (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.	5			r to adequately p	protect an
Outcome       VII Sem       MINI PROJECT & INTERNSHIP (B20CS49)       L:0 T:0 P:0         1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.		Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         Develop leadership ability and responsibility and responsibility to execute the given task         Course       Year / semester         VII Sem       Subject Name (Subject Code)         DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3         After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Outcome				
1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         No. of Hours         Course       Year / semester         Outcome       VII Sem         DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3         After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.					
2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         Deter LEARNING LAB (B20AI13)       No. of Hours         Credits:1.         After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	1	<b>F 1</b>	· · · ·		
3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.			0		
4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.		-			
Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.				exposure	
Outcome         VII Sem         DEEP LEARNING LAB (B20AI13)         L:0 T:0 P:3           After the completion of this course, the students should be able to         1         Understand the basics of Artificial Neural Networks.           2         Describe the various Learning Networks and Special Networks         3           3         Understand the Deep Neural Network.	4	Elaborate the con	npleted task and compile the report.	1	
After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Course	Year / semester		No. of Hours	Credits:1.5
1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Outcome	VII Sem	DEEP LEARNING LAB (B20AI13)	L:0 T:0 P:3	
<ul> <li>2 Describe the various Learning Networks and Special Networks</li> <li>3 Understand the Deep Neural Network.</li> </ul>	After the c				
3 Understand the Deep Neural Network.	1				
	2	Describe the variou	as Learning Networks and Special Networks		
4 Develop different parameters for Regularization for Deep Learning.	3	Understand the De	ep Neural Network.		
	4	Develop different r	parameters for Regularization for Deep Learnin	g.	

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Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE-I	No. of Hours L:0 T:0 P:8	Credits:4			
		(B20CS50)					
1	Identify the probl	em by applying acquired knowledge.					
2	Analyze and cate	gorize executable project modules.					
3		tools for designing project modules.					
4		nodules through effective team work after e	efficient testing				
		appleted task and compile the project report.	ę				
Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) HUMAN VALUES AND PROFESSIONAL ETHICS(B20MC05)	No. of Hours L:2 T:0 P:0	Credits:0			
After the c	completion of this o	course, the students should be able to					
		tance of ethics and values in life and society.					
	<u>^</u>	ponsibility and mould them as best professionals	S.				
		n and achieve harmony in life.					
		-	on				
		Provide a critical perspective on the socialization of men and women Perceive the important issues related to gender in contemporary India					
	*	<u> </u>					
Course		Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	VIII Sem	DESIGN PATTERNS (B20CS51) (PROFESSIONAL ELECTIVE – V)	L:3 T:0 P:0				
		course, the students should be able to					
		riate design patterns to solve object oriented de					
	• •	ment appropriate solutions to recurring program	• •	• •			
		tation and specifications, including design patte	ern catalogs and e	xisting			
				source code.			
3	Indorstand basic a						
		lements of structural patterns and their implement					
4	Understand basic e	lements of creational patterns and their implem	entations.				
4 5	Understand basic e	lements of creational patterns and their implem lements of behavioral patterns and their implem	entations.	ith growth in			
4 5	Understand basic e Understand basic e the field of using d	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns	entations.	ith growth in Credits:3			
4 5	Understand basic e Understand basic e	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52)	entations. nentation along w	1			
4 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V)	entations. nentation along w No. of Hours	1			
4 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3			
4 5 Course Outcome After the c 1	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3			
4 5 Course Outcome After the c 1 2	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain.	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3			
4 5 Course Outcome After the c 1 2 3	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3			
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3			
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3			
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code)	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3			
4 5 Course Outcome After the c 1 2 3 4 5 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work chain	Credits:3			
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this o	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc tions of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	No. of Hours It decentralization It decentralization It oproof of work Chain No. of Hours	Credits:3			
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this o	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	No. of Hours It decentralization It decentralization It oproof of work Chain No. of Hours	Credits:3			
4 5 Course Outcome 1 2 3 4 5 6 0 4 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc tions of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	No. of Hours It decentralization It decentralization It oproof of work Chain No. of Hours	Credits:3			
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c 1 2	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti Apply methods for	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns <b>Subject Name (Subject Code)</b> BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) <b>course, the students should be able to</b> amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges <b>Subject Name (Subject Code)</b> PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) <b>course, the students should be able to</b> c Process Automation & Bot Creation.	No. of Hours L:3 T:0 P:0	Credits:3			
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c 1 2 3 3	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti Apply methods for Analyze devices to	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns           Subject Name (Subject Code)           BLOCK CHAIN TECHNOLOGIES           (B20CS52)           (PROFESSIONAL ELECTIVE – V)           course, the students should be able to           amentals of blockchain, history, technology and           nic concepts and its use in blockchain.           understand structure of blockchain, alternatives           ntracts, solidity and Web3 to implement blockc           tions of blockchain and its challenges           Subject Name (Subject Code)           PRINCIPLES OF ROBOTICS(B20AI24)           (PROFESSIONAL ELECTIVE – V)           course, the students should be able to           c Process Automation & Bot Creation.           Bots Upload and Credentials.	No. of Hours L:3 T:0 P:0	Credits:3			

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Course		Subject Name (Subject Code) COMPUTER VISION (B20AI26)	No. of Hours	Credits:3
Outcome	VIII Sem	(PROFESSIONAL ELECTIVE – VI)	L:3 T:0 P:0	
After the c	completion of this (	course, the students should be able to		
1		nent of algorithms and techniques.		
2	1	ret the visible world around us with real time p	roblems.	
3		ental concepts on multi-dimensional signal proc		traction.
		sual geometric modeling, stochastic optimizatio		,
4		ip and contribute in research developments in th		er vision.
5	Explain different	applications ranging from Biometrics, Me	dical diagnosis,	document
		of visual content, to surveillance, advanced rer		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	DATA PRIVACY & SECURITY(B20DS21)	L:3 T:0 P:0	
Outcome	v III Selli	(PROFESSIONAL ELECTIVE – VI)	L:3 1:0 F:0	
After the c	completion of this	course, the students should be able to		•
1		as types of Substitution ciphers.		
2		techniques to break the ciphers and unde	rstands transposi	tion
	techniques.		F	
3		ast block cipher and stream cipher algorithms		
4	-	asymmetric key cryptographic algorithms and u	understand key m	anagement in
	public key cryptog	raphy.		-
5	Explore different	types of steganography techniques to hide	the data in text	and
	images.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	NATURAL LANGUAGE PROCESSING	L:3 T:0 P:0	
Outcome	v III Selli	(PROFESSIONAL ELECTIVE – VI)	L.J 1.01.0	
		(B20AI19)		
After the c	completion of this	course, the students should be able to		
1	Show sensitivity to	b linguistic phenomena and an ability to model t	hem with formal	
	grammars.			
2		rry out proper experimental methodology for tra	aining and evaluat	ting empirical
	NLP systems			
3	<b>_</b>	probabilities, construct statistical models over	0	and
4		s using supervised and unsupervised training m	ethods.	
4 5		plement, and analyze NLP algorithms		
	<b>.</b>	erent language modelling Techniques.	_	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	VIII Sem	TECHNICAL SEMINAR(B20CS53)	L:0 T:0 P:2	
After the s	ompletion of this	course, the students should be able to		L
After the c	-	chnical topics from interested domains.		
-	•	icability of modern tools and technology.		
,				
2		· · · · · · · · · · · · · · · · · · ·	n a avatamatia -	nnroach
3	Discuss and justi	fy the technical aspects of the chosen topic	in a systematic a	pproach
	Discuss and justi Develop Presenta	fy the technical aspects of the chosen topic : tion and Communication skills.		
3	Discuss and justi Develop Presenta Year / semester	fy the technical aspects of the chosen topic attion and Communication skills. Subject Name (Subject Code)	in a systematic a	pproach Credits:8
3 4	Discuss and justi Develop Presenta	fy the technical aspects of the chosen topic : tion and Communication skills.		
3 4 Course Outcome	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54)	No. of Hours	
3 4 Course Outcome	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to	No. of Hours	
3 4 Course Outcome After the c 1	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54)	No. of Hours	
3 4 Course Outcome After the c 1 2	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules.	No. of Hours	
3 4 Course Outcome After the c 1	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge.	No. of Hours	
3 4 Course Outcome After the c 1 2	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate Choose efficient	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules. tools for designing project modules.	No. of Hours L:0 T:0P:16	
3 4 Course Outcome After the c 1 2 3	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate Choose efficient Combine all the 1	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules.	No. of Hours L:0 T:0P:16	

#### Vaagdevi College of Engineering-Autonomous Bollikunta, Warangal-506005 Department Of MBA MBA R20 COURSE OUTCOMES

		I/I SEM		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	I/I Sem.	<b>Business Environment</b>	L:4 T:0 P:0	4
		( <b>M20MB01</b> )		
On successfu	al completion of this	s course, student should be able to:		
1	Explains the concept	ot of BE and different techniques of en	vironmental scann	ing process.
2		c systems, GATT, WTO, Fiscal and n	nonitory policies	
3	Emphasizes on Indu	ustrial Policy and regulatory structure		
4	Explains socio polit	tical environment.		
5		le policy, EXIM Policies and FEMA.		
<b>Course out</b>	Year/ Semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem	Managerial Economics	L:4 T:0 P:0	
		(M20MB02)		
On successfu		s course, student should be able to:		
1	÷	ed by the business organization		
2		techniques in real business situations.		
3	determine the produ	uction factors and returns		
4	Analyse			
	31 the different cos			
5		pricing strategies and profit policies	1	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem.	Management and Organization Behaviour (M20MB03)	L:4 T:0 P:0	
On successfu	al completion of this	s course, student should be able to:	1	
1		nce of fundamentals of Management and	nd its contributions	5.
2	Outline the plannin	g process and types of plans in dynam	ic environment, de	velop the
	decision making sty	les in various situations in organization	on.	
3	Demonstrate the or	ganization structures with its merits an	nd demerits, Contra	ist between
	authority, power an	d influence, Asses the significance of	controlling in an o	rganization.
4	Examine individua	l and group behavior in an organization	on using personality	y theories
5	Identify how manage	gers apply different leadership styles a	nd motivation theo	ories in an
	organization.			
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/I Sem.	Accounting for Management	L:4 T:0 P:0	
		( <b>M20MB04</b> )		
On successfu		s course, student should be able to:		
On successful 1 2	Explain the importa	,		

3	Plan the process of	issue of shares and debentures for rais	sing capital by the	company.		
4		ret financial position of the company u				
	and Horizontal ana		0	,		
5		flow statements in the company.				
<b>Course out</b>	Year/semester:	Subject name code:	No. of Hours	Credits: 4		
come	I/I Sem.	Statistics for Management (M20MB05)	L:4 T:0 P:0			
On successfu	al completion of this	s course, student should be able to:				
1	Explain the role of	statistics and statistical techniques in	n management dec	ision making		
	and choose appropr	riate measures of central tendency and	dispersion.			
2	Define correlation	and also measure the degree of cor-	relation between v	variables and		
	estimate the relatio	nship between independent and depen	dent variables usin	ng regression		
	lines.					
3		n parametric and non-parametric test.				
4		Classify Null- hypothesis and alternative Hypothesis, hypothesis testing for making decisions using student's t test				
	decisions using stu					
5	-	y and two-way classification of ANOV	A and examine go	oodness of fit		
	by using Chi-squar		1 .			
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits:4		
come	I/I sem	Business Communication (M20MB06)	L:4 T:0 P:0			
On successfu	al completion of this	s course, student should be able to:		1		
1		ance of written communication skills a	ppropriate for bus	iness		
2		udent effectively deliver on oral preser	ntations.			
3		nts report writing skills and develop th		skills.		
4		s of communication	1 0			
5	Minimize the stude	nt negative attitudes towards the verba	al and nonverbal			
<u> </u>	communication					
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:3		
come	I/I sem	Information Technology Lab	L:0 T:0 P:3			
<u>O</u>	-1 1 - 4:	(M20MB07)				
On succession	<u> </u>	s course, student should be able to:	d mail manaa			
1		about MS-word, creation of document an adsheets and data analysis with statistical	•			
2 3	-	Database & data mining.	10018.			
		e of mail merge and build the presentation	a graphics through p	ower point		
4	List out the procedur	e of man merge and build the presentation	i graphics un ough p	ower point		
	creation					
	creation	I/II Sem				
Course	creation Year/ semester:	1	No. of Hours	Credits:4		
Course out come		Subject name code: Marketing Management	No. of Hours L:4 T:0 P:0	Credits:4		
out come	Year/ semester: I/II Sem.	Subject name code: Marketing Management (M20MB08)		Credits:4		
out come	Year/ semester: I/II Sem. 1l completion of this	Subject name code: Marketing Management		Credits:4		

3	Explain the Market	research project/process.		
4	Make use of PLC fe	or framing marketing strategies and ap	praise the importa	ance of
	promotion mix.			
5	Utilize the different	t pricing strategies for profit maximization	ation.	
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits: 4
come	I/II Sem.	Human Resource Management (M20MB09)	L:4 T:0 P:0	
On successfu	al completion of this	s course, student should be able to:		
1		ncepts of HRM, Its model.		
2	Demonstrate HRP	process and Job Analysis.		
3		ques and tools for training and Develo	pment, performan	ce appraisal.
4		ations System Grievance redressal me		
	settlements.	·	1	
5	Recommend and ar	ppraise the contemporary issues related	d to HR practices i	n Global
	perspective.		-	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II sem	<b>Financial Management</b>	L:4 T:0 P:0	
		(M20MB10)		
On successfu	al completion of this	s course, student should be able to:		
1		ance of profit maximization and wealt		
2	Apply different tech	hniques for investment decision proce	ss and measuring	the cost of
	capital			
3	Analyze the capital			
4	Examine the factors	s determining dividend and its valuation	on	
5	Assess the needs an	nd planning of working capital		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II sem	<b>Business Research Methods</b>	L:4 T:0 P:0	
		( M20MB11)		
		mpletion of this course, student sho	uld be able to:	
1		ethodology and why it is useful.		
2	*	h problem and research design		
3	Make use of question	onnaire and methods of data collection	1	
4	Importance of resea			
5	Influence of researc	-		
0	<b>X</b> 7 /	Subject name code:	No. of Hours	Credits:4
Course out	Year/ semester:	Subject name code:		ci cuitor i
come	I/II Sem.	Quantitative Analysis for	L:4 T:0 P:0	
		0		
come	I/II Sem.	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to:		
come	I/II Sem.	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to:		
come On successfu 1 2	I/II Sem.	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to: Model.		
come On successfu	I/II Sem. Il completion of this Define OR and OR Construct the struct Compare Two-phas	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to: Model. ture of LPP. se method and Big-M method.		
come On successfu 1 2 3 4	I/II Sem. Il completion of this Define OR and OR Construct the struct Compare Two-phas	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to: Model. ture of LPP.		
come On successfu 1 2 3	I/II Sem. al completion of this Define OR and OR Construct the struct Compare Two-phas Build the mathemat	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to: Model. ture of LPP. se method and Big-M method.		
come On successfu 1 2 3 4	I/II Sem. al completion of this Define OR and OR Construct the struct Compare Two-phas Build the mathemat	Quantitative Analysis for Business Decisions (M20MB12) s course, student should be able to: Model. ture of LPP. se method and Big-M method. tical model of transportation problem.		

come         I/II sem         Cost & Management Accounting (M20MB13)         L:4         T:0         P:0           On successful completion of this course, student should be able to:         1         Distinguish Financial Accounting, Cost accounting & Management Accounting           2         Analyze Costing for specific industries.         3         Apply Break Even analysis for various business problems           4         Classify and evaluate budgets.         5         Compare and contrast standard cost, estimated cost & marginal cost           Course out         Year/ semester:         Subject name code:         No. of Hours         Credits:3           0m successful completion of this course, student should be able to:         1         Show how to overcome fear of facing interviews         1         Show how to overcome fear of facing interviews         1         On successful completion of this course, student should be able to:         1         Show how to overcome fear of facing interviews         1         Show how to overcome fear of facing interviews         1         Improve communication skills and able to convince their view point to the superior, peers and subordinates.         4         Compare Traits of positive thinking and high achievers.         5         Improve General knowledge and current information.         4         Compare Traits of positive thinking and high achievers.         5         Improve General knowledge and current information.         5         Improve General knowledge and c	Course out		Subject name code:	No. of Hours	Credits:4		
1       Distinguish Financial Accounting. Cost accounting & Management Accounting         2       Analyze Costing for specific industries.         3       Apply Break Even analysis for various business problems         4       Classify and evaluate budgets.         5       Compare and contrast standard cost, estimated cost & marginal cost         Credits:3         Course out Year/semester: Subject name code: No. of Hours L:0 T:0 P:4         Credits:3         Consection of this course, student should be able to:         1       show how to overome fear of facing interviews         2       Improve communication skills and able to convince their view point to the superior, peers and subordimates.         3       Adopt Time management skills to efficiently manage time in meeting deadlines.         4       Compare Traits of positive thinking and high achievers         5       Improve communication skills and able to convince their view point to the superior, peers and subordimates.         4       Compare Traits of positive thinking and high achievers         5       Improve General knowledge and current information.         III/I Sem         On successful completion of this course, student should be able to:         1       Formulate organizational objectives, policies, vision and mission and outline the concepts in strat	come	I/II sem	0	L:4 1:0 P:0			
1       Distinguish Financial Accounting. Cost accounting & Management Accounting         2       Analyze Costing for specific industries.         3       Apply Break Even analysis for various business problems         4       Classify and evaluate budgets.         5       Compare and contrast standard cost, estimated cost & marginal cost         Credits:3         Course out Year/semester: Subject name code: No. of Hours L:0 T:0 P:4         Credits:3         Consection of this course, student should be able to:         1       show how to overome fear of facing interviews         2       Improve communication skills and able to convince their view point to the superior, peers and subordimates.         3       Adopt Time management skills to efficiently manage time in meeting deadlines.         4       Compare Traits of positive thinking and high achievers         5       Improve communication skills and able to convince their view point to the superior, peers and subordimates.         4       Compare Traits of positive thinking and high achievers         5       Improve General knowledge and current information.         III/I Sem         On successful completion of this course, student should be able to:         1       Formulate organizational objectives, policies, vision and mission and outline the concepts in strat	On successfu	al completion of this	s course, student should be able to:				
3       Apply Break Even analysis for various business problems         4       Classify and evaluate budgets.         5       Compare and contrast standard cost, estimated cost & marginal cost.         Course out Vear/ semester: Subject name code: No. of Hours L:0 T:0 P:4         Completion of this course, student should be able to: L:0 T:0 P:4         1       show how to overcome fear of facing interviews       L:0 T:0 P:4         2       Improve communication skills and able to convince their view point to the superior, peers and subordinates.       4         3       Adopt Time management skills to efficiently manage time in meeting deadlines.       4         4       Compare Traits of positive thinking and high achievers       5         5       Improve General knowledge and current information.       L:4 T:0 P:0 <b>II/I Sem. Management (M20MB15)</b> No. of Hours L:4 T:0 P:0         On successful completion of this course, student should be able to:         1       Formulate organizational objectives, policies, vision and mission and outline the concepts in strategic management.         2       Define the role of strategist in an organization.       3         3       Evaluate the performance by using qualitative and quantitative benchmarking technique.         4       Identify diversifying strategies and define why firms di	1			nagement Accoun	ting		
3       Apply Break Even analysis for various business problems         4       Classify and evaluate budgets.         5       Compare and contrast standard cost, estimated cost & marginal cost.         Course out Vear/ semester: Subject name code: No. of Hours L:0 T:0 P:4         Completion of this course, student should be able to: L:0 T:0 P:4         1       show how to overcome fear of facing interviews       L:0 T:0 P:4         2       Improve communication skills and able to convince their view point to the superior, peers and subordinates.       4         3       Adopt Time management skills to efficiently manage time in meeting deadlines.       4         4       Compare Traits of positive thinking and high achievers       5         5       Improve General knowledge and current information.       L:4 T:0 P:0 <b>II/I Sem. Management (M20MB15)</b> No. of Hours L:4 T:0 P:0         On successful completion of this course, student should be able to:         1       Formulate organizational objectives, policies, vision and mission and outline the concepts in strategic management.         2       Define the role of strategist in an organization.       3         3       Evaluate the performance by using qualitative and quantitative benchmarking technique.         4       Identify diversifying strategies and define why firms di	2	Analyze Costing fo	r specific industries.				
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1 Outline the increasing importance of intellectual property rights	On successfi	l completion of this		1			
	1			rights			
	2			•			
3 Explain the copyright principles and rights							

4	Prioritize the law of	f patents and patent ownership.		
5		ecret and maintenance.		
Course out	Year/ semester:	Subject name code: Stress	No. of Hours	Credits:3
come	II/I sem	Management (M20MB17B)	L:4 T:0 P:0	Creatiste
		s course, student should be able to:		
1		d Symptoms of stress		
2		ues in crisis management		
3	-	nship between the teams		
4	1	zation personality of employee		
5		equired for personality development		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:3
come	II/I sem	Data Analytics	L:4 T:0 P:0	
		(M20MB17C)		
On successfu	al completion of this	s course, student should be able to:		•
1		concepts such as Data Analytics conc	epts to include Imp	portance of
	data analytics, data	visualization tools, Descriptive Statis	tical Measures, Pre	edictive
	Analytics, Data Mi	ning, and Simulation		
2	Apply knowledge t	o solve simple tasks using data analyt	ics techniques with	l computer
	(MS Excel).			
3	Identify the advanta	ages and disadvantages of simulation,	risk analysis and d	lecision tree
	analysis			
4		nalytics parameters (descriptive analytics	tics, diagnostic ana	lytics,
		and prescriptive analytics).		
5	Choose the data and	alytics techniques for solving practica		
<b>Course out</b>	Year/ semester:	Subject name code: Tourism and	No. of Hours	Credits: 3
come	II/I sem	Hospitality Management	L:4 T:0 P:0	
		(M20MB17D)		
		s course, student should be able to:		
1		at concepts of Tourism management		
2		affecting hospitality and tourism indu	stry	
3		yment opportunities in Hospitality		
4		stem and ecotourism activities		
5	1	roblems in tourism and Hospitality ma	<u> </u>	
Course out	Year/ semester:	Subject name code: Indian	No. of Hours	Credits:
come	II/I sem	Constitution (M20MB17E)	L:4 T:0 P:0	03
Un successfu		s course, student should be able to:		
1		itution and constitutional history		
2		and centre-state relationship		
3		ecretariat and it structure		
4		ortance of election commission		
5	Improve the welfar	e of SC/ST/BC and women		
Course out	Year/ semester:	Subject name code: Consumer	No. of Hours	Credits:
come	II/I Sem	Behavior (M20MB18M1)	L:4 T:0 P:0	03

On successfu	ul completion of this	s course, student should be able to:		
1	Understand consum	ner behavior research process and rura	l consumer behavi	or.
2	Understand the env	vironmental influences on consumer	behavior and able	to appreciate
		ultural adaptation of consumer behavi		
3		al personality and self-concept, co		n, changing
		ers, consumer learning and information		, , ,
4		nce of consumer behavior models in a		
5		onsumerism, consumer safety, and co		on at market
5	place.	insumerisin, consumer surery, and ex		
Course out	Year/ semester:	Subject name code: Sales and	No. of Hours	Credits:
come	II/I Sem	Distribution Management	L:4 T:0 P:0	03
come		(M20MB19M2)		00
On successfi	ul completion of this	s course, student should be able to:		
1		ientals of sales management.		
2	*	te the strategies to effectively manage	company's sales o	nerations
<i>L</i>		es and responsibilities of the sales mai		perations
3		orce productivity and control.	iluger.	
4	*	ment distribution channel strategy.		
5		els efficiency and effectiveness in who	olocaling and ratail	ina
-		-		_ <u> </u>
Course out	Year/ semester:	Subject name code: Supply	No. of Hours	Credits:
come	II/I Sem	Chain Management	L:4 T:0 P:0	03
0		(M20MB20M3)		
	-	s course, student should be able to:	[4	
1	*	ork and essentials of Supply Chain M	lanagement.	
2		logistics management.	•	
3		selection of transportation and wareh	ousing managemen	nt.
4		supply chain management.		
<b>Course out</b>	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	Security Analysis and Portfolio	L:4 T:0 P:0	03
		Management (M20MB18F1)		
On successfu	ul completion of this	s course, student should be able to:		
1	-	t alternatives and make investment po	licy recommendati	on including
		f an optimal asset allocation.		
2		pes of bonds in the stock markets		
3	1 7	alysis and valuation		
4	Construct optimal p	portfolios following the tenets of mode	ern portfolio theory	1
5	Discuss various typ	es of mutual funds schemes		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	Financial Institutions, Markets	L:4 T:0 P:0	03
		and Services (M20MB19F2)		
On successfi	ul completion of this	s course, student should be able to:		
	· · ·		1 1	Deforme
1	Define the financial	l Institutions markets and services. E	xplain the financial	Relotins
		l Institutions markets and services, E ions and promotional Institutions.	xplain the financial	Relotins
	after 1991, Regulat	l Institutions markets and services, E ions and promotional Institutions. g and non-Banking Institutions.	xplain the financial	Kelorins

4	Evaluate of lease fu	nance and Hire Purchase.			
5		and activities of Investment bankers.			
Course out	Year/ semester:		No. of Hours	Credits:	
come	II/I Sem	Subject name code: International Financial Management	L:4 T:0 P:0	03	
come	II/I Selli	(M20MB20F3)	1.4 1.0 1.0	05	
On successfi	l completion of this	s course, student should be able to:			
1		rent international Business Methods			
2		e of payments and International Mone	tary system		
3		eign exchange market movements.			
4		nt with exchange rate movements			
5	-	nities in International financial market	ts		
Course out	Year/ semester:	Subject name code: Leadership	No. of Hours	Credits:	
come	II/I Sem	and Change Management	L:4 T:0 P:0	03	
		(M20MB18H1)			
On successfu	al completion of this	s course, student should be able to:			
1	Define leadership r				
2		effective leader and his/her leadership	styles.		
3	Explains leadership	styles in organizational work settings	•		
4	Solve the various problems while inviting change in organization.				
5	Distinguish the rela	tionship between power, politics and c	conflicts.		
Course out	Year/ semester:	Subject name code: Management	No. of Hours	Credits:	
come	II/I Sem	of Industrial Relations	L:4 T:0 P:0	03	
		(M20MB19H2)			
On successfu		s course, student should be able to:			
1	Demonstrate indust	rial relation and Indian IR system			
2		nion, types and their recognition			
3		ttlement missionary and its instrument	S		
4		handling procedure			
5	Analyze collective	bargaining levels and legal framework	S.S.		
<u> </u>	<b>X</b> 7 /		NI GIT		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
come	II/I Sem	Compensation Management	L:4 T:0 P:0	03	
On suggest	l completion of this	(M20`MB20H3)			
		s course, student should be able to: sation management and its objectives			
$\frac{1}{2}$	*	models of executive compensation			
3	-	nents of pay structure and its strategy			
4		onal compensation system and manag	ing variations in ir	ternational	
4		onal compensation system and manag	ing variations in n	liternational	
5	pay Plan employee stor	k ownership plans and broad based op	tion plans		
Course out	Year/ semester:	Subject name code: Internship	No. of Hours	Credits:	
come	II/I sem	and Seminar (M20MB21)	L:0 T:0 P:0	02	
		s course, student should be able to:	1.0 1.0 1.0	04	
<u>1</u>		ical knowledge by working in any org	anization		
2		tual learning to practical business prob			
4	rippiy then concept	iau fearming to practical business prot			

3	List out organizatio	nal working teams and dynamics of or	rganization	
4	-	tencies for future job requirement	0	
		II/II Sem		
Course out	Year/ semester:	Subject name code: Business	No. of Hours	Credits:
come	II/II sem	Laws and Ethics (M20MB22)	L:4 T:0 P:0	04
On successfu	al completion of this	s course, student should be able to:		
1	Outline the variou	s laws affecting the business conce	ern. Define the p	rocedure for
		vinding up of company		
2		ts and define essential elements o		
		ch. Explain the general principles,	conditions and v	varranties in
	contract of sale.			
3		priate negotiable instrument under t	the negotiable ins	strument act.
		and regulations of GST in India.		
4	Asses the ethical iss			
5		and challenges in cybercrime and its no		
<b>Course out</b>	Year/ semester:	Subject name code: Production	No. of Hours	Credits:
come	II/II sem	and Operations Management	L:4 T:0 P:0	04
On guagaafi	l completion of this	(M20MB23)		
1		s course, student should be able to: n production methods. Compare and co	ontract production	methods
2	*	et and process design.	ontrast production	methous
3	*	iate facilities location and Plant layou	t	
4		he techniques of sequencing and sched		n control
	Asses the concepts		iuning in productio	n control.
5		nagement techniques for inventory co	ntrolling	
-	II J		6	
<b>Course out</b>	Year/ semester:	Subject name code: Health Care	No. of Hours	Credits:
come	II/II sem	Management (M20MB24B)	L:4 T:0 P:0	03
On successfu	ll completion of this	s course, student should be able to:		
1	Identify the prevail	ing health care system in India		
2	Avail the facility pr	ovided by the health policies		
3	Adopt the benefits t	from different programs introduced by	government	
4		althcare schemes and funds offered by	WHO and UNICI	EF
5		n the health insurance sector	1	1
<b>Course out</b>	Year/ semester:	Subject name code: Disaster	No. of Hours	Credits:
come	II/II sem	Management (M20MB24C)	L:4 T:0 P:0	03
		s course, student should be able to:		
1		Environmental Hazards & Disasters.		
2	Identify causes of e	1		
3		isasters and their impact on the enviro	nment.	
4		tion & Environmental problems		
5		re measures of Erosion & Sedimentation		
Course out come	Year/ semester: II/II sem	Subject name code: Agri-Business Management (M20MB24D)	No. of Hours L:4 T:0 P:0	Credits:3

		s course, student should be able to:			
1	Define the role of a	griculture in economic development			
		ting of agriculture produce and agencie	es through which a	griculture	
	produce is marketed	d			
3	Identify and eliminate	ate the defects of agricultural marketin	g		
		ural prices and price policy	<u> </u>		
		responsibilities of marketing functiona	aries.		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
come	II/II Sem	Sustainability Management	L:4 T:0 P:0	03	
		(M20MB24F)			
On successfu	l completion of this	s course, student should be able to:			
		and emergence of sustainable develop	oment		
		Judiciary system and Sustainability d			
		of life, equation of poverty population			
		ity conservation and ecosystem integri			
		ble development strategies	l y		
5	Design the sustaina	ole de velopment strategies			
Course out	Year/ semester:	Subject name code: Customer	No. of Hours	Credits:	
come	II/II Sem	Relationship Management	L:4 T:0 P:0	03	
come		(M20MB25M4)		00	
On successfu	l completion of this	s course, student should be able to:			
		concepts in customer relationship man	agement		
		ortance of customer relationship manag			
		rends in customer relationship manage			
		relations and customer profile			
		for customer, retention and developme	ent		
Course out	Year/ semester:	Subject name code: Services	No. of Hours	Credits:	
come	II/II Sem	Marketing (M20MB26M5)	L:4 T:0 P:0	03	
		s course, student should be able to:	200 200 200		
		eting services Vs. Physical services, a	nalvze services m	arketing mix	
	and Gaps model of		,,,		
		ner requirements and extend custome	er relationships wi	th regard to	
	services.				
	Identify critical issues in service design, service blue printing, plan new service				
	-	ss and service standards.			
	development proces	ss and service standards. vee's and Customer's roles in service of	leliverv.		
4	development proces Explain the Employ	vee's and Customer's roles in service of		ategies. and	
4 5	development proces Explain the Employ Integrate services	vee's and Customer's roles in service of marketing communications and five	categories of str		
4 5	development proces Explain the Employ Integrate services creates an environment	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust	categories of str		
4 5	development proces Explain the Employ Integrate services creates an environn issues in pricing of	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust services.	categories of str tomer service. De	sign the key	
4 5 Course out	development proces Explain the Employ Integrate services creates an environ issues in pricing of <b>Year/ semester:</b>	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust services. Subject name code: International	categories of str tomer service. De <b>No. of Hours</b>		
4 5 Course out come	development proces Explain the Employ Integrate services creates an environ issues in pricing of Year/ semester: II/II Sem	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust services. Subject name code: International Marketing (M20MB27M6)	categories of str tomer service. De	sign the key Credits:	
4 5 Course out come On successfu	development proces Explain the Employ Integrate services creates an environ issues in pricing of Year/ semester: II/II Sem I completion of this	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust services. Subject name code: International Marketing (M20MB27M6) s course, student should be able to:	categories of str tomer service. De <b>No. of Hours</b>	sign the key Credits:	
4 5 Course out come On successfu 1	development proces Explain the Employ Integrate services creates an environ issues in pricing of Year/ semester: II/II Sem I completion of this Define internationa	vee's and Customer's roles in service of marketing communications and five ment that achieves excellence in cust services. Subject name code: International Marketing (M20MB27M6)	categories of str tomer service. De <b>No. of Hours</b>	sign the key Credits:	

4	Discuss the various	factors influencing pricing decisions			
5		marketing program and segmentation	of product and ser	vices	
Course out	Year/ semester:	Subject name code: Financial	No. of Hours	Credits:	
come	II/I Sem	Derivatives (M20MB25F4)	L:4 T:0 P:0	03	
On successfu	I completion of this	s course, student should be able to:			
1		of derivatives in stock in commodity	market.		
2	Explain players in I				
3	Differentiate forwa	rd and future contract			
4	Analyze Trading w	ith option			
5	Explain strategies in	nvolving option			
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
come	II/II Sem	Strategic Investment & Financing Decisions (M20MB26F5)	L:4 T:0 P:0	03	
On successfu	l completion of this	s course, student should be able to:	L		
1		decisions under conditions of risk and	uncertainty		
2		nted payback, post payback, return on	-	ırplus	
3	<u>, , , , , , , , , , , , , , , , , , , </u>	ntages of leasing and leasing decisions	5		
4		Develop the various strategies for financing decisions			
5	-	lems on mergers and acquisitions			
Course out	Year/ semester:	Subject name code: Corporate	No. of Hours	Credits:	
come	II/II Sem	Taxation and Planning (M20MB27F6)	L:4 T:0 P:0	03	
On successfu	l completion of this	s course, student should be able to:	L		
1		epts of direct & Indirect taxes and able	e to compute Resid	lential Status	
	and Scope of Total	Income of a Company and exempted l	Incomes of compa	ny.	
2	Compute total Inco	me of corporate.			
3	Identify the importa	ance of Tax planning, Tax Managemer	nt and able to use	Fax planning	
	techniques towards	Capital Structure decisions.			
4		g with reference to setting up of a new			
6	Perform tax plannin	ng in respect of mergers and Amalgam	ations.	-	
Course	Year/ semester:	Subject name code: International	No. of Hours	Credits:	
out come	II/II Sem	HRM (M20MB25H4)	L:4 T:0 P:0	03	
On successfu		s course, student should be able to:			
1	· 1	e and components of IHRM.			
2					
	Compare IHRM and				
3	Tell transfer policie	es and compensation management			
3 4	Tell transfer policie Identify IHRM prac	es and compensation management ctices in selected countries			
3 4 5	Tell transfer policie Identify IHRM prac Classify workers ar	es and compensation management ctices in selected countries nd cadres			
3 4	Tell transfer policie Identify IHRM prac Classify workers ar <b>Year/ semester:</b>	es and compensation management ctices in selected countries ad cadres Subject name code: Performance	No. of Hours	Credits:	
3 4 5	Tell transfer policie Identify IHRM prac Classify workers ar	es and compensation management ctices in selected countries nd cadres	No. of Hours L:4 T:0 P:0	Credits: 03	
3 4 5 Course out come	Tell transfer policie Identify IHRM prac Classify workers ar Year/ semester: II/II Sem	es and compensation management etices in selected countries ad cadres Subject name code: Performance Management Systems			
3 4 5 Course out come	Tell transfer policie Identify IHRM prac Classify workers ar Year/ semester: II/II Sem	es and compensation management etices in selected countries ad cadres Subject name code: Performance Management Systems (M20MB26H5)	L:4 T:0 P:0		

<ul> <li>3 Examine the performance management system and appraisal practices in Asian countries</li> <li>4 Improve the employee performance through performance related concepts</li> <li>5 Identify the Legal issues involved in performance management and reward systems</li> <li>Course out Year/semester: Subject name code: Strategic No. of Hours Cred</li> </ul>					
<ul> <li>4 Improve the employee performance through performance related concepts</li> <li>5 Identify the Legal issues involved in performance management and reward systems</li> </ul>					
5 Identify the Legal issues involved in performance management and reward systems	nprove the employee performance through performance related concepts				
<b>9</b> 8					
come     II/II Sem     HRM (M20MB27H6)     L:4 T:0 P:0     00	3				
On successful completion of this course, student should be able to:					
1 Find linkage between strategic business planning (SBP) and strategic HR developm (SHRD)	ient				
	Discuss about trends in utilization of HR and relocation of work				
3 Identify managerial issues in strategic formulation.					
4 Compare Results Oriented vs Process oriented measures.					
5 Evaluate strategic contribution of traditional areas such as selection, training and					
compensation					
	1.4				
0	lits:				
come II/II sem Comprehensive Subject Viva- L:0 T:0 P:0 02					
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002					
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successful completion of this course, student should be able to:	2				
come       II/II sem       Comprehensive Subject Viva- Voce (M20MB28)       L:0 T:0 P:0       02         On successful completion of this course, student should be able to:       1       Appraise and strengthen the students' conceptual knowledge in all the subjects of the subject subject subjects of the subject subject subject subject subjects of the subject subjec	2				
come       II/II sem       Comprehensive Subject Viva- Voce (M20MB28)       L:0 T:0 P:0       02         On successful completion of this course, student should be able to:       1       Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.       1	2				
come       II/II sem       Comprehensive Subject Viva- Voce (M20MB28)       L:0 T:0 P:0       02         On successful completion of this course, student should be able to:       1       Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.       1         2       Maximize the completencies regarding subjects.       1	2 ne				
come       II/II sem       Comprehensive Subject Viva- Voce (M20MB28)       L:0 T:0 P:0       02         On successful completion of this course, student should be able to:       1       Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.         1       Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.         2       Maximize the competencies regarding subjects.         Course out       Year/ semester:       Subject name code: Main project       No. of Hours       Creation	2 ne lits:				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successImage: Completion of this course, student should be able to:Image: Completion of this course, student should be able to:Image: Completion of this course, students' conceptual knowledge in all the subjects of the semester.1Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.2Maximize the completencies regarding subjects.Course outYear/semester:Subject name code: Main projectNo. of HoursComeII/II semand viva-voce (M20MB29)L:0 T:0 P:004	2 ne lits:				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:00/2On successful completion of this course, student should be able to: </th <th>2 ne lits:</th>	2 ne lits:				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:000On successfulOn successfulComprehensive Subject Viva- Voce (M20MB28)I:0 T:0 P:0001Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.Iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	2 ne lits: 4				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:000On successful completion of this course, student should be able to:1Appraise and strengthen the students' conceptual knowledge in all the subjects of the semester.2Maximize the completencies regarding subjects.Course out comeYear/ semester:1Subject name code: Main project and viva-voce (M20MB29)No. of Hours L:0 T:0 P:00On successful completion of this course, student should be able to:1Gain knowledge on real time working environment.2Develop skills in report writing through data collection, data analysis, data extraction	2 ne lits: 4				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successful completion of this course, student should be able to: </th <th>2 ne lits: 4</br></th>	2 ne lits: 				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successful completion of this course, student should be able to:<	2 ne lits: 4				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successfulon successfu	2 ne lits: 4				
comeII/II semComprehensive Subject Viva- Voce (M20MB28)L:0 T:0 P:002On successful completion of this course, student should be able to:<	2 ne lits: 4				

#### (AUTONOMOUS)

#### ELECTRICAL AND ELECTRONICS ENGINEERING

#### COURSE OUTCOMES FOR B.TECH-EEE R20 FOR THE YEAR 2020-2021

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Linear Algebra and	B20MA03	L/T/P :3/1 /0	4
		<b>Complex Variable</b>			
After learn	ing the conte	ents of this subject, the studen	t must be able to		
1	Understand	the principles of matrix to ca	alculate the chara	cteristics of system	n of
	linear equat	tions using multiple methods			
2	Determine	Eigen values, Eigenvectors of	f matrices		
3	Calculate P	artial derivatives, extreme of	functions of mult	tiple variables	
4	Analyze the	e complex function with refer	ence to their anal	yticity and evalua	te using
	integral the	orems			
5	Expand the	complex function using pow	er series		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	<b>Programming For</b>	B20CS01	L/T/P: 3/1 /0	4
		<b>Problem Solving</b>			
After learn	ing the conte	ents of this subject, the studen	t must be able to		
1	Understand	ing how problems are posed	and how they can	be analyzed for o	obtaining
	solutions				
2	Understand	ing the fundamentals of C pre-	ogramming		
3	Learning of	f sequencing, branching, loop	ing and decision-	making statement	s to solve
	scientific an	nd engineering problems.			
4	Implementi	ng different operations on arr	ays and creating	and using of func	tions to
	solve probl				
5	Design and	implement different types of	file structures us	ing standard meth	odology.
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	<b>Fundamentals of</b>	B20ME06	L/T/P: 3/0 /0	3
		Mechanical Engineering			
By the end	of the cours	e, students will be able to			
1	To understa	and the various sources of ene	ergy and basic ter	minology of Mec	hanical
	systems				
2	To understa	and the various types of autor	nobile engines		
3	To underst	and and appreciate significan	ce of mechanical	engineering in di	fferent
	fields of en				
4	To understa	and power transmission eleme	ents, and applicat	ions of various en	gineering

5	To understa	and various manufacturing pro-	163565.					
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>			
Outcome	I Sem	Chemistry	B20CH02	L/T/P :3/0 /0	3			
The basic c	concepts incl	uded in this course will help th	e student to gain:					
1	The knowle	edge of electrochemical cells, c	lifferent batteries					
2	The require	ed principles and concepts of co	orrosion, control	methods.				
3	The knowl	edge of water treatment.						
4	The knowle	he knowledge of polymers and their importance in day to day life						
5	The require	ed principles and concepts of pa	assive devices.					
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>			
Outcome	I Sem	English Language and	B20EN02	L/T/P :0/0 /3	1.5			
		Interactive						
		<b>Communication Skills Lab</b>						
After learn	ing the conte	ents of this subject, the student	must be able to					
1	Understand	the nuances of English langua	ige through audio	-visual experien	ce and			
	group activ							
2	speak with	clarity and confidence which is	n turn enhances tl	neir employabili	ty skills			
3	_	eir listening skills so that they r		role in developi	ng			
		ls language and improve their	-					
4		students in speaking activities	1		<b>-</b>			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	I Sem	Programming for Problem	B20CS02	L/T/P :0/0 /2	1			
		Solving Lab						
Atton Loom								
		ents of this subject, the student		1 1 .				
1	Understand	l basic structure of the C Progr	amming, data typ	es, declaration a	nd usage			
1	Understand of variables	l basic structure of the C Progr s, control structures and all rela	amming, data typ ated concepts.		_			
1 2	Understand of variables Understand	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C	amming, data typ ated concepts. C programming co		_			
1 2 3	Understand of variables Understand Implement	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poi	amming, data typ ated concepts. C programming co nters and arrays		_			
1 2 3 4	Understand of variables Understand Implement Use the pre	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, point e-processors to solve real time	amming, data typ ated concepts. C programming co nters and arrays problems		_			
1 2 3 4 5	Understand of variables Understand Implement Use the pre Use file str	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poi e-processors to solve real time uctures and implement program	amming, data typ ated concepts. C programming co nters and arrays problems ns on files	ode in executable	e form			
1 2 3 4 5 <b>Course</b>	Understand of variables Understand Implement Use the pre Use file str Semester	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poi e-processors to solve real time p uctures and implement program Subject Name	amming, data typ ated concepts. C programming conters and arrays problems ns on files <b>Subject Code</b>	ode in executable No. of Hours	e form Credits:			
1 2 3 4 5	Understand of variables Understand Implement Use the pre Use file str	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poin e-processors to solve real time p uctures and implement program Subject Name Engineering and IT	amming, data typ ated concepts. C programming co nters and arrays problems ns on files	ode in executable	e form			
1 2 3 4 5 <b>Course</b> <b>Outcome</b>	Understand of variables Understand Implement Use the pre Use file str Semester I Sem	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poi e-processors to solve real time p uctures and implement program Subject Name Engineering and IT Workshop	amming, data typ ated concepts. C programming conters and arrays problems ns on files Subject Code B20ME03	ode in executable No. of Hours	e form Credits:			
1 2 3 4 5 <b>Course</b> <b>Outcome</b>	Understand of variables Understand Implement Use the pre Use file str Semester I Sem	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poin e-processors to solve real time p uctures and implement program <b>Subject Name</b> <b>Engineering and IT</b> <b>Workshop</b> ents of this subject, the student	amming, data typ ated concepts. C programming conters and arrays problems ns on files <b>Subject Code</b> <b>B20ME03</b> must be able to	No. of Hours L/T/P :0/0 /3	e form Credits: 1.5			
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After learn	Understand of variables Understand Implement Use the pre Use file str Semester I Sem ing the conte Know the f	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poin e-processors to solve real time program uctures and implement program <b>Subject Name</b> <b>Engineering and IT</b> <b>Workshop</b> ents of this subject, the student fundamental knowledge of Hou	amming, data typ ated concepts. C programming conters and arrays problems ns on files <b>Subject Code</b> <b>B20ME03</b> must be able to	No. of Hours L/T/P :0/0 /3	e form Credits: 1.5			
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After learn	Understand of variables Understand Implement Use the pre Use file str Semester I Sem ing the conte Know the f real time A	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poin e-processors to solve real time p uctures and implement program <b>Subject Name</b> <b>Engineering and IT</b> <b>Workshop</b> ents of this subject, the student fundamental knowledge of Hou pplications.	amming, data typ ated concepts. C programming conters and arrays problems ns on files <b>Subject Code</b> <b>B20ME03</b> must be able to use wiring and sol	No. of Hours L/T/P :0/0 /3 dering and their	e form Credits: 1.5			
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After learn 1	Understand of variables Understand Implement Use the pre Use file str Semester I Sem ing the conte Know the f real time A Gain know	l basic structure of the C Progr s, control structures and all rela l any algorithm and Write the C Programs using functions, poin e-processors to solve real time program uctures and implement program <b>Subject Name</b> <b>Engineering and IT</b> <b>Workshop</b> ents of this subject, the student fundamental knowledge of Hou	amming, data typ ated concepts. C programming conters and arrays problems ns on files <b>Subject Code</b> <b>B20ME03</b> must be able to use wiring and solutions and measuring	No. of Hours L/T/P :0/0 /3 dering and their	e form Credits: 1.5			

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	II Sem	Differential Calculus and	B20MA05	L/T/P :3/1 /0	4		
		<b>Numerical Methods</b>					
After learn	ing the conte	ents of this subject, the student	must be able to				
1	Apply the f	fundamental concepts of ordination	ary differential eq	uations to real ti	me		
	problems.						
2	Find the co	mplete solution of a non-homo	geneous differen	tial equations an	d		
		s concepts in solving physical p		-			
3	-	e, surface and volume integral		tal theorems.			
4		er approximate root of a given	=				
5	Compute the	ne differential equation using n	umerical techniqu	ues.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	II Sem	<b>Electrical Circuits-I</b>	B20EE04	L/T/P :3/1 /0	4		
After learn		ents of this subject, the student					
1	Learn basic	es of electrical circuits such as	laws, transformat	ion and network			
	reduction to	1					
2		e basic principles and concepts	involved in AC o	circuits and analy	ze power		
		d parallel AC circuits					
3		oncepts of resonance and the in	=				
4		l various network theorems and					
5	-	e series and parallel magnetic of	circuits with basic	e magnetic princ	iples and		
		ctromagnetic induction.	1	Γ	Γ		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	II Sem	<b>Basic Electronic devices</b>	B20EC01	L/T/P :3/1 /0	4		
	-	ents of this subject, the student					
1	•	e characteristics of the PN junc					
2	_	rectifiers with and without filte		-			
3		e voltage- current characteristi	cs of Junction Tr	ansistor and diff	erent		
	configurations of transistor						
4	-	analyze the different biasing of					
5	-	owledge about the construction	n, theory and char	racteristics of FE	ET and		
	MOSFET						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	II Sem	Physics	B20PH02	L/T/P :3/0 /0	3		
	_	ents of this subject, the student					
1	Understance application	ls the materials on the basis of s	energy band gap	and its device			
2	Describes t	he characteristics and working	of lasers and the	ir use in various	fields		
3	A notice on	d apply the concepts of Electri	c Fields for accur	ate determinatio	n of		

	Electric flu	x, Electric flux density, energ	gy stored in electri	c fields etc	
4		concepts of the light propagat ation systems	ion in optical fibre	es in optical	
5		d enumerate the properties of	f magnetic and Die	electric materials	and
	=	neir role in specific engineeri	-		
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	II Sem	Electrical Engineering Practice Lab	B20EE05	L/T/P :0/0 /3	1.5
After learn	ing the conte	ents of this subject, the studer	nt must be able to		
1		d find the various component		used for electrical	
-	-	g applications			
2	U U	the staircase wiring and ceil	ing fan wiring		
3		e simple electric circuits on b		CB.	
4	-	the earthing connections and			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Physics Lab	B20PH05	L/T/P :0/0 /2	1
After learn	ing the conte	ents of this subject, the studer	nt must be able to		I
1	-	e frequency of tuning for and		he help of stretch	ned
	strings			-	
2	Analyze as	well as compare the intensity	y distribution of in	terference and di	ffraction
	patterns	-			
3	Draw the c	haracteristics of electrical and	d electronic circuit	s and evaluate th	e
	dependent	parameters			
4	Explore an	d understand the applications	of semiconductin	g devices	
5	Evaluates t rings	he wavelength and radius of	curvature of Plano	convex lens by ]	Newton's
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem		B20ME01	L/T/P :0/0 /4	2
After learn	ing the conte	ents of this subject, the studer	t must be able to		
1	1	l various commands, object p		DCAD	
2		e Projections of Points.	-		
3		I the projections of solids			
4		e use of drawings, dimension	ning, scales and co	nic sections	
5		applications of this knowled			
6	Compare th	ne Conversion of Isometric v	iews to Orthograph	nic views	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Basic Electronic devices Lab	B20EC02	L/T/P :0/0 /3	1.5
1	Demonstra	te the characteristics and ope	ration of Semicone	ductor diodes.	
		fferent rectifier circuits			

3	Demonstrat	te V-I characteristics of BJT, 1	FET and UJT				
4	U	ple electronic circuits			r		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits		
Outcome	III Sem	Electrical Circuits – II	B20EE05	L/T/P :3/0 /0	3		
After learn	ing the conte	ents of this subject, the student	must be able to				
1	Understand	l the basics of network represe	entation, method o	f analyzing the r	network		
	and duality	of network.					
2	Analyze ba	lanced and unbalanced three p	bhase circuits and	measure voltage	, current		
	and power	in three phase star and delta co	onnections				
3	Study the tr	ransient response of series and	parallel RLC circ	cuits for DC and			
	sinusoidal e	excitations. Analyze the respo	nse for step, ramp	, impulse etc., us	sing		
	Laplace tra	nsformation					
4	Study diffe	rent types of network function	s and evaluate the	e network param	eters in		
	two port ne	twork using transformed varia	ables				
5	Learn abou	t different types of filters and	Fourier analysis a	pplied to AC cir	cuits		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits		
Outcome	III Sem	Signals and Systems	B20EC03	L/T/P :3/0 /0	3		
After learn	ing the conte	ents of this subject, the student	must be able to		I		
1	Analyze the spectral characteristics of continuous-time periodic signals using						
	Fourier series						
2	Demonstrate and apply Fourier transform on various signals.						
	Domonstru	te and apply Fourier transform	i on various signal	s.			
3		Laplace transform and Fourier			inuous-		
3					inuous-		
3	Apply the I time signal	Laplace transform and Fourier	transform for the	analysis of cont			
	Apply the I time signal Analyse sy		transform for the	analysis of cont			
	Apply the I time signal Analyse sy system.	Laplace transform and Fourier stems based on their propertie	transform for the s and determine the	analysis of cont			
4	Apply the I time signal Analyse sy system. Understand	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a	transform for the s and determine the and correlation of	analysis of cont ne response of L' signals.	ΓΙ		
4 5 Course	Apply the I time signal Analyse sy system. Understand Semester	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name	transform for the s and determine the and correlation of <b>Subject Code</b>	analysis of cont ne response of L' signals. <b>No. of Hours</b>	TI Credits		
4 5 Course Outcome	Apply the I time signal Analyse sy system. Understand Semester III Sem	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b>	analysis of cont ne response of L' signals.	ΓΙ		
4 5 Course Outcome	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to	analysis of cont ne response of L' signals. <b>No. of Hours</b> L/T/P :3/0 /0	TI Credits		
4 5 Course Outcome	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate th	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student e stored and converted energy	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted	analysis of cont ne response of L' signals. <b>No. of Hours</b> L/T/P :3/0 /0	TI Credits		
4 5 Course Outcome After learn 1	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate th electromec	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a <b>Subject Name</b> Electrical Machines-I ents of this subject, the student the stored and converted energy hanical energy conversion devi	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted rices.	analysis of cont ne response of L' signals. <b>No. of Hours</b> L/T/P :3/0 /0	TI Credits		
4 5 Course Outcome After learn 1 2	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate th electromect Able to ana	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student te stored and converted energy hanical energy conversion dev lyze and design the types of d	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted vices. c generators	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in	TI Credits 3		
4 5 Course Outcome After learn 1	Apply the I time signal Analyse sy system. Understand <b>Semester</b> <b>III Sem</b> ing the conte Evaluate th electromect Able to ana Able to sele	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a <b>Subject Name</b> Electrical Machines-I ents of this subject, the student the stored and converted energy hanical energy conversion devi	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted vices. c generators	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in	TI Credits 3		
4 5 Course Outcome After learn 1 2 3	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate the electromect Able to ana Able to seld in industry	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student te stored and converted energy hanical energy conversion dev lyze and design the types of d ect appropriate D.C Generator	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted rices. c generators to meet the require	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in rements of the ap	TI Credits 3		
4 5 Course Outcome After learn 1 2 3 4	Apply the I time signal Analyse sy system. Understand <b>Semester</b> <b>III Sem</b> ing the conte Evaluate th electromect Able to ana Able to seld in industry To understa	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a <b>Subject Name</b> Electrical Machines-I ents of this subject, the student the stored and converted energy hanical energy conversion development and the characteristics and cor	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted rices. c generators to meet the require acept s of speed co	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in rements of the ap ontrol.	TI Credits 3		
4 5 Course Outcome After learn 1 2 3	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate the electromect Able to ana Able to seld in industry To understa Able to Tes	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student te stored and converted energy hanical energy conversion dev lyze and design the types of d ect appropriate D.C Generator and the characteristics and cor st the performance and select a	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted rices. c generators to meet the require acept s of speed component of the	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in rements of the ap ontrol.	TI Credits 3		
4 5 Course Outcome After learn 1 2 3 3 4 5	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate the electromect Able to ana Able to seld in industry To understa Able to Tes requiremen	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student te stored and converted energy hanical energy conversion dev lyze and design the types of d ect appropriate D.C Generator and the characteristics and cor st the performance and select a its of the application in industi	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted vices. c generators to meet the require acept s of speed component of the sy.	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in rements of the ap ontrol. achine to meet t	TI Credits 3		
4 5 Course Outcome After learn 1 2 3 4	Apply the I time signal Analyse sy system. Understand Semester III Sem ing the conte Evaluate the electromect Able to ana Able to seld in industry To understa Able to Tes	Laplace transform and Fourier stems based on their propertie I the concepts of convolution a Subject Name Electrical Machines-I ents of this subject, the student te stored and converted energy hanical energy conversion dev lyze and design the types of d ect appropriate D.C Generator and the characteristics and cor st the performance and select a	transform for the s and determine the and correlation of <b>Subject Code</b> <b>B20EE07</b> must be able to and also exerted rices. c generators to meet the require acept s of speed component of the	analysis of cont ne response of L' signals. <b>No. of Hours</b> <b>L/T/P :3/0 /0</b> force in rements of the ap ontrol.	TI Credits 3		

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
			1					
	circuit and	their resonance conditions.						
4		e time response and frequency	y response charact	teristics of RLC s	series			
3	Determine	Z, Y and ABCD parameters f	or a given two por	rt network.				
2	Verify netw	work theorems						
1	Explain the	e concept of circuit laws						
After learn	-	ents of this subject, the studen	t must be able to					
Outcome	III Sem	Electrical Circuits Lab	B20EE09	L/T/P :0/0 /2	1			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
	writing and	l speaking skills.						
5	-	sic proficiency in English incl	luding reading and	l listening compr	ehension,			
4	Communic	ate confidently in various con	texts and different	t cultures.				
3	Use Englis	h language effectively in spok	en and written for	ms.				
2	Read the te	ext to make notes according to	their needs					
1		can the digital text to summar		ference.				
After learn	ing the conte	ents of this subject, the studen	t must be able to					
		Communication						
Outcome	III Sem	English for Effective	B20EN01	L/T/P :2/0 /0	2			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
-	handling errors and exceptions properly							
5		file operations such as read a		oting the code rol	bust by			
4		how to work with lists and sec						
3		on functions to facilitate code	reuse.					
-	structures.	and core i juion seripting the						
2	-	the Core Python scripting ele		iables and flow c	ontrol			
1	-	e fundamentals of writing Pyt						
		ents of this subject, the studen			4			
Outcome	III Sem	Python Programming	B20CS03	L/T/P :2/0 /0	2			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
5		Understand the concepts of time varying fields in both electric and magnetic fields and their relationship in evaluating power						
	fields		<u> </u>	· · · · ·	C 11			
4	-	e relation between two or mor	e conductors when	n subjected to ma	agnetic			
3		I the magnetic field concepts u						
		equations with respect to elec						
2	Understand	l the behavior of conductors a	nd dielectrics, thei	ir boundary cond	itions,			
	various law	vs such as EFI, Potential and o	other concepts of the	hese fields				
	1 11101 9 20 011	e relation between the electric	meld and the mag	filetic field, abou	t the			

		Lab							
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Expressing	the Core Python scripting eler	ments such as var	iables and flow o	control				
	structures.								
2	Apply Pyth	Apply Python functions to facilitate code reuse							
3	Extending how to work with lists and sequence data.								
4	Implement	file operations such as read an	d write and Adap	ting the code rol	oust by				
	handling er	handling errors and exceptions properly							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Power Systems – I	B20EE06	L/T/P :3/0 /0	3				
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Gain the kr	nowledge on operation of Hydr	ro Electric genera	tion.					
2	Acquire an	d interpret fundamental concep	pts Thermal gener	ration					
3	Understand	l various economic aspects of	the Power system	and tariff					
4	Acquire kn	owledge on power system dist	ribution systems	and substation					
5	Understand	l design of underground cables	5						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	<b>Electrical Machines-II</b>	B20EE12	L/T/P :3/0 /0	3				
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Understand	I the concepts and performance	e of single phase t	ransformer.					
2	Test the pe	rformance of single phase Trai	nsformer						
3		uitable three phase transformer	r based on its app	lication and also	convert				
		e to two phases or vice versa.							
4		I the concepts of Construction,	operation charac	teristics, testing	(concept				
		agram) and speed.							
5	Analyze sp	eed torque characteristics and	control the speed	of induction mo	tors				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	<b>Electrical Measurements</b>	<b>B20EE13</b>	L/T/P :3/0 /0	3				
		and Instrumentation							
After learn	-	ents of this subject, the student							
1		ypes of measuring instruments	their construction	n operation and					
	characteris								
2		voltage current measurements		meters, voltage o	current				
		ents through instruments transf							
3		energy measurements through			nples				
4		measurements through DC bri							
		ents through AC bridges, differ							
5		ent of frequency and phase thro			-				
	instruments and different types of errors & their reduction methods in measuring								

	instruments	5.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	IV Sem	OOPS through JAVA	B20CS27	L/T/P :3/0 /0	3			
After learn	ing the conte	ents of this subject, the studen	t must be able to		L			
1	Understand	I the use of OOP concepts and	solve real world	problems using (	OOP			
	techniques.							
2	Solve the in	nter-disciplinary applications	using the concept	of inheritance.				
3	Develop ro	bust and faster applications b	y applying differen	nt exception hand	dling			
		nechanisms.						
4		I the multithreading concepts						
5	Design GU	I based applications and deve	lops applets for w	eb applications.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	IV Sem	Analog and Digital	B20EC21	L/T/P :3/0 /0	3			
		Electronics						
After learn	ing the conte	ents of this subject, the studen	t must be able to					
1	Construct a	and analyze the single stage transference of the stage transference of the stage transference of the stage of the stage transference of the stage of	ansistor amplifier.					
2	Design and	construct the negative feedba	ck amplifiers and	oscillators accor	ding to			
	the require	d specifications.						
3	Understand	I the Op Amp and its application	ons.					
4	-	erent combinational circuits ι						
5	Analyze ba	sic sequential circuits and als	o able to understar	nd various ADC	and DAC			
	techniques.		1					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	IV Sem	Analog and Digital	B20EC22	L/T/P :0/0 /2	1			
		<b>Electronics Lab</b>						
After learn	_	ents of this subject, the studen						
1		I the applications of diode as i	ntegrator, differen	tiator, clipper ar	nd			
	clamper cir							
2	U	cuits using operational amplifi	ers for various app	plications.				
3		e VCO circuit.						
4		and implement DAC conver			1			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
Outcome	IV Sem	<b>Electrical Machines Lab-I</b>		L/T/P :0/0 /3	: 1.5			
After learn	ing the conte	ents of this subject, the studen	t must be able to					
1	Select rang	e of apparatus based on the ra	tings of DC Mach	ines.				
2		Characteristics of DC machin						
3		e efficiency of the machine b		sults.				
4	Study spee	d control methods for dc mac	nines					
				No. of Hours				

Outcome	IV Sem	OOPS through JAVA Lab	B20CS28	L/T/P :0/0 /3	1.5			
After learni	ng the conter	nts of this subject, the student	t must be able to					
1	Use the Java	a SDK environment to create	, debug and run si	mple Java progra	ams.			
2	Write Java p handling	programs to implement error	handling techniqu	es using exception	on			
3	U	ltithreaded applications with	synchronization					
4	-	gn simple Graphical User Interface applications and event driven programming						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
Outcome	V Sem	Electrical Machines-III	B20EE15	L/T/P :3/0/0	:3			
		nts of this subject, the student						
1	-	te basic concepts of AC macl						
2		e concepts of regulation of sy		tors				
3		erformance characteristics of	<u> </u>					
4	=	e operating characteristics of						
5	-	e Construction, operation and			otor and			
-	special mad			8 I				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Power Electronics	B20EE16	L/T/P :3/0 /0	3			
After learni	ng the conter	nts of this subject, the student	t must be able to					
1	-	l the differences between sign		er level devices				
2	Examine si	ingle phase-controlled rectifie	er circuits.					
3		l three phase-controlled rectif						
4	Learn the c	pperation of DC-DC choppers	3					
5	Study the c	operation of DC-AC converte	rs and AC-AC vol	ltage regulators				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Control Systems	B20EE17	L/T/P :3/0 /0	3			
After learni	ng the conter	nts of this subject, the student	t must be able to					
1	Understand	l the concept of feedback and	analyze the contr	ol system compo	onents by			
	their Mathe	ematical modeling						
2	Estimate th	e time domain specifications	and steady state e	error				
3	Apply varie	ous time domain and frequen	cy domain technic	jues to assess the	e system			
	performance	ce.						
4	Improve th	e system performance by des	igning a suitable o	controller and/or	a			
	-	or for a specific application						
5	-	n Controllability and Observa			tion and			
		s of state space representation	-					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Power Systems-II	B20EE18	L/T/P :3/0 /0	3			

Course	V Sem	Electrical Machines Lab-	B20EE21	L/T/P :0/0 /2	1			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
5	communica		cosing, pipeining	, and inter proces	5501			
<u>4</u> 5	-	the concepts of parallel proc	-	and inter proces	sor			
<u> </u>		I/O and memory organizatio		programmed cor				
2 3		the concepts of Hardwired c		-				
$\frac{1}{2}$		e fundamental organization of the concepts of register trans			c.			
1	-	ts of this subject, the student		em				
Outcome	V Sem	Computer Organization	B20EC16	L/T/P :3/0 /0	3			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
5		vledge on digital acquisition s						
4		the temperature measurement		1				
3		lisplacement measurement te						
2		the strain gauge and strain n						
1		dge on transducers						
		ts of this subject, the student	must be able to					
		Instrumentation						
Outcome	V Sem	Industrial	<b>B20EE20</b>	L/T/P :3/0 /0	3			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
5	-	direct energy sources.		1	1			
4	Identify the	fact that the conventional en	ergy resources ar	e depleted.				
3		he use of conventional energy			rgy.			
2		nt renewable energy sources	-	-				
	wind, ocean	n, biomass, geothermal.						
1	Apply the t	echnology to capture the ener	rgy from the rene	wable sources lik	ke sun,			
After learnin	ng the conter	its of this subject, the student	must be able to					
		Systems						
Outcome	V Sem	Renewable Energy	B20EE19	L/T/P :3/0 /0	3			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
5		Gain knowledge on power factor and voltage control in transmission system						
·		transmission system						
4		arious effects on transmission	system and com	oute sag on over	nead			
5	_	n power system			uve und			
3	-	Evaluate performance of long transmission lines and describe travelling wave and						
2	<u>.</u>	Evaluate performance of short, medium transmission lines						
1	capacitance		sion nue paramete					
	Gain know	ledge on computing transmiss	sion line naramete	ers like inductan	re and			

		II						
After learn	ing the conte	ents of this subject, the student	t must be able to					
1	Select rang	e of apparatus based on the ra	tings.					
2	Draw the E	quivalent circuits and analyze	various AC mach	nines				
3	Determine	performance and Characterist	ics of AC machine	ery				
4	Evaluate th	e efficiency of the machine by	y analyzing test re	sults				
5	Evaluate th	Evaluate the performance of transformers.						
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>			
Outcome	V Sem	<b>Electrical Measurements</b>	B20EE22	L/T/P :0/0 /2	1			
		and Instrumentation Lab						
After learn	ing the conte	ents of this subject, the student	t must be able to					
1	Compare p	erformance of MC, MI and D	ynamometer types	of measuremen	ts, Energy			
	meter.							
2	Determine	the circuit parameters using A	C and Dc bridges	•				
3	Compute th	ne errors CT's and PT's.						
4	Understand	the performance of industrial	l instruments.					
5	Determine	the LVDT characteristics						
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>			
Outcome	V Sem	<b>Electrical Simulation Lab</b>	B20EE23	L/T/P :0/0 /2	1			
After learn	ing the conte	ents of this subject, the student	t must be able to					
1	Get the know	wledge simulation of electric	al circuits					
2	Observe the	e time response analysis in sir	nulation					
3	Know the t	ransmission line parameters u	sing Simulink					
4	Know the s	imulation power electronic co	onverters					
5	Get the kno	wledge on different simulation	on software					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Human Values and	B20MC04	L/T/P :2/0 /0	0			
		<b>Professional Ethics</b>						
After learn	ing the conte	ents of this subject, the student	t must be able to					
1		tudents sustained happiness th	nrough identifying	the essentials of	human			
	values and							
2		s a correct understanding betw						
3	-	dents understand practically the	-	rust, mutually sa	tisfying			
	human beh	avior and enriching interaction	n with nature					
4	-	levelop appropriate technolog	U	ent patterns to cro	eate			
	-	professional and personal life						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
<b>•</b> •			DAGETAS		2			
Outcome	VI SemComputer Methods in Power SystemsB20EE25L/T/P :3/0 /03							

Alter learn	ing the conte	ents of this subject, the student	t must be able to					
1	Determine	the bus impedance and admitt	ance matrices for	power system ne	etwork			
2	Calculate v	Calculate various parameters at different buses using load flow studies						
3	Discuss per unit system representation and symmetrical component theory.							
4	Discuss fat	Discuss fault analysis on power system						
5		Understand the steady state stability of power system and analyse the transient stability of power system.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Power Semiconductor	B20EE26	L/T/P :3/0 /0	3			
A.C. 1	1 .	Drives	.1 11 .					
	-	ents of this subject, the student		1	<u> </u>			
1	-	e operation of converter fed de	e motors and four	quadrant operati	ons of dc			
		ng dual converters	• •	<u> </u>				
2		e chopper fed dc motors in va	-	-				
3		concept of speed control of inc	luction motor by u	using AC voltage	•			
4		and voltage source inverters. te the stator side control and r	otor side control s	f three phase inc	luction			
4		te the stator side control and r		or three phase me	luction			
5	motor.	e speed control mechanism of	washronous mot					
	_		-	1	Creadita			
Course Outcome	Semester VI Sem	Subject Name	Subject Code B20MB01	No. of Hours	Credits: 3			
Outcome	VI Sem	Managerial Economics and Financial Analysis	D201VID01	L/1/P:5/0/0	3			
A ftor loorn	ing the conte	ents of this subject, the student	must be able to					
1				Economics				
	Understand the nature, scope and importance of Managerial Economics. Know what is demand, analyze demand and how elasticity of demand is used for							
					ed for			
2	Know what	t is demand, analyze demand	and how elasticity	of demand is us	ed for			
2	Know what pricing dec	t is demand, analyze demand a isions and to evaluate method	and how elasticity s for forecasting c	of demand is us lemand				
	Know what pricing dec Know how	t is demand, analyze demand a isions and to evaluate method production function is carried	and how elasticity s for forecasting c	of demand is us lemand				
2	Know what pricing dec Know how Inputs and	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost.	and how elasticity s for forecasting c l out to achieve le	of demand is us lemand ast cost combina	tion of			
2	Know what pricing dec Know how Inputs and Understand	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of differen	and how elasticity s for forecasting c l out to achieve le nt kinds of market	of demand is us lemand ast cost combina s and outline diff	tion of erent			
2	Know what pricing dec Know how Inputs and Understand form of bus	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze	and how elasticity s for forecasting c l out to achieve le nt kinds of market	of demand is us lemand ast cost combina s and outline diff	tion of erent			
2 3 4	Know what pricing dec Know how Inputs and Understand form of bus used for inv	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of differer siness organization and analyze vestment decisions.	and how elasticity s for forecasting c l out to achieve le at kinds of market the how capital buc	of demand is us lemand ast cost combina s and outline diff lgeting technique	tion of erent es are			
2	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and	and how elasticity s for forecasting c l out to achieve le at kinds of market the how capital buc	of demand is us lemand ast cost combina s and outline diff lgeting technique	tion of erent es are			
2 3 4	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of differer siness organization and analyze vestment decisions. to prepare final accounts and atements using ratio analysis	and how elasticity s for forecasting c l out to achieve le nt kinds of market e how capital buc how to interpret t	of demand is us lemand ast cost combina s and outline diff lgeting technique	tion of erent es are			
2 3 4 5	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how financial st Semester	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and	and how elasticity s for forecasting c l out to achieve le at kinds of market the how capital buc	of demand is us lemand ast cost combina s and outline diff lgeting technique hem, analyze and	tion of Ferent es are 1 interpret			
2 3 4 5 <b>Course</b>	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how financial st	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and atements using ratio analysis <b>Subject Name</b> Electrical Distribution	and how elasticity s for forecasting c l out to achieve le at kinds of market te how capital buc how to interpret t <b>Subject Code</b>	of demand is us lemand ast cost combina s and outline diff lgeting technique hem, analyze and <b>No. of Hours</b>	tion of Ferent es are d interpret			
2 3 4 5 Course Outcome	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how financial st Semester VI Sem	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and atements using ratio analysis <b>Subject Name</b> <b>Electrical Distribution</b> <b>Systems</b>	and how elasticity s for forecasting of l out to achieve le at kinds of market the how capital bud how to interpret t Subject Code B20EE27	of demand is us lemand ast cost combina s and outline diff lgeting technique hem, analyze and <b>No. of Hours</b>	tion of Ferent es are d interpret			
2 3 4 5 Course Outcome	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how financial st <b>Semester</b> <b>VI Sem</b> ing the conte	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and atements using ratio analysis <b>Subject Name</b> <b>Electrical Distribution</b> <b>Systems</b> ents of this subject, the student	and how elasticity s for forecasting of l out to achieve le at kinds of market the how capital bud how to interpret t Subject Code B20EE27	of demand is us lemand ast cost combina s and outline diff lgeting technique hem, analyze and <b>No. of Hours</b>	tion of Ferent es are d interpret			
2 3 4 5 Course Outcome After learn	Know what pricing dec Know how Inputs and Understand form of bus used for inv Know how financial st <b>Semester</b> <b>VI Sem</b> ing the conte Understand	t is demand, analyze demand a isions and to evaluate method production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions. to prepare final accounts and atements using ratio analysis <b>Subject Name</b> <b>Electrical Distribution</b> <b>Systems</b>	and how elasticity s for forecasting of l out to achieve le at kinds of market the how capital bud how to interpret t <b>Subject Code</b> <b>B20EE27</b> t must be able to	of demand is us lemand ast cost combina s and outline diff lgeting technique hem, analyze and <b>No. of Hours</b> <b>L/T/P :3/0 /0</b>	tion of Ferent es are d interpret			

4	Acquire kn	owledge of power factor impr	ovement.		
5	Calculate t	he distribution voltage drop ca	alculations		
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VI Sem	Electrical Engineering	B20EE28	L/T/P :3/0 /0	3
		Materials			
After learn	ing the conte	ents of this subject, the student	t must be able to		
1	Impart the	knowledge on electrical engin	eering materials c	lassification and	their
	application	S			
2	Study the p	performance characteristics of	various semicond	ucting, dielectric	and
	insulation 1	materials and their application	s in design of elec	trical and electro	onic
	devices.				
3	Identify va	rious magnetic materials and t	their classification		
4	Learn vario	ous special purpose of materia	ls		
5	Design var	ious electronic components			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VI Sem	Digital Signal Processing	B20EC24	L/T/P :3/0 /0	3
After learn	ing the conte	ents of this subject, the student	t must be able to		
1	Identify the	e different types of the discrete	e signals and syste	ems	
2	Understand	I the inter relationship betwee	n DFT and various	s transforms and	fast
	computatio	on of DFT and appreciate the F	FT processing		
3	Understand	l the characteristics of FIR filt	ers and classify th	e different types	of
	windowing	techniques.			
4	Design a II	R digital filters for a given sp	ecifications and A	pply the knowle	dge to
	real world	processing applications.			
5	Understand	l different types of signal proc	essing architectur	es	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	VI Sem	Power Electronics Lab	B20EE29	L/T/P :0/0 /2	1
After learn	ing the conte	ents of this subject, the student	t must be able to		
1	Study Char	cacteristics of various Power S	emiconductor dev	vices	
2	-	C/AC and AC/DC Converters			
3	Analyze the	e behavior of various DC/DC	and DC/AC conve	erters	
4	-	l types of Power Electronic co			tions
5		PWM techniques used for pow			
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>
Outcome	VI Sem	Control Systems Lab	B20EE30	L/T/P :0/0 /2	1
After learn	ing the conte	ents of this subject, the student	t must be able to	1	
1	_	e time & Frequency response		5	
	-				
2	Evaluate th	e performance of feedback co	ontrol systems		

4 5	•	e Performance of AC & DC se nagnetic amplifier					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VI Sem	Electronics Design Lab	B20EE31	L/T/P :0/0 /2	1		
		ents of this subject, the student		L/1/1 .0/0/2	I		
1	-	various regulated power supp		ordo			
2	_	ledge on designing of various					
3		aling and conditioning circuit					
4							
4	application	WM control and gate driver ci s	reuns for various	power electronic			
5	11	e zero-crossing detector.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VI Sem	Logical Reasoning and	B20MC05	L/T/P :2/0/0	0		
		Quantitative Aptitude	220112000		-		
After learn	ing the conte	ents of this subject, the student	t must be able to				
1	_	ntitative reasoning and mathem		ethodologies to			
		and solve problems.	5	U			
2	Apply quantitative correctly arrive at meaningful conclusions regarding their						
		d manipulate equations and fo					
	variable						
3	Interpret gi	ven information correctly, det	ermine which ma	thematical mode	l best		
	describes th	he data, and apply the model c	correctly				
4	Correctly a	pply mathematical language a	nd notation to exp	plain the reasoning	ng		
	underlying	their conclusions when solvin	g problems using	mathematical or			
	statistical to	echniques					
5	Improve their mathematical skills in various general aspects to solve real time						
	problems.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	<b>Power System Operation</b>	B20EE33	L/T/P :3/0 /0	3		
		And Control					
After learn	ing the conte	ents of this subject, the student	t must be able to				
1	•	onomic operation of power sy					
2		l the working of hydrothermal					
3	Analyse loa	ad frequency control of Single	e area and $\overline{Two}$ are	ea power system.			
4	Acquire kn	owledge on reactive power co	ontrol				
5	Understand	I the working of deregulated e	lectricity markets				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	<b>Power System Protection</b>	B20EE35	L/T/P :3/0 /0	3		
After learn	ing the conte	ents of this subject, the student	must be able to				

After learn 1 2 3 4 5 Course Outcome	Analyze th Understand Know the d	iver circuits for various power e operation of multi-pulse con l the operation of resonant cor differences between VSI and C ledge on the operation of multi Subject Name Advanced Control	verters. iverters. CSI.	No. of Hours L/T/P :3/0 /0	Credits:	
1 2 3 4	Analyze th Understand Know the d	e operation of multi-pulse con d the operation of resonant cor differences between VSI and C ledge on the operation of multi-	verters. iverters. CSI.			
1 2 3 4	Analyze th Understand Know the d	e operation of multi-pulse con d the operation of resonant cor differences between VSI and C	verters. iverters. CSI.			
1 2	Analyze th	e operation of multi-pulse con	verters.			
1				evices.		
	Classify dr	iver circuits for various power	semiconductor de	evices.		
After learn						
	ing the conte	ents of this subject, the student	t must be able to			
		Electronics				
Outcome	VII Sem	Advanced Power	B20EE36	L/T/P :3/0 /0	3	
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>	
5	-	ower apparatus and insulation				
4		e measurement of high voltage				
3	=	the generation of high voltag	=	-		
2		e knowledge on breakdown in	solid, Liquid and	gaseous dielectr	ics	
1	-	d Transients in power system.				
		ents of this subject, the student				
Outcome	VII Sem	High Voltage Engineering	B20EE35	L/T/P :3/0 /0	3	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
5	external we				no una	
5	-	gramming, interfacing etc of v			ors and	
4		e Memory organization, classi		applications and		
3		d microcontroller 8051 and its				
2	-	roller based systems for real til	•	is and develop		
2		croprocessors and microcontro	llars based system	as and davalon		
	integration	essors/microcontrollers. Contra	ast naroware and s	sonware interacti	ion and	
1		ne internal organization of pop		oftware interest	ion and	
		ents of this subject, the student				
A.C. 1		Microcontrollers				
Outcome	VII Sem	Microprocessors and	B20EC32	L/T/P :3/0 /0	3	
Course	Semester         Subject Name         Subject Code         No. of Hours         Credit					
5	Learn the r	necessity of neutral grounding	and protection aga	ainst overvoltage	<b>?.</b>	
4	Explore va	rious relaying operation in pro	otecting the transm	ission line and b	ous bar.	
3	Explore the	e various schemes of protectin	g generator and tr	ansformers.		
	types to different applications.					
2	Understand	the basic principle of electro	magnetic Relay O	peration and its v	various	
	Breaker and its types.					
		the basic construction and pr			un	

		Systems					
After learni	ing the conte	ents of this subject, the student	t must be able to				
1	Understand different non linearities and their describing functions.						
2	Describe the methods of Phase-plane trajectory of nonlinear control systems.						
3	Apply varie	ous theorems for stability anal	ysis of linear and	nonlinear system	ıs.		
4	Implement	modal control and calculus of	variations				
5	Formulate	and solve optimal control prob	olems				
Course	Semester	Semester Subject Name Subject Code No. of Hours Cred					
Outcome							
		Design					
After learni	ing the conte	ents of this subject, the student	t must be able to				
1	Understand	I the basic design consideratio	n, standards. Stud	y the heat dissip	ation,		
	cooling cha	aracteristics and electrical char	racteristics of vari	ous dielectric ma	terials.		
2	Understand	I the design, choice of materia	ls and specification	ons in DC machin	nes		
3	Understand	l and design the main dimensi	ons of each part of	f a transformers			
4	Design the	constructional features of ind	uction motors and	estimate their cu	urrents		
	and reactan	ice					
5	Design the	constructional features of syn	chronous motors				
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VII Sem	Advanced Electrical	B20EE39	L/T/P :3/0 /0	3		
		Drives					
After learni	ing the conte	ents of this subject, the student	t must be able to				
1	Analyse the	e operation of three phase con	verter fed dc moto	ors			
2	Describe th	e VSI and CSI fed induction	motor operation.				
3	Know the c	concept of vector control of in	duction motor driv	ve.			
4	Understand	I the concept of direct torque of	control for three pl	hase induction m	otor.		
5	Gain know	ledge on vector control of PM	SM drives and int	troduction to BL	DC		
	drives.						
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>		
Outcome	VII Sem	AI Techniques in	B20EE40	L/T/P :3/0 /0	3		
		Electrical Engineering					
After learni	ing the conte	ents of this subject, the student	must be able to	1			
1	Identify an	d describe AI techniques and	their roles in build	ding intelligent n	nachines.		
2	Understand	l the working of multilayer ne	ural networks.				
3	Explore fuz	zzy logic and reasoning.					
4		tic algorithms to optimization	problems				
5	Evaluate ar	nd compare solutions by AI ap	-	ven problem in m	natlab		
0	simulink			No. of Hours	Credits:		
Course	Semester	Subject Name	Subject Code	No of Hours	1 'rodita		

Outcome	VII Sem	Utilization of Electrical	B20EE41	L/T/P :3/0 /0	3			
		Energy						
After learn		ents of this subject, the student						
1	Choose a ri	ght drive for a particular appl	ication.					
2	•	ating and welding schemes for	0 11					
3	Explain the	basics of lighting and method	ds of illumination	and its paramete	rs			
4	Understand	Understand the different schemes of traction systems, its characteristics and its main						
	component	S.						
5	Analyze ele	ectrical energy consumption for	or traction system					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VII Sem	High Voltage DC	B20EE42	L/T/P :3/0 /0	3			
		Transmission						
After learn	ing the conte	ents of this subject, the student	t must be able to	-				
1	Know the b	basic concepts of HVDC trans	mission.					
2	Understand	the complete operation of HV	VDC Converter sta	ations				
3	Understand	the power flow control on H	VDC Transmissio	n system				
4	Understand	the Operation of the controlle	er for HVDC in w	orst and normal				
	operations							
5	Design the	Various filters.						
Course	Semester	Subject Name	Subject Code	No. of Hours	<b>Credits:</b>			
Outcome	VII Sem	Microprocessors and	B20EC42	L/T/P :0/0 /2	1			
		<b>Microcontrollers</b> Lab						
After learn	ing the conte	ents of this subject, the student	t must be able to					
1	Demonstrat	te experimentally basic progra	amming of Microp	processor.				
2	Recall the r	Recall the microprocessor interfacing with various peripherals for various						
		meroprocessor micraeing wi	in the set of the property in the set of the property is the set of the property is the property is the set of the property is	rais for various				
-	application		···· · ·······························					
3	11							
3 4	Apply the b	s	ontroller.					
	Apply the b	s pasic programming of microco icroprocessor interfacing with	ontroller.					
	Apply the b Examine m	s pasic programming of microco icroprocessor interfacing with	ontroller.		Credits:			
4	Apply the b Examine m application	s basic programming of microco icroprocessor interfacing with s	ontroller. 1 various periphera	als for various	Credits: 1			
4 Course Outcome	Apply the b Examine m application Semester VII Sem	s pasic programming of microco icroprocessor interfacing with s Subject Name	ontroller. n various periphera Subject Code B20EE43	als for various <b>No. of Hours</b>	_			
4 Course Outcome	Apply the b Examine m application: Semester VII Sem ing the conte	s pasic programming of microco icroprocessor interfacing with s Subject Name Power Systems Lab	ontroller. a various periphera <b>Subject Code</b> <b>B20EE43</b> t must be able to	als for various No. of Hours L/T/P :0/0 /2	_			
4 Course Outcome After learni	Apply the b Examine m applications Semester VII Sem ing the conte Calculate T	s basic programming of microco icroprocessor interfacing with s Subject Name Power Systems Lab ents of this subject, the student	ontroller. a various periphera <b>Subject Code</b> <b>B20EE43</b> t must be able to efficiency and reg	als for various <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> ulation.	_			
4 Course Outcome After learni 1	Apply the b Examine m application Semester VII Sem ing the conte Calculate T Evaluate th	s basic programming of microco icroprocessor interfacing with s <b>Subject Name</b> <b>Power Systems Lab</b> ents of this subject, the student fransmission line parameters, o	ontroller. a various periphera <b>Subject Code</b> <b>B20EE43</b> t must be able to efficiency and reg er/Under Voltage	als for various <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> ulation. Relay.	1			
4 Course Outcome After learni 1 2	Apply the b Examine m application: Semester VII Sem ing the conte Calculate T Evaluate th Understand	s basic programming of microco icroprocessor interfacing with s Subject Name Power Systems Lab ents of this subject, the student ransmission line parameters, of e Performance analysis of Ov	ontroller. a various periphera <b>Subject Code</b> <b>B20EE43</b> t must be able to efficiency and reg er/Under Voltage e testing of Feede	als for various <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> ulation. Relay.	1			
4 Course Outcome After learni 1 2 3	Apply the b Examine m application: Semester VII Sem ing the conte Calculate T Evaluate th Understand	s pasic programming of microco icroprocessor interfacing with s Subject Name Power Systems Lab ents of this subject, the student transmission line parameters, of e Performance analysis of Ov the Analysis and performance	ontroller. a various periphera <b>Subject Code</b> <b>B20EE43</b> t must be able to efficiency and reg er/Under Voltage e testing of Feede	als for various <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> ulation. Relay.	1			
4 Course Outcome After learni 1 2 3 4	Apply the b Examine m applications Semester VII Sem ing the conte Calculate T Evaluate th Understand Calculate S	s pasic programming of microco icroprocessor interfacing with s Subject Name Power Systems Lab ents of this subject, the student ransmission line parameters, of e Performance analysis of Ov the Analysis and performance equence Reactance of 3-Φ Tr	ontroller. a various periphera Subject Code B20EE43 t must be able to efficiency and reg er/Under Voltage e testing of Feede ansformer	als for various <b>No. of Hours</b> <b>L/T/P :0/0 /2</b> ulation. Relay. r Protection Syst	1 em			

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
				NI CII	<b>A 1</b>			
5	Apply state	feedback controllers and obs	ervers					
4	Evaluate an	d apply Z-plane analysis of d	iscrete time contro	ol systems				
3	Replace the	e conventional control system	with Digital contr	ol system.				
2	Apply know	wledge of Mathematics, Z-pla	ne analysis to disc	rete time contro	l systems.			
1	Acquire a s	trong foundation in sampling	and reconstruction	n Z-transforms				
After learni	ing the conte	nts of this subject, the student	t must be able to					
Outcome	VIII Sem	Digital Control Systems	<b>B20EE47</b>	L/T/P :3/0 /0	3			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Comme	matlab Sim		Subject Cod	No of II	Carell			
5		d compare solutions by soft c	computing techniq	ues for a given p	roblem in			
4		daptive Neuro-Fuzzy Inferen						
4	issues of so	_						
3		the concept of multi-objectiv	e optimization pro	oblems (MOOPs	) and			
2		and optimization problem						
		and complex functions that ma	ay come across di	ssertation/resear	ch work			
1		asic idea of modern engineerin	•		-			
After learni	_	nts of this subject, the student						
	Sem	Techniques						
Outcome	VIII	Soft Computing	B20EE46	L/T/P :3/0 /0	3			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
4		ommunicate results, concepts an extended independent inve esis.		ilts in the produc				
3	-	ill to use some laboratory, mo		-	onal farm			
2		lan and implement an investig						
1		problem by applying acquire						
		nts of this subject, the student						
Outcome	VII Sem	Major Project Phase-1	B20EE45	L/T/P :0/0 /8	4			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits			
		ffectively project related activitie		r				
4	Work as an individual or in a team in development of technical projects & Communicate							
3	Reproduce,	improve and refine technical asp	ects for engineering	g projects				
_	comprehensive and systematic approach.							
2	Identify, discuss and justify the technical aspects of the chosen project with a							
1	for project development							
	earning the contents of this subject, the student must be able to Students will be able to practice acquired knowledge within the chosen area of tec							

		Transmission Syst	tems					
After learni	ing the conte	nts of this subject, the		must be a	ble to			
1	Know the c	oncept of flexible AC	transmis	sion syst	ems.			
2	Understand the voltage source converters used in FACTS							
3	Get the exp	osure on static shunt c	compensa	ation.				
4	Understand	the SVC and STATC	OM.					
5	Get the exp	osure on static series c	compensa	ation.				
Course	Semester	Subject Name		Subject	Code	No. of H	ours	<b>Credits:</b>
Outcome	VIII Sem	VLSI Design		<b>B20E</b>	C33	L/T/P :3	/0 /0	3
After learni	ng the conte	nts of this subject, the	student	must be a	ble to			
1		tal applications using						
2		IC technology and ba			erties o	f MOS and	l BiCN	MOS
3		layout of circuits using						
	level circuit			U		Ĩ	U	U
4	Gain the kn	owledge to design dat	a path su	bsystems	s like A	dders, Shif	ters, a	nd ALUs
	etc.		-	-				
5	Illustrate di	fferent programmable	logic de	vices and	CMOS	s testing.		
Course	Semester	Subject Name		Subject (		No. of Ho	urs	<b>Credits:</b>
Outcome	VIII Sem	Power Quality		B20EE	<b>49</b> ]	L/T/P :3/0	/0	3
After learni	ing the conte	nts of this subject, the	student	must be a	ble to			
1	Know the te	erminology, definition	s, causes	s, effects	and ana	lysis of var	rious p	ower
	quality prob	olems						
2	Define and	understand the compo	onents of	current/p	ower in	sinusoidal	1 /	
	· 1 1			-		i billuboluul	l/non-s	sinusoidal
	singlephase	supply/load systems		1		Sindsorda	l/non-	sinusoidal
3		supply/load systems understand the compo	onents of					
3	Define and	11 0 0	onents of					
3	Define and three phase	understand the compo		current/p	ower in	ı sinusoidal	l/non-s	sinusoidal
	Define and three phase Know desig	understand the compo supply/load systems	ysis of p	current/p assive sh	ower in unt and	sinusoidal	l/non-s	sinusoidal
4	Define and three phase Know desig	understand the compo supply/load systems gn, operation and Anal	ysis of p	current/p assive sh assive shu	ower in unt and int/serie	sinusoidal	l/non-s npensa lters	sinusoidal
4 5	Define and three phase Know desig	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and	lysis of p ysis of pa	current/p assive sh assive shu t <b>Code</b>	ower in unt and int/serie	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 Course Outcome	Define and three phase Know desig Know desig Semester VII Sem	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles	ysis of p ysis of pa Subject B20EE5	current/p assive sh assive shu t Code 50	oower in unt and unt/serie No. of L/T/P	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 <b>Course</b> <b>Outcome</b> After learni	Define and three phase Know desig Know desig Semester VII Sem	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the	ysis of p ysis of pa <b>Subject</b> <b>B20EE5</b> student	current/p assive sh assive shu t Code 50 must be a	oower in unt and unt/serie No. of L/T/P	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 Course Outcome After learni 1	Define and three phase Know desig Know desig Semester VII Sem Ing the conte Know the fi	understand the compo supply/load systems gn, operation and Anal gn, operation and analy <b>Subject Name</b> Electric and Hybrid Vehicles nts of this subject, the undamentals of Electric	lysis of p ysis of pa <b>Subject</b> <b>B20EE5</b> student t	current/p assive sh assive shu t Code 50 must be a les.	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 <b>Course</b> <b>Outcome</b> After learni 1 2	Define and three phase Know desig Know desig Semester VII Sem ing the conte Know the fu Gain the kn	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the undamentals of Electric owledge on battery tee	lysis of p ysis of pa <b>Subject</b> <b>B20EE5</b> student t ic Vehicl chnology	current/p assive shu t Code 50 must be a les. y used in	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to EVs.	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 Course Outcome After learni 1 2 3	Define and three phase Know desig Know desig Semester VII Sem ing the conte Know the fr Gain the kn Understand	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the undamentals of Electri owledge on battery teo the AC DC motor req	lysis of p sis of pa <b>Subject</b> <b>B20EE5</b> student t ic Vehicl chnology uiremen	current/p assive shu t Code 50 must be a les. y used in	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to EVs.	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 Course Outcome After learni 1 2 3 4	Define and three phase Know desig Know desig Semester VII Sem ing the conte Know the find the know the find the know the find the know the find the know the difference of the know the	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the undamentals of Electric owledge on battery teo the AC DC motor req rive train components	lysis of p ysis of pa <b>Subject</b> <b>B20EE5</b> student t ic Vehicl chnology uiremen	current/p assive sh assive shu t Code 50 must be a les. / used in ts for EV	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to EVs. s	series com series com s power fil	l/non-s npensa lters	sinusoidal tors
4 5 Course Outcome After learni 1 2 3 4 5	Define and three phase Know desig Know desig Semester VII Sem Ing the conte Know the funder stand Understand Know the d Get the exp	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the undamentals of Electri owledge on battery tea the AC DC motor req rive train components osure on fundamentals	ysis of p subject B20EE5 student t ic Vehicl chnology uiremen	current/p assive shu t Code 50 must be a les. / used in ts for EV	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to EVs. s	series com series com s power fil <b>Hours</b> :3/0 /0	l/non-sa npensa lters Cre	sinusoidal tors edits: 3
4 5 Course Outcome After learni 1 2 3 4	Define and three phase Know desig Know desig Semester VII Sem ing the conte Know the find the know the find the know the find the know the find the know the difference of the know the	understand the compo supply/load systems gn, operation and Anal gn, operation and analy Subject Name Electric and Hybrid Vehicles nts of this subject, the undamentals of Electric owledge on battery teo the AC DC motor req rive train components	ysis of p subject B20EE5 student t ic Vehicl chnology uiremen	current/p assive sh assive shu t Code 50 must be a les. / used in ts for EV	oower in unt and int/serie <b>No. of</b> <b>L/T/P</b> ble to EVs. s lesign. <b>Code</b>	series com series com s power fil	l/non-s ipensa lters Cre ours	sinusoidal tors

1	Understand	Understand technologies for smart grid and features of Smart Grid in the context of						
	Indian Grid	-						
2	Assess the role of automation in Transmission/Distribution/substation.							
3	Know various communication technologies involved in smart grids and importance							
		of PMUs, EMS, WAMS, SCADA						
4	Classify var	rious Smart Distributi	on Techno	logies				
5	Clarify the	regulations and marke	et models f	or smart gr	d and variou	s tariffs	8	
Course	Semester	Subject Name	e S	Subject Co	de No. of	Hours	Credits:	
Outcome	VIII Sem	Embedded Syste	ems	B20EC45	L/T/P :	3/0 /0	3	
After learni	ing the conte	nts of this subject, the		ust be able	to			
1	<u> </u>	and design embedded						
2		the architecture of A	-	ors				
3		system using IO devic	-		xternal world	d		
4	_	types of memory		0				
5		embedded firmware	design app	roaches				
Course	Semester	Subject Name		Subject	No. of H	ours	<b>Credits:</b>	
Course Outcome	Semester	Subject Name	e	Subject Code	No. of H	ours	Credits: 1	
		Subject Name Technical Seminar		-	No. of Ho			
	VIII Sem	-	B	Code 20EE52	L/T/P :0/0			
Outcome	VIII Sem Identify and Acquire aw	<b>Technical Seminar</b> d analyze the real time areness on latest tech	B2 e Electrical	Code 20EE52 Engineerir	L/T/P :0/0	) /2	1	
<b>Outcome</b> 1 2	VIII Sem Identify and Acquire aw Engineering	Technical Seminar d analyze the real time areness on latest tech g.	<b>B</b> 2 e Electrical nology and	Code 20EE52 Engineerir l current tre	L/T/P :0/0 g problems nds in the fie	) /2	1	
Outcome 1 2 3	VIII Sem Identify and Acquire aw Engineering Participate	Technical Seminar d analyze the real time areness on latest tech g. in discussions for enh	<b>B</b> E Electrical nology and ancement of	Code 20EE52 Engineerir current tre	<b>L/T/P :0/0</b> g problems nds in the fie	<b>) /2</b> ld of E	1 lectrical	
<b>Outcome</b> 1 2	VIII Sem Identify and Acquire aw Engineering Participate Apply com	Technical Seminar 1 analyze the real time areness on latest tech g. in discussions for enh munication skills & D	<b>B</b> E Electrical nology and ancement of	Code 20EE52 Engineerir current tre	<b>L/T/P :0/0</b> g problems nds in the fie	<b>) /2</b> ld of E	1 lectrical	
Outcome 1 2 3 4	VIII Sem Identify and Acquire aw Engineering Participate Apply comp professiona	Technical Seminar 1 analyze the real time areness on latest tech g. in discussions for enh munication skills & D 1 ethics.	<b>B</b> <u>e Electrical</u> nology and ancement of Document a	Code 20EE52 Engineerir current tre of knowled nd present	L/T/P :0/0 g problems nds in the fie ge technical rep	0 /2 Id of E orts fol	1 lectrical lowing	
Outcome 1 2 3 4 Course	VIII Sem Identify and Acquire aw Engineering Participate Apply comp professiona Semester	Technical Seminar 1 analyze the real time areness on latest tech g. in discussions for enh munication skills & D 1 ethics. Subject Name	B2 e Electrical nology and ancement of Document a Subject (	Code20EE52EngineerirI current treeof knowledof knowledind presentCodeNo	L/T/P :0/0 g problems nds in the fie ge technical rep o. of Hours	0 /2 Id of E orts fol	1 lectrical	
Outcome          1         2         3         4         Course         Outcome	VIII Sem Identify and Acquire aw Engineering Participate Apply com professiona Semester VII Sem	Technical Seminar d analyze the real time areness on latest tech g. in discussions for enh munication skills & D l ethics. Subject Name Project Stage – II	B20EE53	Code       20EE52       Engineerir       I current tree       of knowled       of knowled       ind present       Code     No       B     L/1	L/T/P :0/0 g problems nds in the fie ge technical rep	0 /2 Id of E orts fol	1 lectrical lowing	
Outcome 1 2 3 4 Course	VIII Sem Identify and Acquire aw Engineering Participate Apply com professiona Semester VII Sem Identify the	Technical Seminar 1 analyze the real time areness on latest tech g. in discussions for enh munication skills & D 1 ethics. Subject Name Project Stage – II problem by applying	B20EE53	Code         20EE52         Engineerir         I current tre         of knowled         of knowled         ind present         Code       No         Code       L/I         Knowledge.	L/T/P :0/0 g problems nds in the fie ge technical rep b. of Hours T/P :0/0 /16	0 /2 Id of E orts fol	1 lectrical lowing	
Outcome           1           2           3           4           Course           Outcome           1	VIII Sem Identify and Acquire aw Engineering Participate Apply com professiona Semester VII Sem Identify the Ability to p	Technical Seminar d analyze the real time areness on latest tech g. in discussions for enh munication skills & D l ethics. Subject Name Project Stage – II	B20EE53	Code         20EE52         Engineerir         I current tree         of knowled         of knowled         ind present         Code       No         Code       No         Code       L/1         knowledge.       ive or development	L/T/P :0/0 g problems nds in the fie ge echnical rep of Hours YP :0/0 /16	0 /2 Id of E orts fol	1 lectrical lowing	
Outcome 1 2 3 4 Course Outcome 1 2	VIII Sem Identify and Acquire aw Engineering Participate Apply com professiona Semester VII Sem Identify the Ability to p In-depth sk	Technical Seminar 1 analyze the real time areness on latest tech g. in discussions for enh munication skills & D 1 ethics. Subject Name Project Stage – II problem by applying lan and implement an	B20EE53 cacquired k investigat tory, mode	Code         20EE52         Engineerir         I current tree         of knowled         of knowled         ind present         Code       No         Code       No         ind present       L/T         cnowledge.       ive or devel         ive or devel       rn tools and	L/T/P :0/0 g problems nds in the fie ge technical rep o of Hours 7/P :0/0 /16 opmental pro-	D /2 Id of E orts fol Cr	1 lectrical lowing edits: 8	
Outcome 1 2 3 4 Course Outcome 1 2 3 3	VIII Sem Identify and Acquire aw Engineering Participate Apply com professiona Semester VII Sem Identify the Ability to p In-depth sk Ability to c	Technical Seminar analyze the real time areness on latest tech g. in discussions for enh munication skills & D l ethics. Subject Name Project Stage – II problem by applying lan and implement an ill to use some laborar ommunicate results, c an extended independ	B20EE53 cacquired k investigat concepts, and	Code         20EE52         Engineerir         I current tree         of knowled         of knowled         ind present         Code       No         Code       No	L/T/P :0/0 g problems nds in the fie ge ecchnical report of Hours YP :0/0 /16 opmental pro- techniques ideas in writ	D /2 Id of E orts fol Cr oject. ten and	1 lectrical lowing edits: 8	

## COURSE OUTCOMES FOR M.TECH Artificial Intelligence R20 FOR THE YEAR 2020-2021

	1	Ι	1	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Introduction to Artificial Intelligence and Applications(M20AI01)	L:3 T:0 P:0	
On successf	ful completion of th	nis course, students will be able to:		
1				
-				
2				
3				
4				
5				
6				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcom	I Sem	Soft Computing Techniques (M20CS14)	L:3 T:0 P:0	
e				
-	ful completion of th	his course, students are able to:		
JH SUCCESSI	-			
1		zy logic, concepts of fuzziness involved in fuz		
2		ts of fuzzy sets, knowledge representation usin		
2		ning, fuzzy inference systems, and fuzzy logic.		
3 4		ntal theory, concepts of neuralnetworks	ations slows their	1::
5	•	eural network architectures, algorithms, applic	•	
5	with itsapplications	earning rules, architectures to learn several neu	Irai network parad	igins along
6	**	oplications of these models to solve engineerin	σ	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
	I Sem	Cloud computing (M20CS03)		Creats.5
Outcome			L:3 T:0 P:0	
		course, the students should be able to		
1	Discuss main conc	epts, key strengths, and limitations for cloud co	omputing.	
2	-	ecture along with specific infrastructure on clo	ud computing, inc	luding SaaS,
2		cloud, private cloud, hybrid cloud, etc.	1	•1•.
3	Explain the issues	on cloud computing along with security, private	cy, and interoperat	oility
4	Choose and use the	e appropriate technology, methods on these iss	ues	
5	Identify problems,	and explain, analyze, and evaluate various clo	ud computing solu	tions
6	Provide the approp	riate solutions on cloud computing based on the	ne application.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Robotic Operating System and Simulation (M20AI02)	L:3 T:0 P:0	
1	Acquire basic Kr	nowledge on Robots		

2	Ability to process end effectors and robotic controls.
3	Analyse Robot Transformations and Sensors
4	Able to understand Robot cell design and applications

C	<b>T</b> 10 1		NJ CTT	Credits: 3
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Creatis. 5
Outcome	I Sem	Internet of Things (M20CS05 I)	L:3 T:0 P:0	
On successf		is course, students will be able to:		
1	Describe the basic	terminology, latest technology along with its a	applications	
2	Discuss the protoc	ols based on the concepts such as machine to r	nachine.	
3	Illustrate the IOT	devices using Python Scripting Language		
4	Develop an applications of IoT	ation with Raspberry PI platform which can be devices	widely used in m	any
5	Implement it wide	ly that can be used in many applications of IoT	devices	
6	Design a web appl	ication framework on REST ful web API.		
Course Outcome	Year /SemesterI Sem	Subject Name (Subject Code) Genetic Algorithms and Applications(M20CS19)	No. of Hours L:3 T:0 P:0	Credits:3
On successf	ul completion of th	nis course, students are able to:		
1	Fundamentals and	introduction concepts of genetic algorithms		
2	Basic Concepts and	aspects of evolutionary algorithms (EAs), in	particular GA, GP	, ES
3	control. Many exar	on the basic concepts of representation of open nples and applications are dealt on the concept g python in important applications		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	Artificial Neural Networks (M20AI03)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1				
2				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Network Security and Cryptography (M20CS08)	L:3 T:0 P:0	
1	Identifies various	types of vulnerabilities, attacks, mechanisms	and security servic	ces
2	Compare and cor	ntrast symmetric and asymmetric encryption al	gorithms	
3	Implementation of	f message authentication, hashing algorithms a	able to underst	and kerberos
4	Explore the attack	s and controls associated with IP, transport lev	vel, web and E-ma	il security
5	. Develop intrusio types of firewalls.	n detection system, solutions for wireless netw	orks and designin	g of various

			1	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem	PythonProgramming Lab (M20CS11)	L:0 T:0 P:4	
On successf	<u> </u>	is course, students will be able to:		
1		re Python scripting elements such as variables	and flow control s	tructures
2	Apply Python func	tions to facilitate code reuse		
3	Extending how to v	work with lists and sequence data		
4	• •	rations such as read and write and Adapting the	e code robust by h	andling errors
	and exceptions prop	perly		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Cloud computing Lab(M20CS10)	L:0 T:0	
			<b>P:04</b>	
On successi	ful completion of th	his course, students are able to:		
1	Develop the archit	ecture along with specific infrastructure on clo	oud computing,	
	including SaaS, Pa	aS, IaaS, public cloud, private cloud, hybrid clo	oud,etc	
2	Explain the issues of	on cloud computing along with security, privac	y,and interoperab	ility.
3	Identify problems,	and explain, analyze, and evaluate various clou	ud computingsolut	ions
4	Provide the approp	riate solutions on cloud computing based on th	eapplication.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Robotic Operating System and Simulation Lab(M20AI04)	L:0 T:0 P:4	
After the c	completion of this c	course, the students should be able to		
1	Understand the basic	components and specifications used in robotics and	d automation	
2	Understand and impl	ement the different types of motors and sensors dur	ing designing of rob	ootics system.
3		Actuators and Grippers and their design consid		
	automation.			
4	Understand the basic	concepts of AVR microcontrollers		
5	Implement the progra	amming and interfacing concepts of AVR microcon	troller in robotic de	signing.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Internet of Things Lab(M20CS12)	L:0 T:0 P:4	
1	Demonstrate the st window	tarting of Raspberry Pi and practice Linux c	commands in com	mand terminal
2	Develop and run al	l basic python programs on RaspberryPi		
3	Build real time app	lications on Light an LED using Pythonprogra	mming	
4		implementation of intruder system and va	-	e temperature,

				Credits: 2
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Creans: 2
Outcome	I Sem	Research Methodology & IPR(M20MC01)	L:2 T:0 P:0	
<b>O</b> a a a a a a a f	l	is course, students will be able to:		
On successi 1		<b>us course, students will be able to:</b> ge on Research Design and statistical methods	in rasaarah	
		<u> </u>		
2		s methods in Data Collection, Data Organizatio	on and different ap	oproaches of
3	Data Representatio	basic concepts required to prepare		
5	a. Research synop			
	b. Dissertation	515		
4	c. Writing a good r	of Patent Rights and Administration of Patent	System	
4			-	C 114 0
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours L:2 T:0 P:0	Credits:0
Outcome	I Sem	Audit Course-I English for Research Paper	L.2 1.01.0	
		Writing(M20AC01)		
On successf	 ful completion of th	nis course, students are able to:		
SII SUCCESSI	un completion of th	is course, students are able to.		
1	Obtain complete kı	nowledge on Definition of a research paper, Pu	rpose of writing a	ny
	research paper , its	Scope and Benefits		
2	Understand the star	ndard English formats .for scripting the best res	search paper.	
3		alitative and Quantitative Research Methodolo	gies and the ethics	s of
	plagiarism			
4	Explain the detailed study on paper write	d process of writing and publishing any researc	ch paper and perfo	rm a case
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	Advanced in Machine Learning(M20AI05)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1		nd the concepts of NeuralNetworks		
2		e Learning Networks in modeling real worldsys	stems	
3		ficient algorithm for DeepModels		
4		timization strategies for large scaleapplications	3	
C			I	0 11 0
Course	Year / semester	Subject Name (Subject Code) Data Science (M20CS20)	No. of Hours	Credits: 3
Outcome	II Sem		L:3 T:0 P:0	
1	Describe a Data Sc	ience, skill sets available for a data scientist		
2	Discuss the terms S	Statistical Inference, its significance to explore	data analysis	
3	Understand Data S	cience Process and its components interact.		
4	Adapt APIs tools to	o understand the Web data.		
5	Illustrate EDA and	the Data Science as a case study		
6	Plan a effective vis	ualization on given data.		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	II Sem		L:3 T:0 P:0	
Sucome		Data Pre-processing and Analysis(M20AI06)		

1	_			
2				
3				
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) AI and Speech Processing(M20AI07)	No. of Hours L:3 T:0 P:0	Credits:3
n success	 ful completion of tl	his course, students are able to:		
1				
2				
3				
4				
5				
6				
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Digital Forensics (M20CS17)	No. of Hours L:3 T:0 P:0	Credits:3
			L:31:0F:0	
$\frac{1}{1}$	=	course, the students should be able to ensice related to investigative process.		
2	Explain the legal is	ssues to prepare, perform digital forensic ana	lysis based on thein	estigator's
2	position.			
3		chniques, usage of digital forensics tools.		
4 5	Elaborate digital fo		d logal issues	
	-	f the practice, gaps in technology, policy, an	la legal issues	
6	. Develop techniqu	es used on Data Analysis, cybercrime.	I	Γ
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	II Sem	Computer Vision(M20AI08)	L:3 T:0 P:0	
1	To implement fund	lamental image processing techniques requir	ed for computer visi	on
2	Understand Image	<u>^</u>		
3	To perform shape a			
4		rm Images and do analysis of Images		
5	Generate 3D mode	l from images		
6	To develop applica	tions using computer vision techniques		
7	Understand video j	processing, motion computation and 3D visio	on and geometry	
Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Block Chain Technology(M20CS18)	No. of Hours L:3 T:0 P:0	Credits: 3
	ul completter of th	is course, students will be able to:		1
		πε επίπεα, επίπαστε will πα άπια τη.		

2	Revise cryptograph	Revise cryptographic concepts and its use in blockchain				
3	Revise cryptograph	nic concepts and its use in blockchain				
4	Understand alterna	tives to proof of work				
5	Introduce smart co	ntracts, solidity and Web3 to implement blockc	hain			
6	Understand applica	ations of blockchain and its challenges				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	II Sem	Software Process and Project	L:3 T:0 P:0			
		Management(M20CS02)				
On successf	ful completion of th	his course, students are able to:				
1	_	execute projects based on required standards				
2		ge of tools used on project management				
3	<b>,</b>	pts related on project governance and methodol	0			
4		ysis on solving problems and planning process.				
5	Describe planning	, Risk and issues management				
6	Plan process, pragr	matic planning service delivery and quality assu	irance	1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2		
Outcome	I Sem	Advances in Machine Learning Lab(M20AI09)	L:0 T:0 P:4			
After the o	completion of this of	course, the students should be able to				
1	understand comple	exity of Machine Learning algorithms and their	limitations;			
2		n notions in data analysis-oriented computing;				
3	<u>^</u>	idently applying common Machine Learning alg	gorithms in practic	ce and		
	implementing their					
4	Be capable of perfo	orming experiments in Machine Learning using	; real-world data.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Digital Forensics Lab(M20CS24)	L:0 T:0 P:4			
1	Understand the me	thods available for retrieving the lost data.	L			
2	Classify the variou	s mobile forensic techniques and how to handle	them			
3	Identify the differe	nt Open-source intelligence techniques				
4	Demonstrate how t	to develop certification for Cyber Forensic				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Data Pre-processing and Analysis Lab(M20AI10)	L:0 T:0 P:4			
1						

7				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	AI and Speech Processing Lab(M20AI11)	L:0 T:0 P:4	
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	Mini Project with seminar(M20AI12)	L:0 T:0 P:4	
1				
2				
3				
4				
4 Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0
	Year / semester I I Sem	Audit Course-II Stress	No. of Hours L:2 T:0 P:0	Credits: 0
Course		Audit Course-II Stress Management(M20AC02)		Credits: 0
Course Outcome	I I Sem	Audit Course-II Stress Management(M20AC02) f stress		Credits: 0
Course Outcome	<b>I I Sem</b> Burnout the causes of	Audit Course-II Stress Management(M20AC02) f stress nagement		Credits: 0
Course Outcome	<b>I I Sem</b> Burnout the causes of Control the time mar	Audit Course-II Stress Management(M20AC02) f stress nagement areer path		Credits: 0

Course Outcomes: Students will be able to: Develop healthy mind in a healthy body thus improving social health also• Improve efficiency•

## **III-SEMESTER**

Course Outcome	Year/Semester ∎ Sem	Subject Name (Subject Code) Natural Language Processing Techniques (M20CS26)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	ul completion of th	is course, students will be able to:				
1	Understand approa	ches to syntax and semantics in NLP				
2	Understand approa	Understand approaches to discourse, generation, dialogue and summarization within NLP				
3	Understand current	methods for statistical approaches to machine	translation.			
4		e learning techniques used in NLP, including				
5	unsupervised methe	nguage model and probabilistic context-free groods, log-linear and discriminative models				
6	Understand the Ma summerization.	chine Translation, multilingual information, m	ulti lingual autom			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Cyber Security (M20CS27)	L:3 T:0 P:0			
On successf	ful completion of th	is course, students are able to:				
1	Outline key terms a	and concepts in cyber law, intellectual property	and cyber crimes	5		
2	Explore the vulner	abilities, threats and cybercrimes posed by crin	ninals.			
3	Identify various see	curity challenges phased by mobile devices.				
4		bes of tools and methods used in cybercrime, d n security protection	evelops the secure	e counter		
5	Analyze and evaluated	ate the cyber security needs of an organization				
6	<b>U</b>	and strategic cyber security risk management tion's critical information and assets	policies in order to	o adequately		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome		Deep Learning (M20CS28)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1	Ability to understa	nd the concepts of Neural Networks				
2	Ability to understan	nd the concepts of Deep Learning				
3	Ability to select the	e Learning Networks in modeling real world sy	vstems			
4	Ability to use an ef	ficient algorithm for Deep Models				
5	Ability to apply op	timization strategies for large scale application	S			
6	Ability to apply the	Deep Learning models for Speech Recognition	on, NLP and Other	Applications		
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Advanced Optimization (M20MA01)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	ul completion of th	is course, students will be able to:	l	I		
1	Describe problem o	elearly, identify and analyzetheindividual funct	ions.			
2	Analyze study on s	olving optimization problem.				

3	Translate verbal formula on optimization problem					
4	Design algorithms, reliably to find an approximate solution					
5	Compare the performance of an algorithm					
6	Discovery, study, u	Discovery, study, understandand solve optimization techniques using algorithms				
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Waste Management (M20CE27)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	ful completion of th	nis course, students are able to:	·			
1	Compare the subje	ct from the technical, legal and economical po	ints.			
2	Learn solid waste r					
3	Describe environm	ent for sound management.				
4	Understand a muni	cipal solid waste management system				
5	Plan a solid waste	management system for decision makers				
6	Design an incinerat					
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Embedded System Design (M20VL07)	No. of Hours L:3 T:0 P:0	Credits: 3		
A 64 or 41.	 	he dender a stand a st				
	<b>A</b>	course, the students should be able to	. 1 11			
$\frac{1}{2}$		d systems, design, technology to explain its m				
3		e-purposeprocessorsusingcombinationalaswe				
5		nizing single – purpose processors. Discuss al al purpose processors.	bout the dasic arch	lecture and		
4	Define and disting	uish between a timer and a counter, various typonousReceiver/Transmitter.Explaincontrollers		dStepper		
5		nemory types ROM, RAM, advanced RAM. E itration methods, various protocols like serial,		ssor		
6		nterrupts, architectures like Round Robin, Rea		g System		
Course Outcome		Subject Name (Subject Code) Project / Dissertation Phase-I()	No. of Hours L:0 T:0 P:20	Credits: 10		
1	Identify the problem	by applying acquired knowledge.		1		
2	Analyze and categori	ize executable project modules.				
3	Choose efficient to	ols for designing project modules.				
4	Combine all the mo	odules through effective team work after effic	cient testing.			
5	Elaborate the com	pleted task and compile the project report.				

## **IV-SEMESTER**

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Project / Dissertation Phase-II (M20AI14)	No. of Hours L:0 T:0 P:32	Credits: 16
On successf	ul completion of th	is course, students will be able to:		
1	Identify the problem	by applying acquired knowledge.		
2	Analyze and categori	ze executable project modules.		
3	Choose efficient tools for designing project modules.			
4	Combine all the mo	odules through effective team work after e	fficient testing.	
5	Elaborate the com	pleted task and compile the project report.		

## COURSE OUTCOMES FOR M.TECH-CSE R20 FOR THE YEAR 2020-2021

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	I Sem	Data Structures and Algorithms(M20CS01)	L:3 T:0 P:0			
On successf	ul completion of th	is course, students will be able to:				
		basic on data structures to store and retrieve an sts, trees, heaps, and hash tables .	ordered or unorde	ered data. Such		
		e on applications of data structures having the n as create, insert, delete, search, and sorting.	ability to impleme	ent algorithms		
3		nd to compare efficiency of an algorithm.				
4	Understand the basi	derstand the basic concepts of latest techniques.				
5	Ability to have con	cepts on tree and graphs.				
6	Implement various various operations	projects on these data structures and plan B-T	rees to implement	different		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcom	I Sem	Software Process and Project Management	L:3 T:0 P:0			
		(M20CS02)				
e						
On successf	ful completion of th	nis course, students are able to:				
1	Discuss and plan to	execute projects based on required standards.				
2		ge of tools used on project management.				
3		ots related on project governance and methodo	logies.			
4	Apply critical analy	ysis on solving problems and planning process				
5	Describe planning,	Risk and issues management				
6	Plan process, pragr	natic planning service delivery and quality ass	urance			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	Cloud computing (M20CS03)	L:3 T:0 P:0			
		course, the students should be able to				
		epts, key strengths, and limitations for cloud co	omputing			
2			1 0			
2		ecture along with specific infrastructure on clouc cloud, private cloud, hybrid cloud, etc.	ud computing, inc	luding SaaS,		
3		cloud, private cloud, hybrid cloud, etc. on cloud computing along with security, private	cy and interoperat	nility		
	_			Jiiity		
4	Choose and use the	appropriate technology, methods on these issue	ues.			
5	Identify problems,	and explain, analyze, and evaluate various clo	ud computing solu	tions.		
6	Provide the approp	riate solutions on cloud computing based on th	e application.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	I Sem	Python Programming(M20CS04)	L:3 T:0 P:0			
			1.31.01.0			
1	Defining the func	lamentals of writing Python scripts				

2	Expressing the Core Python scripting elements such as variables and flow control structures.
3	Apply Python functions to facilitate code reuse.
4	Extending how to work with lists and sequence data.
5	Implement file operations such as read and write
6	Implementing and Adapting the code robust by handling errors and exceptions properly.

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	I Sem	Internet of Things (M20CS05)	L:3 T:0 P:0			
On successf	ul completion of th	nis course, students will be able to:				
1	Describe the basic	terminology, latest technology along with its a	applications.			
2	Discuss the protoc	Discuss the protocols based on the concepts such as machine to machine				
3	Illustrate the IOT of	Illustrate the IOT devices using Python Scripting Language				
4	Develop an applica applications of IoT devices					
5	Implement it wide	ly that can be used in many applications of IoT	devices.			
6	Design a web appl	ication framework on REST ful web API.				
Course Outcome	Year /SemesterI Sem	Subject Name (Subject Code) Mathematical Foundations of Computer Science (M20CS06)	No. of Hours L:3 T:0 P:0	Credits:3		
On successf	ful completion of th	his course, students are able to:				
1	Evaluate the notion	ns of propositions, predicate formulae, Rules of	f inference.			
	Illustrate and descr	ibe various types of Relations and Functions.				
3	Apply knowledge of Multinomial.	of Mathematics, Combinations & Permutations	s, Binomial			
4	theorems, Pigeon h	ole principles.				
5	Develop to solve th	ne recurrence relations by using various method	ds.			
6	Perceive the basic	concepts of graph theory and apply for real time	e examples.	-		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	Artificial Intelligence (M20CS07)	L:3 T:0 P:0			
After the c	completion of this o	course, the students should be able to				
1	Remember various assumptions etc	s AI concepts like the AI technique, level of m	odels, there under	lying		
2	•	ncepts of AI search techniques				
3	Apply knowledge	Apply knowledge Representation techniques.				
4	Analyze different s	Analyze different structures of representation				
5	Evaluate AI search	techniques				

6	Understand the cor	cepts of Natural Language Processing.			
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) Network Security and Cryptography (M20CS08)	No. of Hours L:3 T:0 P:0	Credits: 3	
1	Identifies various	s types of vulnerabilities, attacks, mechanisms a	and security servic	es.	
2	Compare and cor	ntrast symmetric and asymmetric encryption al	gorithms.		
3	Implementation of	plementation of message authentication, hashing algorithms and able to understand kerberos			
4	Explore the attack	as and controls associated with IP, transport lev	el, web and E-ma	il security.	
5	Develop intrusion types of firewalls.	detection system, solutions for wireless netwo	rks and designing	of various	
6		arious wireless network vulnerabilities and imp hniques to improve wireless network security.	plements different	types of	
Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Research Methodology & IPR (M20MC01)	No. of Hours L:2 T:0 P:0	Credits: 2	
On successf	ful completion of th	is course, students will be able to:			
1		e on Research Design and statistical methods ir	n research.		
2	Analyze the variou Data Representatio	s methods in Data Collection, Data Organization.	on and different ap	proaches of	
3	· · ·	basic concepts required to prepare			
	<ul><li>a. Research synops</li><li>b. Dissertation</li><li>c. Writing a good response</li></ul>				
4	Interpret the Scope	of Patent Rights and Administration of Patent	System.		
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) English for Research Paper Writing (M20AC01)	No. of Hours L:2 T:0 P:0	Credits:0	
On success	ful completion of th	nis course, students are able to:			
1	—	nowledge on Definition of a research paper, Pu s Scope and Benefits.	rpose of writing a	ny	
2		ndard English formats .for scripting the best res			
3	Analyze all the Qua plagiarism	alitative and Quantitative Research Methodolo	gies and the ethics	of	
4		d process of writing and publishing any researc	h paper and perfo	rm a case	
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) Data Structures and Algorithms Lab (M20CS09)	No. of Hours L:0 T:0 P:4	Credits:2	
After the o	completion of this o	course, the students should be able to			

1	Analyze algorithms efficiency.					
2	Summarize and imp	Summarize and implement various searching and sorting techniques.				
3	Demonstrate stack	, queue and linked list with various operations				
4	Implement differen	Implement different trees and graphs concepts.				
Course	Year / semester Subject Name (Subject Code) No. of Hours Credits:2					
Outcome	I Sem	Cloud computing Lab (M20CS10)	L:0 T:0 P:4			
1	-	ecture along with specific infrastructure on cl cloud, private cloud, hybrid cloud, etc.	oud computing, i	ncluding SaaS,		
2	Explain the issues on cloud computing along with security, privacy, and interoperability					
3	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.					
4	Provide the approp	priate solutions on cloud computing based on t	he application.			

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Python Programming Lab (M20CS11)	No. of Hours L:0 T:0 P:4	Credits: 2			
On successf		nis course, students will be able to:		• 			
1	Expressing the Cor	Expressing the Core Python scripting elements such as variables and flow control structures.					
2	Apply Python func	tions to facilitate code reuse					
3	Extending how to	work with lists and sequence data.					
4	Implement file ope and exceptions pro	prations such as read and write and Adapting th perly.	e code robust by h	andling errors			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:2			
Outcome	I Sem	Internet of Things Lab (M20CS12)	L:0 T:0 P:4				
On success	ful completion of t	his course, students are able to:		l			
1	Demonstrate the st terminal windows	arting of Raspberry Pi and practice Linux com	mands in comman	d			
2	Develop and run al	l basic python programs on Raspberry Pi					
3	Build real time app	lications on Light an LED using Python progr					
4	Experiment with ir humidity, smoke.	nplementation of intruder system and various s	sensors like temper	rature,			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	II Sem	Advanced Web Programming (M20CS13)	L:3 T:0 P:0				
After the o	completion of this	course, the students should be able to					
1	Apply three-tier ar	chitecture concepts and advanced database tech	hniques in web app	plications.			
2	Use object-oriented	d techniques in Web programming.					
3		active environments for the Web.					
4	Create sites that ut	ilize data validation techniques and secure code	e.				
5	Build sites that use	session management.					
6	Creating rich intera	active web applications.					

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Soft Computing Techniques (M20CS14)	L:3 T:0 P:0	creatis. 5		
1						
2	Understand the fuzzy logic, concepts of fuzziness involved in fuzzy set theory.					
2	Explain the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic.					
3	Build the fundamental theory, concepts of neural networks					
4	Identify different neural network architectures, algorithms, applications along their limitations.					
5	Classify different learning rules, architectures to learn several neural network paradigms along with its applications					
6	Deploy different applications of these models to solve engineering.					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Network Programming (M20CS15)	L:3 T:0 P:0			
On successf	ul completion of th	is course, students will be able to:				
1	Determine Linux u					
2	Identify file handling techniques and signals.					
3	Explain what is IPC and network programming in Java.					
4	Learn how process	ses communicate with each other across a Com	puter Network.			
5	Develop Network	programming using TCP/UDP sockets.				
6	Implement Real T	ime and current trends in client server Application	tion.			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	II Sem	Machine Learning (M20CS16)	L:3 T:0 P:0			
On success	ful completion of th	nis course, students are able to:		I		
1	Discuss different ap	pplication on Machine Learning problems.				
2	Describe various al	gorithms on Machine Learning mentioning its	strengths and wea	knesses		
3		theory focused on Machine Learning.	0			
4	Improve the performance of Machine Learning algorithms with different parameters.					
5	Analyze current research papers.					
6	Understand the latest issues raised by current researchers.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	Digital Forensics (M20CS17)	L:3 T:0 P:0			
		annea the students should be able to				
1		course, the students should be able to				
2	÷	ensics related to investigative process.	ais based on the in	vactiontor		
4	Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's					
3	position					
4	Demonstrate the techniques, usage of digital forensics tools. Elaborate digital forensics in detail.					
5	Analyze the state of the practice, gaps in technology, policy, and legal issues.					
5	Analyze the state of the practice, gaps in technology, policy, and legal issues.					

6	Develop techniques used on Data Analysis, cybercrime.						
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Block Chain Technology(M20CS18)	No. of Hours L:3 T:0 P:0	Credits: 3			
1	Introduce the fundamentals of blockchain, history, technology and decentralization.						
2	Revise cryptograp	Revise cryptographic concepts and its use in blockchain.					
3		Define bitcoin and understand structure of blockchain					
4	Understand alterna	Understand alternatives to proof of work					
5	Introduce smart co	ntracts, solidity and Web3 to implement block	chain				
6	Understand applications of blockchain and its challenges						
Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Genetic Algorithms and Applications (M20CS18)	No. of Hours L:3 T:0 P:0	Credits: 3			
On successful completion of this course, students will be able to:							
1	-	Explain the principles of Evolutionary Computation and Genetic Algorithms.					
2	Apply the concepts of Evolutionary Computation Methods to find solutions for complex problems.						
3	Describe the applications of Genetic Programming						
4	Analyze with different parameters on Evolutionary Algorithms						
5	Understand the diff	ferent methods in Machine Learning and Gene	tic Algorithms				
6	Summarize the current scenario of research and application in Evolutionary Genetic Algorithms and Computing						
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	II Sem	Data Science (M20CS20)	L:3 T:0 P:0				
On successful completion of this course, students are able to:							
1	Describe a Data Sc	tience, skill sets available for a data scientist					
2	Discuss the terms S	Discuss the terms Statistical Inference, its significance to explore data analysis					
3	Understand Data Science Process and its components interact.						
4	Adapt APIs tools to understand the Web data.						
5	Illustrate EDA and the Data Science as a case study.						
6	Plan a effective visualization on given data.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0			
Outcome	I Sem	Stress Management (M20AC02)	L:2 T:0 P:0				
After the	completion of this (	course, the students should be able to	·				
1	Maintain a stress awareness log. Include identification of causes, symptoms, and analysis of						
		effects Gather information on current stress management techniques and evaluate personal relevance.					
2		on current stress management techniques and	evaluate personal	relevance			

4	Choose an adaptable stress management plan for academic success incorporating selected					
	techniques.					
Course	Year / semester	Subject Name (Subject Code) Advanced Web Programming Lab	No. of Hours	Credits: 2		
Outcome	I I Sem	(M20CS21)	L:0 T:0 P:4			
1	Design and develop static and dynamic web pages with good aesthetic sense of designing and latest technical know-how's.					
2	Understand the Web Application Terminologies, Internet Tools and other web services.					
3	Learn how to link and publish web sites.					
4	Learn Database Connectivity to web applications					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Network Programming Lab (M20CS22)	L:0 T:0 P:4			
1	Understand the cor	cepts of Socket commands.				
2	Implement Connec	tion-Oriented Service using standard ports.				
3	Define Connectionless and Connection Oriented Service.					
4	Plan a case study o	n client and server and construct a Remote Cor	nmand Execution	using sockets.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Machine Learning Lab (M20CS23)	L:0 T:0 P:4			
1	Discuss different application on Machine Learning problems.					
2	Describe various algorithms on Machine Learning mentioning its strengths and weaknesses.					
3	Improve the performance of Machine Learning algorithms with different parameters.					
4	Understand the latest issues raised by current researchers.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Digital Forensics Lab (M20CS24)	L:0 T:0 P:4			
1	Understand the methods available for retrieving the lost data.					
2	Classify the various mobile forensic techniques and how to handle them.					
3	Identify the different Open-source intelligence techniques					
4						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem		L:0 T:0 P:2			
1		Mini Project with seminar (M20CS25)		l		

2	
3	
4	

#### **III-SEMESTER**

Course Outcome	Year/Semester ∎ Sem	Subject Name (Subject Code) Natural Language Processing Techniques (M20CS26)	No. of Hours L:3 T:0 P:0	Credits: 3
On successf	ul completion of th	is course, students will be able to:	l .	L
1	Understand approa	ches to syntax and semantics in NLP.		
2	Understand approa	ches to discourse, generation, dialogue and sun	nmarization within	n NLP.
3	Understand current	methods for statistical approaches to machine	translation.	
4	Understand machir	ne learning techniques used in NLP, including l	nidden Markov mo	odels
5	Understand the Lar	nguage model and probabilistic context-free gra ods, log-linear and discriminative models.		
6		chine Translation, multilingual information, m	ulti lingual autom	atic
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	Cyber Security (M20CS27)	L:3 T:0 P:0	
On success	ful completion of th	nis course, students are able to:	I	L
1	Outline key terms a	and concepts in cyber law, intellectual property	and cyber crimes	
2	Explore the vulnera	abilities, threats and cybercrimes posed by crim	ninals	
3	Identify various see	curity challenges phased by mobile devices.		
4	Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection.			
5	Analyze and evaluate	ate the cyber security needs of an organization		
6	• •	and strategic cyber security risk management j tion's critical information and assets.	policies in order to	adequately
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Deep Learning (M20CS28)	No. of Hours L:3 T:0 P:0	Credits: 3

After the o	completion of this (	course, the students should be able to		
1	Ability to understand the concepts of Neural Networks			
2	Ability to understand the concepts of Deep Learning			
3		e Learning Networks in modeling real world sy	vstems	
4	Ability to use an ef	ficient algorithm for Deep Models		
5	Ability to apply op	timization strategies for large scale application	S	
6	Ability to apply the	e Deep Learning models for Speech Recognition	on, NLP and Other	Application
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0	
)n successf	ul completion of th	is course, students will be able to:		
1	· · · · · · · · · · · · · · · · · · ·	clearly, identify and analyze the individual func	tions.	
2	Analyze study on s	olving optimization problem.		
3		rmula on optimization problem.		
4		reliably to find an approximate solution		
5		rmance of an algorithm.		
6		inderstand and solve optimization techniques u	sing algorithms.	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	Waste Management (M20CE27)	L:3 T:0 P:0	
$\frac{1}{2}$	Compare the subje	his course, students are able to: ct from the technical, legal and economical poi	nts.	
	Learn solid waste i			
3		ent for sound management		
4	Understand a muni	cipal solid waste management system.		
5		management system for decision makers.		
6	Design an incinera	tion facility.		
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Embedded System Design (M20VL07)	No. of Hours L:3 T:0 P:0	Credits: 3
After the o	completion of this o	course, the students should be able to		
1		d systems, design, technology to explain its me	trics or challenges	
2		e-purposeprocessorsusingcombinationalaswel		
3		mizing single – purpose processors. Discuss ab al purpose processors.	out the basic archi	tecture and
4	operation of general purpose processors. Define and distinguish between a timer and a counter, various types of timers and UniversalAsynchronousReceiver/Transmitter.ExplaincontrollersforLCD,Keypad and Stepper Motor.			
5	Discuss common n	nemory types ROM, RAM, advanced RAM. Experimentation methods, various protocols like serial	• •	ssor
6		nterrupts, architectures like Round Robin, Real		System

Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Dissertation Phase-I (M20CS29)	No. of Hours L:0 T:0 P:20	Credits: 10
1				
2				
3				
4				
5				

### **IV-SEMESTER**

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Dissertation Phase-II (M20CS30)	No. of Hours L:0 T:0 P:32	Credits: 16
On successf	ul completion of th	is course, students will be able to:		
1				
2				
3				
5				
4				
5				

### COURSE OUTCOMES FOR M.TECH-CYBER SECURITY R20 FOR THE YEAR 2018-2020

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Mathematical Foundation for Cyber	L:3 T:0 P:0	
		Security (M20CY01)		
	-	is course, students will be able to:		
1	Define the concepts r	elated to the basics of group theory.		
2	Develop understandir	ng of number theory algorithms.		
3	Discover different o	operations on algebraic structure		
4	Derive the probabil	ity density function of transformation of rando	om variables.	
5	Develop understan	ding of Bayesian framework.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcom	I Sem	Network Security and Cryptography	L:3 T:0 P:0	
e		(M20CS08)		
On success	ful completion of th	nis course, students are able to:		
1	Identifies various t	ypes of vulnerabilities, attacks, mechanisms ar	nd security service	S
2	Compare and contrast	st symmetric and asymmetric encryption algorithms.		
3	Implementation of m	essage authentication, hashing algorithms and able	to understand kerbe	ros
4	Explore the attacks a	nd controls associated with IP, transport level, web	and E-mail security	
5	Develop intrusion de firewalls.	tection system, solutions for wireless networks and	designing of various	s types of
6		us wireless network vulnerabilities and implements e wireless network security.	different types of cr	ryptographic
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	Cloud computing (M20CS03)	L:3 T:0 P:0	
		course, the students should be able to		
1		ts, key strengths, and limitations for cloud computin	19.	
2	-	cture along with specific infrastructure on cloud cor	-	Soof Doof
-		rivate cloud, hybrid cloud, etc.	inputing, including 3	aas, Faas,
3		on cloud computing along with security, privac	y, and interoperat	oility
4	Choose and use the a	ppropriate technology, methods on these issues		
5	Identify problems, ar	nd explain, analyze, and evaluate various cloud com	puting solutions.	
6	Provide the appropria	ate solutions on cloud computing based on the appli	cation.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Python Programming (M20CS04)	L:3 T:0 P:0	
1		mentals of writing Python scripts.		
2		re Python scripting elements such as variables a	and flow control st	ructures
4	Expressing the COI	e i ymon sempring cientents such as vallables a		ructures.

3	Apply Python functions to facilitate code reuse.
4	Extending how to work with lists and sequence data.
5	Implement file operations such as read and write
6	Implementing and Adapting the code robust by handling errors and exceptions properly.

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem		L:3 T:0 P:0	
		Internet of Things (M20CS05)		
On successf		nis course, students will be able to:	4:	
1		erminology, latest technology along with its applica		
2	Discuss the protocol	Is based on the concepts such as machine to machin	e.	
3	Illustrate the IOT of	devices using Python Scripting Language.		
4	Develop an applica	ation with Raspberry PI platform which can be	widely used in ma	any
	applications of lo	T devices.		
5	Implement it wide	ely that can be used in many applications of Io	Γ devices	
6	Design a web appl	ication framework on REST ful web API.		
Course	Year	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	/SemesterI	Secure Software Design and Development	L:3 T:0 P:0	
	Sem	(1,420,0,422)		
		(M20CY02)		
0				
<b>On success</b>	tul completion of the	his course, students are able to:		
	-	his course, students are able to:		
1	Differentiate betw	een various software vulnerabilities.		
1 2	Differentiate betw Explain the Software	een various software vulnerabilities. process vulnerabilities for an organization		
1 2 3	Differentiate betw Explain the Software Demonstrate the Mor	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software		
1 2 3 4	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrela	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process.	inction attack	
1 2 3 4 5	Differentiate betw Explain the Software Demonstrate the Mos Explain the Interrelat Discuss the Case stud	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in		Crediter 2
1 2 3 4 5 <b>Course</b>	Differentiate betw Explain the Software Demonstrate the Mon Explain the Interrelan Discuss the Case stud Year / semester	een various software vulnerabilities. process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code)	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b>	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrela Discuss the Case stud Year / semester I Sem	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03)		Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b>	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrelat Discuss the Case stud Year / semester I Sem	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the o	Differentiate betw Explain the Software Demonstrate the Mon Explain the Interrelat Discuss the Case stud Year / semester I Sem completion of this of Explain the overview	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to y of operating system	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the o 1 2	Differentiate betw Explain the Software Demonstrate the Mon Explain the Interrelat Discuss the Case stud Year / semester I Sem completion of this of Explain the overview	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the o	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrelar Discuss the Case stud Year / semester I Sem completion of this of Explain the overview Demonstrate the Acc	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to y of operating system	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the o 1 2	Differentiate betw Explain the Software Demonstrate the Mon Explain the Interrelar Discuss the Case stud Year / semester I Sem Completion of this of Explain the overview Demonstrate the Acco Identify the Encryp	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to v of operating system cess control matrix, access control list and Lampson	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the o 1 2 3	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrelar Discuss the Case stud Year / semester I Sem Completion of this of Explain the overview Demonstrate the Acco Identify the Encrypti	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to v of operating system cess control matrix, access control list and Lampson otion Techniques, Authentication and Password con Techniques and apply the real time applications exponsibilities of a system administrator and Create	No. of Hours L:3 T:0 P:0	
1 2 3 4 5 <b>Course</b> <b>Outcome</b> 1 2 3 3	Differentiate betw Explain the Software Demonstrate the Mon Explain the Interrelar Discuss the Case stud Year / semester I Sem Completion of this of Explain the overview Demonstrate the Acco Identify the Encrypti Know the role and re	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to v of operating system cess control matrix, access control list and Lampson otion Techniques, Authentication and Password on Techniques and apply the real time applications esponsibilities of a system administrator and Create ndows platform Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0	
1 2 3 4 5 <b>Course</b> <b>Outcome</b> 1 2 3 3 4 5	Differentiate betw Explain the Software Demonstrate the Mor Explain the Interrelar Discuss the Case stud Year / semester I Sem Completion of this of Explain the overview Demonstrate the Acco Identify the Encrypt Identify the Encrypt Know the role and re both a Linux and Wi	een various software vulnerabilities. e process vulnerabilities for an organization nitor resources consumption in software te security and software development process. dy of DNS server, DHCP configuration and SQL in Subject Name (Subject Code) Operating System Security(M20CY03) course, the students should be able to v of operating system cess control matrix, access control list and Lampson otion Techniques, Authentication and Password on Techniques and apply the real time applications esponsibilities of a system administrator and Create ndows platform	No. of Hours L:3 T:0 P:0	accounts on

	assumptions etc				
2	Understand the con	cepts of AI search techniques			
3	Apply knowledge I	Representation techniques			
4	Analyze different structures of representation				
5	Evaluate AI search techniques				
6		cepts of Natural Language Processing.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I Sem	Network Security and Cryptography Lab (M20CY04)	L:0 T:0 P:4		
On successf	ul completion of th	is course, students will be able to:		•	
1	Implement the cipher	techniques.			
2	Apply the mathemati	cal foundation required for various cryptographi c	algorithms.		
3	Develop the variou	s security algorithms.			
4	Use different open	source tools for network security and analysis	5		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	I Sem	Cloud computing Lab(M20CS10)	L:0 T:0 P:4		
		is course, students are able to:			
1	Develop the archite	ecture along with specific infrastructure on clo	ud computing		
-	•	S, laaS, public cloud, private cloud, hybrid clou			
2		cloud computing along with security, privacy, and			
3	*	nd explain, analyze, and evaluate various cloud con	<u> </u>		
4	Provide the appropria	ate solutions on cloud computing based on theapplic	cation.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	I Sem	Python Programming Lab (M20CS11)	L:0 T:0 P:4		
After the o	completion of this c	course, the students should be able to		l	
1		Python scripting elements such as variables and flo	w control structures		
2	Apply Python function	ons to facilitate code reuse			
3		vork with lists and sequence data.			
4	Implement file operations such as read and write and Adapting the code robust by handling errors and exceptions properly.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	I Sem	Internet of Things Lab (M20CS12)	L:0 T:0 P:4		
1	Demonstrate the st window.	tarting of Raspberry Pi and practice Linux c	commands in com	mand terminal	
2	Develop and run al	l basic python programs on RaspberryPi			
3	Build real time app	lications on Light an LED using Pythonprogra	mming		
4		implementation of intruder system and va	-	e temperature,	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 0	
Outcome	I Sem	Research Methodology and IPR(M20MC01)	L:2 T:0 P:0		
	-	is course, students will be able to:			
1	Acquire knowledge o	on Research Design and statistical methods in resear	ch.		
2	Analyze the various Representation	methods in Data Collection, Data Organization and	different approache	s of Data	
3	Understand all the	basic concepts required to prepare			
	a. Research synops	is			
	b. Dissertation				
	c. Writing a good re	esearch proposal			
4		e of Patent Rights and Administration of Patent	t System		
Course	Year /Semester	Subject Name (Subject Code) English for Research Paper Writing	No. of Hours L:2 T:0 P:0	Credits:0	
Outcome	I Sem	(M20AC01)			
)n successf	ul completion of th	nis course, students are able to:			
1	Obtain complete ki	nowledge on Definition of a research paper, Pu	urpose of writing	anv	
		s Scope and Benefits.		,	
2		ard English formats .for scripting the best research	naner		
3		tative and Quantitative Research Methodologies and		arism	
4		process of writing and publishing any research pape			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	II Sem	Cyber Security (M20CS27)	L:3 T:0 P:0		
After the <b>c</b>	completion of this o	course, the students should be able to			
1	Outline key terms and	l concepts in cyber law, intellectual property and cy	ber crimes.		
2	Explore the vulnerabi	lities, threats and cybercrimes posed by criminals.			
		urity challenges phased by mobile devices.			
4	•	of tools and methods used in cybercrime, develops	the secure counter	methods to	
	<b>7</b> 1	the cyber security needs of an organization.			
	Design operational and strategic cyber security risk management policies in order to adequately protect an organization's critical information and assets.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcom	II Sem	Web Application and Penetrating Testing (M20CY05)	L:3 T:0 P:0		
e					
1	Explain threats, vul	nerabilities and breaches to design database			
2	·	Data Model and concurrency controls and locki	ng, SQL extensior	ns to	
		vser security principles.			

	How to provide software applications	vare centric security and mobile web browser secur	rity in real time	
		ting testing workflows with examples.		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcom	II Sem		L:3 T:0 P:0	
e		Machine Learning (M20CS16)		
)n successf	ful completion of th	is course, students will be able to:	-1	
1		lication on Machine Learning problems.		
2	Describe various algo	orithms on Machine Learning mentioning its streng	ths and weaknesses.	
3	Illustrate the basic	theory focused on Machine Learning.		
4	Improve the perfor	mance of Machine Learning algorithms with o	different paramete	ers.
5	Analyze current res	search papers.		
6	Understand the lat	est issues raised by current researchers.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	Digital Forensics (M20CS17)	L:3 T:0 P:0	
In succession	ful completion of th	is course, students are able to:		
1	Discuss digital fore	nsics related to investigative process.		
2	Explain the legal is	sues to prepare, perform digital forensic analy	vsis hased on thein	vestigator's
		sues to prepare, perform algital forensie analy	sis sasea on men	restigator s
	position			
3	position Demonstrate the t	echniques usage of digital forensics tools		
3 4	Demonstrate the t	echniques, usage of digital forensics tools.		
4	Demonstrate the t Elaborate digital fo	rensics in detail.		
4 5	Demonstrate the t Elaborate digital fo Analyze the state o	rensics in detail. f the practice, gaps in technology, policy, and	legal issues	
4 5 6	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime.	1	
4 5	Demonstrate the t Elaborate digital fo Analyze the state o	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code)	legal issues	Credits:3
4 5 6	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime.	1	Credits:3
4 5 6 Course Outcome	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code)	No. of Hours	Credits:3
4 5 6 Course Outcome After the o 1	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18)	No. of Hours L:3 T:0 P:0	
4 5 6 Course Outcome	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to	No. of Hours L:3 T:0 P:0	
4 5 6 Course Outcome After the o 1	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a	No. of Hours L:3 T:0 P:0	
4 5 6 <b>Course</b> <b>Outcome</b> After the o 1 2	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph Define bitcoin and	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a ic concepts and its use in blockchain	No. of Hours L:3 T:0 P:0	
4 5 6 <b>Course</b> Outcome After the o 1 2 3	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph Define bitcoin and Understand altern	rensics in detail. If the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a ic concepts and its use in blockchain understand structure of blockchain	No. of Hours L:3 T:0 P:0	
4 5 6 <b>Course</b> Outcome After the o 1 2 3 4	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph Define bitcoin and Understand altern Introduce smart co	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a sic concepts and its use in blockchain understand structure of blockchain atives to proof of work	No. of Hours L:3 T:0 P:0	
4 5 6 <b>Course</b> <b>Outcome</b> After the o 1 2 3 4 5 6	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique <b>Year / semester</b> <b>I Sem</b> <b>completion of this o</b> Introduce the fund Revise cryptograph Define bitcoin and Understand altern Introduce smart co Understand applica	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a ic concepts and its use in blockchain understand structure of blockchain atives to proof of work ntracts, solidity and Web3 to implement bloc ations of blockchain and its challenges	No. of Hours L:3 T:0 P:0 nd decentralizatio	n.
4 5 6 <b>Course</b> <b>Outcome</b> After the o 1 2 3 4 5	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph Define bitcoin and Understand altern Introduce smart co	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a ic concepts and its use in blockchain understand structure of blockchain atives to proof of work ntracts, solidity and Web3 to implement bloc ations of blockchain and its challenges Subject Name (Subject Code) Ethics and Law of Cyber Security	No. of Hours L:3 T:0 P:0	
4 5 6 <b>Course</b> <b>Outcome</b> After the o 1 2 3 4 5 6 <b>Course</b>	Demonstrate the t Elaborate digital fo Analyze the state o Develop technique Year / semester I Sem completion of this o Introduce the fund Revise cryptograph Define bitcoin and Understand altern Introduce smart co Understand applica Year / semester II Sem	rensics in detail. f the practice, gaps in technology, policy, and s used on Data Analysis, cybercrime. Subject Name (Subject Code) Blockchain Technology (M20CS18) course, the students should be able to amentals of blockchain, history, technology a ic concepts and its use in blockchain understand structure of blockchain atives to proof of work ntracts, solidity and Web3 to implement bloc ations of blockchain and its challenges Subject Name (Subject Code) Ethics and Law of Cyber Security (M20CY06) rms and concepts in cyber law, intellectual pro-	No. of Hours L:3 T:0 P:0 nd decentralization kchain No. of Hours L:3 T:0 P:0	n. Credits: 3

	forensic acquisitior	٦.			
3	Secure both clean	and corrupted systems, protecting personal c	lata, securing simp	le computer	
	networks, and safe				
4	Incorporate approaches for incident analysis and response.				
Course	Year/Semester	Year/Semester Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	II Sem	Firewall and VPN Security (M20CY07)	L:3 T:0 P:0		
)n successf	ful completion of th	is course, students will be able to:			
1	To show the funda	mental knowledge of Firewalls and it types			
2	Construct a VPN to Authorization	allow Remote Access, Hashing, connections	with Cryptography	and VPN	
3	Elaborate the knov Detection	vledge of depths of Firewalls, Interpreting fire	ewall logs, alerts, Ir	itrusion and	
4	Infer the design of	Control Systems of SCAD, DCS, PLC's and ICS'	Ś		
5	Evaluate the SCAD	A protocols like RTU, TCP/IP, DNP3, OPC,DA/I	HAD		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	II Sem	Big Data Analytics (M20CY08)	L:3 T:0 P:0		
In successi	ful completion of the	nis course, students are able to:			
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3					
4					
5					
6					
	<b>T</b> 7 / /		N. CIT		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Ethical Hacking and Cyber Security Lab (M20CY09)	No. of Hours L:0 T:0 P:4	Credits:2	
After the o	completion of this o	course, the students should be able to		I	
1					
2					
3					
4					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Digital Forensics Lab (M20CS24)	L:0 T:0 P:4		
1		l ods available for retrieving the lost data.		<u> </u>	
2		mobile forensic techniques and how to handle ther	n.		
		1	-		

4	Demonstrate how to develop certification for Cyber Forensic.					
Course Outcome	Year / semester I I Sem	Subject Name (Subject Code) Machine Learning Lab (M20CS23)	No. of Hours L:0 T:0 P:4	Credits: 2		
1	Discuss different app	blication on Machine Learning problems	I			
2	Describe various algo	orithms on Machine Learning mentioning its streng	ths and weaknesses.			
3	Improve the performance of Machine Learning algorithms with different parameters					
4	Understand the latest	t issues raised by current researchers.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Block Chain Techology Lab(M20CY10)	L:0 T:0 P:4			
1	Explain design princ	iples of Bitcoin and Ethereum				
2	Explain Nakamoto co	Explain Nakamoto consensus.				
3	Explain the Simplified Payment Verification protocol.					
4	List and describe differences between proof-of-work and proof-of-stake consensus					
5	Interact with a block	chain system by sending and reading transactions.				
6	Design, build, and de	eploy a distributed application				
7	Evaluate security, pri	ivacy, and efficiency of a given Blockchain system.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
Outcome	I I Sem	Mini Project with seminar (M20CY11)	L:0 T:0 P:4			
1						
2						
3						
4						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0		
Outcome	I I Sem	Stress Management(M20AC02)	L:2 T:0 P:0			
1	Maintain a stress awa	areness log. Include identification of causes, sympto	oms, and analysis of	effects		
2	Gather information on current stress management techniques and evaluate personal relevance.					
3	Practice specific te	chniques, track effectiveness, and revise to me	eet personal prefe	rences.		
	Choose an adaptable stress management plan for academic success incorporating selected techniques.					

### **III-SEMESTER**

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcom	II Sem	Information Warfare(M20CY12)	L:3 T:0 P:0				
e							
)n success	sful completion of t	his course, students will be able to:	·	•			
1	Explain the theory	of data, information and knowledge as they p	ertain to informat	ion warfare			
2	Apply strategies of	pply strategies of using information as a weapon and a target					
3	Apply the principle	es of offensive and defensive information warfa	are for a given cor	ntext			
4	Discuss the social,	legal and ethical implications of information w	varfare				
5		orary information warfare concepts for their a		porate			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcom	III Sem	Intrusion Detection (M20CY13)	L:3 T:0 P:0				
е							
On success	sful completion of t	this course, students are able to:	1				
1	Understating of va	rious types of intruders and intrusion detectio	n systems.				
2	_	Intrusion detection architecture.					
3		urity threats and risk assessment.					
4	Exploring tools use	d for intrusion detection system					
5	Develop the under	standing of organizations standards and its leg	gal issues.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcom e	III Sem	Social, Web and Mobile Analytics (M20CY14)	L:3 T:0 P:0				
-	completion of this	course, the students should be able to					
1	-	es in Search Engine Optimization					
2	Apply ethical princ	iples to the use of web and social media data					
3		for capturing data from various resources					
4	Perform Mobile Ap	pplication analysis using different tool and tech	niques				
5	Analysis report ger	neration and presentations.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
-	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0				
Outcom			1	1			
Outcom e							

1	Describe problem (	clearly, identify and analyze the individual fur	ictions.			
2		Analyze study on solving optimization problem				
3		Franslate verbal formula on optimization problem.				
4		reliably to find an approximate solution				
5						
		prmance of an algorithm.				
6		nderstandand solve optimization techniques		Credits: 3		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Creans: 5		
Outcom	III Sem	Waste Management (M20CE27)	L:3 T:0 P:0			
е						
On success	sful completion of t	his course, students are able to:				
1	Compare the subject	ct from the technical, legal and economical po	ints.			
2	Learn solid waste r					
3		ent for sound management				
4	Understand a muni	cipal solid waste management system.				
5	Plan a solid waste	management system for decision makers.				
6	Design an incinerat	tion facility.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcom		Embedded System Design (M20CE27)	L:3 T:0 P:0			
e	in sem		1.5 1.01.0			
-	completion of this	course, the students should be able to				
1	-	d systems, design, technology to explain its m	etrics or challenges	,		
2		gle-purpose processors using combinational a	<u> </u>			
3	Discuss about optin	nizing single – purpose processors. Discuss al ll purpose processors.				
4	Define and distingu	uish between a timer and a counter, various ty eiver/Transmitter.Explain controllers for LCD	L			
5	Discuss common n	nemory types ROM, RAM, advanced RAM. E bitration methods, various protocols like seria	xplain microproce			
6	Explain basics of in architecture.	nterrupts, architectures like Round Robin, Rea	l – Time Operating	•		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 10		
Outcom	III Sem	Project / Dissertation Phase-I (M20CY15)	L:0 T:0 P:20			
е						
1						
2						
3						
4						
5						
	1					

#### **IV-SEMESTER**

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Project / Dissertation Phase-II (M20CY16)	No. of Hours L:0 T:0 P:32	Credits: 16
On successf	ul completion of t	nis course, students will be able to:		
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<u>co</u>		<u>-5 (CO \$) FOR B.TECH -</u>	CIVIL ENGINEER	<u>III(G (K20)</u>
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Linear Algebra and Vector Calculus (B20MA04)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	mpletion of this cour	se, the students should be ab	le to	
1	Understand the princ using multiple metho	iples of matrix to calculate the ds.	characteristics of syster	m of linear equations
2		ues, Eigenvectors of matrices.		
3		gle-variable functions graphica		у.
4		egrals using Beta and Gamma		
5		vatives, extreme of functions on ntegrals using fundamental the	-	D5: Analyse line,
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Applied Physics (B20PH04)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cour	se, the students should be ab	le to	
1	Use the laws of mech rigid bodies.	nanics to determine the equilibr	ium condition of partic	les and
2	Explain the elastic pr	operties of materials.		
3		c concepts in Nondestructive te	echniques and their appl	lications.
4	Explain the knowled, their remedies.	ge of waves and the factors affe	ecting acoustics of build	dings and
5	Calculate geometric	properties like Centre of gravity	y moment of inertia and	l mass
Course Outcome	Year / Semester : I / I-Sem	<b>Subject Name (Code):</b> Basic Mechanical Engineering (B20ME05)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Identify the Various	Energy sources and IC engines	systems.	
2	Apply the Metal rem	oval process using Lathe, drilli	ng and Milling operatio	ons.
3	Compare the applicat	tion and usage of various engin	eering Materials.	
4		e of operation of Impulse and r	-	
5	· · ·	ce of engineering materials.		
Course Outcome	Year / Semester : I / I-Sem	<b>Subject Name (Code):</b> Programming for Problem Solving (B20CS01)	No. of Hours : L: 4 T: 0 P: 0	Credits: 4
After the co	mpletion of this cour	se, the students should be ab	le to	L

1	1					
1	Understanding how problems are posed and how they can be analyzed for obtaining solutions.					
2	Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.					
3	Implementing differe problems.	nt operations on arrays and cre	eating and using of func	tions to solve		
4	Understanding and ex	xploring the various methods o	f memory allocations.			
5	Ability to design and methodology.	implement different types of f	ile structures using stan	dard		
Course Outcome	Year / Semester : I / I-Sem	<b>Subject Name (Code):</b> Physics Lab (B20PH05)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5		
After the co	mpletion of this cour	se, the students should be ab	ole to			
1	Estimate the frequence	cy of tuning for and AC supply	with the help of stretch	ned strings.		
2	Analyze as well as co	ompare the intensity distributio	n of interference and di	ffraction patterns.		
3	Draw the characteristics of electrical and electronic circuits and evaluate the dependent parameters.					
4	Explore and understand the applications of semiconducting devices.					
5	Evaluates the wavelength and radius of curvature of Plano convex lens by Newton's rings.					
Course Outcome	Year / Semester : I / I-Sem	<b>Subject Name (Code):</b> Programming for Problem Solving Lab (B20CS02)	No. of Hours : L: 0 T:0 P: 3	Credits: 1.5		
After the co	mpletion of this cour	se, the students should be ab	ble to			
1		acture of the C Programming, of structures and all related conce		nd usage		
2	executable form.	any algorithm and Write the C				
3	to solve real time pro			processors		
4	Ability to use file stru	actures and implement program	ns on files			
Course Outcome	Year / Semester : I / I-Sem Subject Name (Code): Engineering Workshop (B20ME04) No. of Hours : L: 0 T:0 P: 2 Credits: 1					
After the co	mpletion of this cour	se, the students should be ab	ble to			
1	Know the fundamental knowledge of various trades and their usage in real time Applications.					
2	Compare Foundry, W	Velding, Black smithy, Fitting,	Machine shop and hous	se wiring.		
3	Understand the basis engineeringand mech	for analyzing power tools in c anical engineering.	onstruction and wood w	vorking, electrical		
4	Apply basic concepts of computer hardware for assembly and disassembly.					

Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Induction Program (B20MC01)	No. of Hours : L: 0 T: 0 P: 0	Credits: 0
After the co	mpletion of this cou	rse, the students should be ab	le to	
1		NA		
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Differential Calculus and Transforms (B20MA06)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	mpletion of this cou	rse, the students should be ab	ole to	
1	Apply the fundamen	tal concepts of ordinary differe	ntial equations toreal tin	ne problems.
2	-	olution of a non homogeneous d physical problems of Engineerin	-	applying its
3	Evaluate initial value technique.	e problems and boundary value	problems using Laplace	transforms
4	Expand the algebraic	e and transcendental functions b	by applying Fourier Seri	es.
5	Apply the concepts of	of Partial Differential Equations	s to Engineering probler	ns.
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Applied Chemistry (B20CH03)	No. of Hours : L: 4 T: 0 P: 0	Credits: 4
After the co	ompletion of this cou	rse, the students should be ab	le to	
1	The knowledge of m	olecular batteries and corrosion	1	
2	The knowledge of w			
3	•	olymers and their uses.		
4		edge of principles and concepts	of phase rule and surfac	e chemistry.
5	-	aterials and their uses.	r	j.
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Mechanics (B20CE01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cou	rse, the students should be ab	ole to	
1	Understand concepts	s of resultant force and moment	Systems.	
2	-	lated to friction developed in m	•	
3		nd moment of inertia for simple		
4		he here is a solve problems of a	=	
5	11 7 1	ication of Work Energy method	<u> </u>	ems.
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Basic Electrical and Electronics Engineering (B20EE01)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cou	rse, the students should be ab	ole to	

2	Gain knowledge on A Factor	AC circuits, reactance, Impedar	nce, Susceptance and A	dmittance and Power
3	Learn the working principle of DC motors, Transformers.			
4		tics of PN Junction diode and z		
5		mplifiers and Rectifiers.	Lener uloue.	
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): English for Effective communication (B20EN01)	No. of Hours : L: 2 T: 0 P: 0	Credits: 2
After the co	ompletion of this cou	rse, the students should be ab	le to	
1	Skim and scan the di	gital text to summarize it for fu	ture reference.	
2	Read the text to make	e notes according to their needs	5.	
3	Use English language	e effectively in spoken and wri	tten forms.	
4	Communicate confid	ently in various contexts and d	ifferent cultures.	
5		ency in English including read		ehension, writing
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Python Programming Lab (B20CS07)	No. of Hours : L: 0 T: 1 P: 2	Credits: 2
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Expressing the Core	Python scripting elements such	as variables and flow c	control structures.
2	Apply Python function	ons to facilitate code reuse.		
3	Extending how to we	ork with lists and sequence data	ι.	
4		tions such as read and write an		bust by
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Drawing (B20ME01)	No. of Hours : L: 0 T: 0 P: 4	Credits: 2
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Understand various of	commands, object properties in	AUTOCAD.	
2	Analyse the Projection	ons of Points and solids.		
3	Estimate the use of d	rawings, dimensioning, scales	and conic sections.	
4		sion of Isometric views to Orth		
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Probability Distribution and Numerical Methods (B20MA08)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Use probability theor	ry for modelling uncertainty in	engineering problems	
2	Develop discrete and	continuous probability distribution	ution and its application	s.
-	*	1 2	11	

3	Construct confidence interval estimates for population parameters to test the hypothesis.			
4	Find a better approxi	mate root of a given equation.		
5	Compute the differen	tial equation using Numerical	techniques.	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Strength of Materials - 1 (B20CE02)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cour	rse, the students should be ab	ole to	
1	Determine the stresse	es and strains in the members.		
2	Draw shear force and	l Bending moment diagram for	determinate beams.	
3	Identify the flexural	and shear stresses for various s	ections.	
4	Evaluate the slope an	d deflection of determinate bea	ams.	
5	Identify the concept	of torsion and spring subjected	to loading	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Fluid Mechanics (B20CE03)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Learn the fundament	als of fluids and the principles	of manometer.	
2		l flow in a pipe applying contin		
3	Calculate the flow pa	rameters by Euler's and Berno	oulli's equation.	
4		and turbulent flow and various		
5	Determine Boundary	layer thickness, Drag-Lift forc	ces.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Surveying (B20CE04)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	ompletion of this cour	rse, the students should be ab	ole to	
1	Identify the classification	ation of surveying and instrume	ents used.	
2		tal and vertical angle using Ta		
3		ess of control surveying and ad		
4	Know the concept of	Hydrographic and Astronomic	cal surveying.	
	-	iples of Total station and GPS		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Construction Materials (B20CE05)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cour	rse, the students should be ab	ble to	
1	Compare the propert	ies of most common and advan	ced building materials.	
2		al and potential applications of	-	gates.
			, 60 1	<u> </u>
3	Know the Rudiments of production of concrete.			

5	Understand the imp	ortance of modern material for o	construction.	Γ
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Strength of Materials Lab (B20CE06)	No. of Hours : L:0T:0P: 2	Credits: 1
After the co	ompletion of this co	irse, the students should be ab	ole to	L
1	Identity the bending	g benavior of beams using benui	ng test.	
2	Determine the bena	vior of material under torsion.		
3	Determine the hard	ness of materials using different	tasts	
4		teristic of material under compre		r test
	T fild out the charac			
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Surveying Lab (B20CE07)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5
After the co	ompletion of this co	irse, the students should be ab	ole to	
1	Calculate area of gi	ven plot/points using chain surv	ev.	
2		e/distance of given points using		
3		distance and height of the given		surveying.
4		nce of the given points using To	<u> </u>	202.109228.
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): English Language and Interactive Communication Skills Lab (B20EN02)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5
After the co	ompletion of this co	urse, the students should be ab	ble to	
1	Understand the nua activities.	nces of English language throug	h audio-visual experien	ace and group
2	Speak with clarity a	nd confidence which in turn enl	nances their employabil	ity skills.
3	<u>^</u>	ing skills so that they may appre- ve their pronunciation.	eciate its role in develop	bing LSRW skills
4	Involve the student	s in speaking activities in variou	s contexts.	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Project Based Learning - 1 (B20CE08)	No. of Hours : L:0T:0P: 2	Credits: 1
After the co	ompletion of this co	urse, the students should be ab	ble to	1
1	NA			
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Human Values and Professional Ethics (B20MC04)	No. of Hours : L: 2 T: 0 P: 0	Credits: 0

1	It ensures students sustained happiness through identifying the essentials of human values and skills.				
2		understanding between profes	ssion and happiness.		
3	It helps students understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.				
4	Ability to develop ap professional and pers	propriate technologies and man sonal life.	nagement patterns to cre	eate harmony in	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Strength Materials - 2 (B20CE09)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cour	rse, the students should be ab	ole to		
1	Analyse the fixed and	d continuous beams.			
2		nd bending stresses of different	t structures.		
3		l load of columns and stresses		thin cylinders.	
4		ept of principal stresses and str	-	<b>.</b>	
5		etrical bending of beams and si		section.	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Hydraulics and Hydraulic Machinery (B20CE10)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cour	rse, the students should be ab	le to		
1		nowledge in open-channel hyd		ering.	
2		l analysis and similarity to deve			
3	Understand about the	e turbo-machines and its efficie	ency.		
4	Gain knowledge of h	ydraulic turbines and their ope	rational design.		
5	Evaluate the perform	ance of centrifugal pump			
Course Outcome	Year / Semester : II / IV-Sem	<b>Subject Name (Code):</b> Structural Analysis - 1 (B20CE11)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cour	rse, the students should be ab	ole to		
1	Analyze continuous strain energy method	beams, pin-jointed indetermina	te plane frames and righ	d plane frames by	
2	Anaryse commuous o	ocams and right manies by stop	e derection memou.		
3	with and without swa			C	
4	matrix flexibility met	hod.	continuous ocams and r	igiti manics using	
5	Understand the conce jointed trusses and ri	ept of matrix stiffness method a gid plane frames.	and analyse of continuo	us beams, pin	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Engineering Geology (B20CE12)	No. of Hours : L: 2 T: 0 P: 0	Credits: 2	

After the co	ompletion of this cou	rse, the students should be ab	le to		
1	Understand the importance of geological knowledge such as earth, earthquake, volcanism and the action of various geological agencies.				
2	Gain basics knowled	ge on properties of minerals.			
3	Gain knowledge about types of rocks, their distribution and uses.				
4	-	ods of study on geological stru			
5	Understand the appli bridges, roads, airpo	cation of geological investigati rt and harbor.	on in projects such as d	lams, tunnels,	
Course Outcome	Year / Semester : II / IV-Sem	<b>Subject Name (Code):</b> Construction Techniques And Practices (B20CE13)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cou	rse, the students should be ab	ble to	1	
1	Know the different c	construction techniques and stru	ictural systems.		
2		techniques and practices in mas		ring, and roofing.	
3	Plan the requirement	s for substructure construction.			
4	Know the methods a	nd techniques involved in cons	truction of various type	s of super structures	
5	Select, maintain and construction sites.	operate hand and power tools a	and equipment used in t	he building	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Fluid Mechanics & Hydraulic Machinery Lab (B20CE14)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this cou	rse, the students should be ab	ole to		
1		uring devices used in pipes, cha			
2	Demonstrate practica characterize laminar	al understanding of the minor a and turbulent flows.	nd friction losses in pip	e flows and	
3		al working of Hydraulic machir hydraulics machines.	nes- different types of T	urbines, Pumps, and	
4	Compare results of a	nalytical models with actual be	havior of real fluid flow	WS.	
Course Outcome	Year / Semester : II / IV-Sem	<b>Subject Name (Code):</b> Engineering Geology Lab (B20CE15)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co		rse, the students should be ab			
1	Learn about the group practical application	nd surface features based on m in civil engineering.	ap patterns of contour	with emphasis on	
2	Identify physical and mechanical properties of rocks and minerals and its application in civil engineering uses.				
3		lip of the bedding planes.			
4	Interpret and draw sections for geological maps showing horizontal beds, vertical beds, inclined beds, folds, faults.				
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Building Drawing Lab - CAD (B20CE16)	No. of Hours : L: 0 T: 1 P: 2	Credits: 2	

After the co	ompletion of this cou	rse, the students should be ab	ole to		
1		e of AutoCAD commands.			
2	Able to draw the Plan, Section and elevation of the building structures.				
3	Understand the 2D & 3D building elements.				
4		omponents in Auto CAD drawi	ings.		
	_	Subject Name (Code):			
Course	Year / Semester	Project Based Learning - 2	No. of Hours :	Credits: 1	
Outcome	: II / IV-Sem	(B20CE17)	L: 0 T: 0 P: 2	Creans. 1	
After the co		rse, the students should be ab	le to		
1		NA			
G	N. / C	Subject Name (Code):			
Course	Year / Semester	Design of Steel Structures	No. of Hours :	Credits: 3	
Outcome	: III / V-Sem	(B20CE18)	L: 3 T: 0 P: 0		
After the co	ompletion of this cou	rse, the students should be ab	ole to		
1		philosophy of steel structures			
2	Select the suitable se	ction shape and size for tension	n and compression mem	bers.	
_		mate load of steel beams and p			
3	Able to calculate uni	mate load of steel beams and p	ortal frames using plast	ic analysis.	
4	Able to design beam	s, Built-up beams and plate gire	ders.		
5	-	the design trusses on Industria			
		Subject Name (Code):			
Course	Year / Semester	Geotechnical Engineering	No. of Hours :	Credits: 3	
Outcome	: III / V-Sem	(B20CE19)	L: 3 T: 0 P: 0	creatiste	
After the co	mpletion of this cou	rse, the students should be ab	ole to		
1		es and characteristics of soils.			
2		and seepage through soils.			
3		e stress distribution and consoli	idation settlement.		
4		iples of shear strength of soils.			
5	Able to know site in	vestigation methods and Testing	g of soils.		
~		Subject Name (Code):			
Course	Year / Semester	Concrete Technology	No. of Hours :	Credits: 3	
Outcome	: III / V-Sem	(B20CE20)	L: 3 T: 0 P: 0		
After the co	mpletion of this cou	rse, the students should be ab	le to		
1	Acquire knowledge	on the concrete mix proportion	ing and manufacturing.		
2	Understand the prop	erties of concrete in fresh and r	nardened state.		
	Admity to know deve	copment of High Strength and	High Performance Cond	crete.	
3	Understand the impo	rtance of durability of concrete	<b>.</b>		
4	I				
5	Identify special conc	rete and Quality Control during	g construction.		
		Subject Name (Code):			
Course	Year / Semester	Hydrology and Water	No. of Hours :	Cradita: 2	
Outcome	: III / V-Sem	Resource Engineering	L: 3 T: 0 P: 0	Credits: 3	
		(B20CE21)			
After the co	ompletion of this cou	rse, the students should be ab	ole to		
1	Define the key driver	rs on water resources and hydro	ological processes.		
2	Apply the knowledge	e of hydrological models to sur	face water problems.		
3	Explain the concept	of Flood and Drought and man	agement strategies.		
4	Describe the importa	nce and design water storage re	eservoirs.		
	T STOR	0			

5 Apply the concepts of	of groundwater for water resources management.
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***	ALCENT		Autonomous	
1000	The second se	Bollikunta, Warangal Urban-506 005 (T.S)		
	SWAMBHARA LOUGHIDIT	DEPARTMENT	OF CIVIL ENGI	NEERING
<u>CO</u>	URSE OUTCOME	S (CO's) FOR B.TECH –	CIVIL ENGINEER	ING (R22)
Course	Year / Semester	Subject Name (Code):	No. of Hours :	
Outcome	: I / I-Sem	Matrices and Calculus (B22MA01)	L: 3 T: 1 P: 0	Credits: 4
After the co	mpletion of this cour	se, the students should be ab	le to	
1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations.			
2	Find the Eigen values			
3	-	form to canonical form using	orthogonal transformati	ons.
4		s on the mean value theorems.		
5		r integrals using Beta and Gan		
6	Find the extreme value	es of functions of two variable	es with/ without constra	ints.
7	Evaluate the multiple	integrals and apply the concep	ot to find areas, volumes	5.
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Applied Physics (B22PH01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cour	se, the students should be ab	le to	
1	Understand physical	world from fundamental point	of view by the concepts	s of Quantum.
2	Mechanics and visual classification of solid	lize the difference between cor s.	nductor, semiconductor,	and an insulator by
3	Identify the role of se	emiconductor devices in scienc	e and engineering Appl	ications.
4	Explore the fundame applications.	ntal properties of dielectric, ma	agnetic materials and en	ergy for their
5	Appreciate the featur	es and applications of Nanoma	terials.	
6	Understand various a	spects of Lasers and Optical fi	bre and their application	ns in diverse fields.
Course Outcome	Year / Semester : I / I-Sem	<b>Subject Name (Code):</b> C Programming and Data Structures (B22CS06)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cour	se, the students should be ab	le to	
1	Understand the vario	us steps in Program developme	ent.	
2	Explore the concepts	of control statements and func	tions in C Programming	g Language.
3		epts of pointers and its applicat		
4		implement different types of f		
5		such as stacks, queues in prob		e various searching

Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Engineering Workshop (B22ME01)	No. of Hours : L: 0 T: 1 P: 3	Credits: 2.5
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Study and practice of	n machine tools and their opera	tions	
2		turing of components using wo		pluming, fitting,
3	Identify and apply su	itable tools for different trades	of Engineering process	ses including
4	Apply basic electrica	l engineering knowledge for ho	ouse wiring practice.	
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): English for Skill Enhancement (B22EN01)	No. of Hours : L: 2 T: 0 P: 0	Credits: 2
After the co	ompletion of this cou	rse, the students should be ab	le to	
1	Understand the impo	rtance of vocabulary and sente	nce structures.	
2	-	vocabulary and sentence structu		ritten
3	Demonstrate their un	derstanding of the rules of fund	ctional grammar.	
4	Develop comprehens	sion skills using known and unl	known passages.	
5	Take an active part in various contexts.	n drafting paragraphs, letters, e	ssays, abstracts, précis a	and reports in
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Elements of Civil Engineering (B22CE01)	No. of Hours : L: 0 T:0 P: 2	Credits: 1
After the co	mpletion of this cou	rse, the students should be ab	le to	
1	Understand the impo	rtance of vocabulary and sente	nce structures.	
2	Choose appropriate v communication.	vocabulary and sentence structu	ares for their oral and w	ritten
3	Demonstrate their un	derstanding of the rules of fund	ctional grammar.	
4		sion skills using known and un		
5	Take an active part in various contexts.	n drafting paragraphs, letters, e	ssays, abstracts, précis a	and reports in
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Applied Physics Laboratory (B22PH02)	No. of Hours : L: 0 T:0 P: 3	Credits: 1.5
After the co	ompletion of this cou	rse, the students should be ab	le to	
1	Know the determinat	tion of the Planck"s constant us	sing Photo electric effec	t and identify the
2	Appreciate quantum	physics in semiconductor device	ces and optoelectronics.	
3	Gain the knowledge	of applications of dielectric con	nstant.	
4	Understand the varia	tion of magnetic field and beha	vior of hysteresis curve	2.
5	Gain the knowledge	of decay of charge and determi	ne time constant of RC	circuit.
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): C Programming and Data Structures Laboratory (B22CS07)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1

	Develop modular a	nd readable C Programs			
2	Solve problems using strings, functions. Handle data in files.				
3	Implement stacks, queues using arrays.				
4	To understand and	analyze various searching and so	orting algorithms.		
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): English Language and Communication Skills Laboratory (B22EN02)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this co	irse, the students should be ab	le to		
1	Understand the nua activities.	nces of English language throug	h audio- visual experier	nce and group	
2	Neutralize their acc	ent for intelligibility.			
3	-	ing skills so that they may appre ve their pronunciation.	ciate its role in develop	ing LSRW skills of	
4	Involve in speaking	activities in various contexts.			
5	Speak with clarity a	nd confidence which in turn enh	nance their employabilit	y skills	
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Environmental Science (B22CH03)	No. of Hours : L: 3 T: 0 P: 0	Credits: 0	
After the co	ompletion of this co	irse, the students should be ab	le to		
1		e, the Engineering graduate will ogical principles and environment			
Course	Year / Semester : I / II-Sem	Subject Name (Code): Ordinary Differential	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	
Outcome		Equations and Vector Calculus (B22MA02)			
		-	le to		
	ompletion of this co	Calculus (B22MA02)		t.	
After the co	ompletion of this con Identify whether the	Calculus (B22MA02) arse, the students should be ab	irst order is exact or no		
After the co	Description of this constraints of this constraints of the second	Calculus (B22MA02) urse, the students should be ab	irst order is exact or no	ation to real world	
After the contract of the cont	Identify whether the Solve higher difference problems. Extend the basic confashion.	Calculus (B22MA02) urse, the students should be ab e given differential equation of f ential equation and apply the con	irst order is exact or no acept of differential equ	ation to real world	
After the co	Identify whether the Solve higher differed problems. Extend the basic co fashion. Extend the basic co fashion.	Calculus (B22MA02) <b>urse, the students should be ab</b> e given differential equation of f ential equation and apply the com- ncepts of differential calculus to	irst order is exact or no acept of differential equ vector functions in a si vector functions in a si	ation to real world imple and natural imple and natural	

1	Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.				
2	The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.				
3	They can learn the fundamentals and general properties of polymers and other engineering materials.				
4	They can predict pote good engineers and e	ential applications of chemistry ntrepreneurs.	and practical utility in	order to become	
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Computer Aided Engineering Graphics (B22ME03)	No. of Hours : L: 1 T: 0 P: 4	Credits: 3	
After the co	ompletion of this cour	se, the students should be ab	le to		
1	Apply computer aide types of solids.	d drafting tools to create 2D ar	nd 3D objects sketch co	nics and different	
2	Appreciate the need of	of Sectional views of solids and	d Development of surfa	ces of solids.	
3	Read and interpret engineering drawings.				
4	-	Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.			
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Applied Mechanics (B22CE02)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	mpletion of this cour	se, the students should be ab	le to		
1	Understand concepts	of resultant force and moment	Systems.		
2	Analyze problems rel	lated to friction developed in m	notion of bodies.		
3		d moment of inertia for simple	-	s.	
4	Apply concepts of me	echanics to solve problems of 1	rigid body motion.		
5	Understand the appli	cation of Work Energy method	for plane motion probl	ems.	
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Surveying (B22CE04)	No. of Hours : L: 2 T: 0 P: 0	Credits: 2	
After the co	ompletion of this cour	rse, the students should be ab	le to		
	Understand the working principles of survey instruments.				
1	Understand the work	ing principles of survey instruct	Identify data collection methods and prepare field notes.		
1 2		••••••			
	Identify data collection	••••••	otes.		
2	Identify data collection Calculate angles, dist	on methods and prepare field n	otes. areas using theodolite.		

Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Python Programming Laboratory (B22CS04)	No. of Hours : L: 0 T: 1 P: 2	Credits: 2
After the co	mpletion of this cou	rse, the students should be at	ble to	I
1	Develop the applicat	ion specific codes using pytho	1.	
2		Lists, Tuples and Dictionaries		
3		ture of exception handling for		eptions.
4		ng modular approach, file I/O, I		-
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Chemistry Laboratory (B22CH02)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1
After the co	ompletion of this cou	rse, the students should be at	ole to	
1	Able to determine th	e hardness of water		
2		hods such as conductometry, a	nd potentiometry in orde	er to find out the
3		prepare polymers like bakelite		
4		cation value, and viscosity of lu		
Course Outcome	Year / Semester : I / II-Sem	<b>Subject Name (Code):</b> Surveying Laboratory - I (B22CE05)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1
After the co	ompletion of this cou	rse, the students should be at	ole to	
1	Student will be able	to prepare Map and Plan for re	quired site with suitable	e scale.
2		to prepare contour Map and Es or Road and Railway Alignmer		earthwork required
3	Student will be able Particular Area and	to judge which type of instrumestimate the area.	ent to be used for carryi	ng out survey for a
4		to judge the profile of ground b	by observing the availab	le existing contour
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Probability and Statistics (B22MA03)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cou	rse, the students should be at	ble to	I
1	After learning the co	ontents of this paper the student	must be able to	
2	-	of probability and distributions		
3		ts of one unit to the concepts in		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Building Materials, Construction and Planning	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
		_		Credit

1	Comprenent unteren	n types of construction materia	п.		
	Understand the manufacturing of Cement and role of Admixtures.				
2	identity the concept of bundning components and services.				
3	Know the importance of iviasonity and formiwork.				
4	-	-			
5	Plan a building based	l on the factors and principles of	of planning.		
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Engineering Geology (B22CE07)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cour	rse, the students should be ab	le to		
1	Understand the impo	rtance of geological knowledge	e in civil engineering po	oint of view.	
2	Gain basics knowled	ge on properties of mineralogy	and petrology.		
3	Gain knowledge abo	ut structural geology.			
4	· · · · ·	ts of earthquakes and importan	ce of geophysical studi	es.	
5	Understand the application of geological investigation in projects such as dams, Reservoirs an tunnels				
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Strength of Materials – I (B22CE08)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cou	rse, the students should be ab	le to		
1	Determine the stresse	es and strains in the members.			
2	Draw shear force and	l Bending moment diagram for	determinate beams.		
3		and shear stresses for various s			
4	-	d deflection of determinate bea			
5	Identify the concept	of principal stresses and theory	of failures.		
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Fluid Mechanics (B22CE09)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cou	rse, the students should be ab	le to		
After the co	-	rse, the students should be ab	le to		
	Understand the broad				
1 2	Understand the broad Learn the concept of	l principles of fluid statics, fluid kinematics and dynamics			
1	Understand the broad Learn the concept of Understand the meas	l principles of fluid statics, fluid kinematics and dynamics urement of flow in pipes and n	otches.		
1 2 3	Understand the broad Learn the concept of Understand the meas Understand classifica	l principles of fluid statics, fluid kinematics and dynamics	otches. ipes.		

1	Calculate area of given plot/points using theodolite survey.				
2	Determine the angle/distance of given points using theodolite survey.				
3	Ū.	stance and elevation of the give	•	on.	
4		it and plot curve using Total sta	1 0		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Strength of Materials Laboratory (B22CE11)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this cou	urse, the students should be al	ble to		
1	Identify the bending	behavior of beams using bend	ing test.		
2		vior of material under torsion.	0		
3		ness of materials using different	t tests.		
4		eristic of material under compre		test.	
Course Outcome	Year / Semester : II / III-Sem	<b>Subject Name (Code):</b> Computer Aided Drafting Laboratory (B22CE12)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this cou	urse, the students should be al	ble to		
1	Plan buildings as pe	r NBC.			
2	Draw brick bonds, I	Plan, Section and Elevation of b	ouildings.		
3	Develop residential	building and public building as	per the building by-laws	s.	
4	Draw Electrical layo	out, Plumbing layout for buildin	ngs.		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Logical Reasoning and Quantitative Aptitude (B22MC08)	No. of Hours : L: 3 T: 0 P: 0	Credits: 0	
After the co	ompletion of this cou	urse, the students should be al	ble to		
1		NA			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Basic Electrical and Electronics Engineering (B22EE19)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
After the co	ompletion of this cou	urse, the students should be al	ble to		
1	To analyze and solv	e electrical circuits using netwo	ork laws and theorems.		
2		analyze basic Electric and Magr			
3		g principles of Electrical Mach			
4	To introduce compo	onents of Low Voltage Electrica	l Installations.		
5	To identify and char	acterize diodes and various typ	es of transistors.		
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Concrete Technology	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	

After the co	ompletion of this cour	rse, the students should be ab	ble to	
1	Acquire knowledge of	on the testing of aggregates and	l its properties.	
2	Understand the properties of concrete in fresh state.			
3	Comprehend the properties of concrete in hardened concrete.			
4	Ability to know the c	oncept of Elasticity, Creep and	l Shrinkage.	
5		es of admixtures and special co		
a		Subject Name (Code):		
Course Outcome	Year / Semester : II / IV-Sem	Strength of Materials – II (B22CE14)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cour	se, the students should be ab	ole to	
1	Understand the conce	ept of torsion of circular shafts	and springs.	
2	Determine the critica	l load of columns.		
3	Evaluate the direct an	nd bending stresses of different	t structures.	
4	Determine the stresse	es developed in thick and thin c	cylinders.	
5	Analyze the unsymm	etrical bending of beams and s	hear centre for different	t section.
	Year / Semester	Subject Name (Code):		
Course	: II / IV-Sem	Hydraulics and Hydraulics	No. of Hours :	<b>C 1</b> <sup>1</sup> <b>4 2</b>
Outcome		Machinery (B22CE15)	L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cour	se, the students should be ab	ble to	
1	Apply fundamental k	nowledge in open-channel hyd	lraulics in Civil Enginee	ering.
2	Describe dimensiona	l analysis and similarity to dev	elop hydraulic model.	
3	Understand about the	e turbo-machines and its efficie	ency	
4	Gain knowledge of h	ydraulic turbines and their ope	rational design.	
5	Evaluate the perform	ance of centrifugal pumps.		
C	V / C /	Subject Name (Code):		
Course	Year / Semester	Structural Analysis - I	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
Outcome	: II / IV-Sem	(B22CE16)	L: 5 1: 0 P: 0	
After the co	mpletion of this cour	se, the students should be ab	ole to	
1	Analyze pin-jointed p	plane frames by different method	ods.	
2	Analyze three hinged	arches and understand the cor	ncept of energy theorem	IS.
3	Understand the Indet	erminate beams with rotation of	of a support.	
4	Analyze the beams us	sing three moments and slope of	deflection method.	
5	Understand the conce	ept of moving loads and influe	nce lines.	
		Subject Name (Code):		
Course	Year / Semester	Fluid Mechanics and	No. of Hours :	
Outcome	: II / IV-Sem	Hydraulics Machinery	L: 0 T: 0 P: 2	Credits: 1
0 400 01110		Laboratory (B22CE17)		
After the co	mpletion of this cour	se, the students should be ab	ole to	
1		easurement techniques of fluid		ication.
2		l understanding of the minor a		
	-	orking of Hydraulic machines-		
	-	cellaneous hydraulics machine	••	ines,
3				
	_	nalytical models with actual be	havior of real fluid flow	VS.
3	_	nalytical models with actual be	havior of real fluid flow	vs.
4	Compare results of a	Subject Name (Code):		vs.
	_	-	No. of Hours : L: 0 T: 0 P: 2	vs. Credits: 1

After the co	ompletion of this cour	rse, the students should be ab	le to		
1	To analyze and solve electrical circuits using network laws.				
2	To understand and analyze basic Electric and Magnetic circuits.				
3	To study the working	g principles of Electrical Machi	nes.		
4	To identify and chara	acterize diodes and various type	es of transistors.		
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Concrete Technology Laboratory (B22CE18)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	mpletion of this cour	rse, the students should be ab	le to	•	
1	Acquire knowledge of	on the properties of cement and	aggregate.		
2	Evaluate the workabi	lity of fresh Concrete.			
3	Determine the streng	th characteristics of hardened c	concrete.		
4	Gain knowledge of N	Ion-destructive test on concrete	e.		
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Real-time Research Project/ Field-Based Project (B22CE19)	No. of Hours : L: 0 T: 0 P: 4	Credits: 2	
After the co	ompletion of this cour	rse, the students should be ab	ole to		
1		NA			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Gender Sensitization Laboratory (B22MC07)	No. of Hours : L: 0 T: 0 P: 2	Credits: 0	
After the co	mpletion of this cour	rse, the students should be ab	le to		
1		eveloped a better understanding		ated to gender in	
2	and legal aspects of g	itized to basic dimensions of the gender. This will be achieved the day life, literature and films.			
3		finer grasp of how gender disc ts will acquire insights into the mics.		-	
4	Students will develop a sense of appreciation of women in all walks of life. Men and women students and professionals will be better equipped to work and live in harmony.				
5	• • •	ccounts of studies and moveme to women, the textbook will en		-	



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## <u>Course Outcomes for B.Tech – ECE-R20 for the academic year</u> 2020-2021 onwards

Course	Semester		L: 3 T: 1 P: 0 C:		
	I Sem	(B20MA01) Linear Algebra & Calculus			
Outcome			4		
After the co	ompletion of this co	urse, the students should be able to			
1	-	ciples of matrix to calculate the characteristics of syst	tem of linear		
	equations using multiple methods.				
2	Determine Eigen values, Eigenvectors of matrices.				
3		f sequence and series to identify the convergence.			
4		ngle-variable functions graphically and computationa	llly.		
5		ivatives, extreme of functions of multiple variables.			
Course	Semester	(B20CS01) Programming for Problem	L: 4 T: 0 P: 0 C: 4		
Outcome	I Sem	Solving	L. 4 1. 01. 0 C. 4		
After the co	mpletion of this cours	e, the students should be able to			
1	Understanding how solutions.	problems are posed and how they can be analyzed fo	r obtaining		
2	Learning of sequenc scientific and engine	ing, branching, looping and decision making stateme eering problems.	nts to solve		
3	Implementing differ problems.	rent operations on arrays and creating and using of fu	nctions to solve		
4	Understanding and e	exploring the various methods of memory allocations	•		
5	Ability to design and methodology.	l implement different types of file structures using sta	andard		
Course	Semester	(P20DH01) Modown Dhusies			
Outcome	I Sem	(B20PH01) Modern Physics	L:3 T: 0 P: 0 C: 3		
After the co	mpletion of this cours	e, the students should be able to	·		
1		sic principles and hypothesis of quantum mechanics.			
2		ne concepts of wave optics for accurate determination	n of the		
		ilms, Newton's rings and the diffraction in single slit			
3	Describes the charac various fields.	teristics and working of lasers and their applications	in		
4	-	s on the basis of energy band gap, and evaluates the	carrier		
	0	en semiconductors for device applications.			
5	Apply the concepts of communication system	of the light propagation in optical fibres in optical ems.			
Course	Semester				
Outcome	I Sem	(B20CH02) Chemistry	L: 3 T: 0 P: 0 C: 3		
After the co	mpletion of this cours	e, the students should be able to gain			
1	_	ectrochemical cells, different batteries			
2	The required princip	les and concepts of corrosion, control methods.			
3	The knowledge of w				
4		olymers and their importance in day to day life.			
5	The required princip	les and concepts of passive devices.			



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Course	Semester				
Outcome	I Sem	(B20ME01) Engineering Drawing	L: 0 T: 0 P: 4 C: 2		
After the co	mpletion of this cours	e, the students should be able to			
1	Understand various commands, modify the applications and object properties in AUTOCAD.				
2	Analyse the Projections of Points and solids.				
3	Estimate the use of drawings, dimensioning, scales and conic sections.				
4	Compare the Conversion of Isometric views to Orthographic views.				
Course	Semester	(B20PH05) Physics Lab	L: 0 T: 0 P: 3 C:		
Outcome	I Sem		1.5		
After the con	mpletion of this cours	e, the students should be able to			
1		cy of tuning for and AC supply with the help of stro	etched strings.		
2	Analyze as well as compare the intensity distribution of interference and diffraction Patterns.				
3	Draw the characteristics of electrical and electronic circuits and evaluate the dependent Parameters.				
4	Explore and understand the applications of semiconducting devices.				
5	Evaluates the wavelength and radius of curvature of Plano convex lens by Newton's				
	rings.				
Course	Semester	(B20CS02) Programming for Problem	L: 0 T: 0 P: 3 C:		
Outcome	I Sem	Solving Lab	1.5		
After the con	mpletion of this cours	e, the students should be able to			
1	Understand basic str	ucture of the C Programming, data types, declaration	on and usage of		
		uctures and all related concepts.			
2		orithm and Write the C programming code in execut			
3	Implement Programs using functions, pointers and arrays, and use the pre-processors to solve real time problems.				
4	Ability to use file structures and implement programs on files.				
Course Outcome	Semester II Sem	(B20MA02) Differential Equations & Vector Calculus	L: 3 T: 1 P: 0 C: 4		
		urse, the students should be able to			
1	*	tal concepts of ordinary differential equations to rea	al time problems.		
2	Find the complete solution of a non homogeneous differential equations and applying its concepts in Engineering problems.				
3	Evaluate the multiple integrals in various coordinate systems.				
4	Apply the concepts of gradient, divergence and curl to formulate Engineering problems.				
5	Analyse line, surface and volume integrals using fundamental theorems.				
Course	Semester	(D20EC(01) Dania Electronic design			
Outcome	II Sem	(B20EC01) Basic Electronic devices L	: 3 T: 1 P: 0 C: 4		
After the co	mpletion of this cours	e, the students should be able to			
1	Analyze the characteristics of the PN junction diode and Zener diode.				
2	Design the rectifiers with and without filters for specified DC voltage.				
3	Illustrate the voltage-current characteristics of Junction Transistor and different				



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	configurations of Tr	anciston				
1	configurations of Tr					
4		the different biasing circuits and amplifier circuits.	ET and MORET			
5	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.					
Course	Semester II Sem	(B20EE03) Electrical Circuits	L: 3 T: 0 P: 0 C: 3			
Outcome						
	After the completion of this course, the students should be able to					
1	Learn basics of electrical circuits such as laws, transformation and network theorems and					
2	network reduction techniques. Generate voltage and current waveforms for 3 phase AC circuits and study the relationship					
2			y the relationship			
3		between Voltage and current in star and delta connections.				
4		Analyze two port networks with ABCD parameters. Analyze the steady state and transient operation of series and parallel RLC circuits.				
5						
		es for filters and attenuators and study their characteri	sucs.			
Course	Semester	(B20CS05) Basic Python programming	L: 3 T: 0 P: 0 C: 3			
Outcome	II Sem	(==				
After the completion of this course, the students should be able to						
1	Defining the fundamentals of writing Python scripts.					
2	Expressing the Core Python scripting elements such as variables and flow control structures.					
3	Apply Python functions to facilitate code reuse.					
4	Extending how to work with lists and sequence data.					
5	Adapting the code robust by handling errors and exceptions properly.					
Course	Semester		L: 0 T: 0 P: 3 C:			
Outcome	II Sem	(B20EN02) English Language and Interactive Communication Skills Lab	1.5			
		e, the students should be able to				
1.		ices of English language through audio-visual experie	nag and group			
	activities.					
2.		nd confidence which in turn enhances their employab	Speak with clarity and confidence which in turn enhances their employability skills.			
3.	Develop their listening skills so that they may appreciate its role in developing LSRW skills					
	-					
	language and improv	e their pronunciation.				
4.	language and improv					
4. Course	language and improv	e their pronunciation. In speaking activities in various contexts.				
	language and improv Involve the students i	e their pronunciation.	g LSRW skills			
Course Outcome	language and improv Involve the students i Semester II Sem	e their pronunciation. n speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co	language and improv Involve the students i Semester II Sem mpletion of this cours	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab ee, the students should be able to	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to rracteristics and operation of Semiconductor diodes.	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co 1 2	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to rracteristics and operation of Semiconductor diodes. ctifier circuits.	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co 1 2 3	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re- Demonstrate V-I cha	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab re, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT.	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co 1 2 3 4	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re Demonstrate V-I cha Design simple electr	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab re, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT.	ng LSRW skills L: 0 T: 0 P: 3 C: 1.5			
Course Outcome After the co 1 2 3	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re- Demonstrate V-I cha	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab re, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT.	ng LSRW skills L: 0 T: 0 P: 3 C:			
Course Outcome After the co 1 2 3 4 Course Outcome	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re- Demonstrate V-I cha Design simple electr Semester II Sem	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab re, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab	Ig LSRW skills L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C:			
Course Outcome After the co 1 2 3 4 Course Outcome After the co	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re Demonstrate V-I cha Design simple electr Semester II Sem mpletion of this cours	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to rracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab se, the students should be able to	Ig LSRW skills L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5			
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re- Demonstrate V-I cha Design simple electr Semester II Sem mpletion of this cours Expressing the Core	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab e, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab se, the students should be able to Python scripting elements such as variables and flow	Ig LSRW skills L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5			
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different red Demonstrate V-I cha Design simple electr Semester II Sem mpletion of this cours Expressing the Core Apply Python functi	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab re, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab re, the students should be able to Python scripting elements such as variables and flow ons to facilitate code reuse.	Ig LSRW skills L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5			
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	language and improv Involve the students i Semester II Sem mpletion of this cours Demonstrate the cha Analyze different re Demonstrate V-I cha Design simple electr Semester II Sem mpletion of this cours Expressing the Core Apply Python functi Extending how to w	e their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab e, the students should be able to aracteristics and operation of Semiconductor diodes. ctifier circuits. aracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab se, the students should be able to Python scripting elements such as variables and flow	Ig LSRW skills L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5			



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Course	Semester	(D20ME02) Engineering & UT Workshop	L: 0 T: 0 P: 3 C:			
Outcome	II Sem	(B20ME03) Engineering & IT Workshop	1.5			
After the con	mpletion of this cours	se, the students should be able to				
	Know the fundamental knowledge of House wiring and soldering and their usage in					
1	real time Applications.					
2	Gain knowledge on electronic components and measuring instruments.					
3	Use basic concepts of computer hardware for assembly and disassembly.					
4	Use Microsoft tools for exercise.					
Course	Semester	(B20MA09) Numerical Methods and	L: 3 T: 1 P: 0 C: 4			
Outcome	III Sem	Complex Variables				
After the co		urse, the students should be able to				
1	Find a better approximate root of a given equation using appropriate iterative method.					
2	Evaluate the integration to solve the differential equations using numerical techniques.					
3	Analyse the complex function with reference to their analyticity.					
4 5	Expand the complex functions by using Taylor's and Laurent's series. Evaluate the real integrals and transforms the functions from one plane to another plane.					
_	Semester	egrais and transforms the functions from one plane	L: 3 T: 0 P: 0 C:			
Course Outcome	III Sem	(B20EC03) Signals and Systems				
		urse the students should be able to	3			
Aller the Co	ompletion of this course, the students should be able toApply the knowledge of vectors, orthogonal basis to signals. Analyze the spectral					
1	characteristics of Continuous-time periodic signals using Fourier series.					
2	Demonstrate and apply Fourier transform on various signals.					
3	Apply the Laplace transform and Fourier transform for the analysis of continuous-time signals.					
4	Analyse systems based on their properties and determine the response of LTI system.					
5	Understand the concepts of convolution and correlation of signals.					
Course	Semester		L: 3 T: 0 P: 0 C:			
Outcome	III Sem	(B20EC04) Electronic Circuits Analysis	3			
After the co	ompletion of this co	urse, the students should be able to				
1	Construct and analyz	Construct and analyze the Low frequency model of transistor and evaluate the h-parameters.				
2	Analyze the single and multi stage amplifiers in high frequency region.					
3	Design and construct the negative feedback amplifiers and oscillators according to the required specifications.					
4	Determine the efficiencies of large signal amplifiers.					
5	Compare and contrast various tuned amplifiers.					
Course	Semester	(B20EC05) Switching Theory and Logic	L: 3 T: 0 P: 0 C:			
Outcome	III Sem	Design	3			
After the co	-	urse, the students should be able to				
1	Utilize and explain the functionality of logic gates (AND, NAND, OR, NOR, XOR, XNOR, NOT).					
2	Design different combinational circuits using minimization techniques.					
3	Explain various flip flops and design various registers.					
4	Analyze and design basic sequential circuits and counters.					
5	Analyze and minimize completely specified and incompletely specified sequential machines.					
Course Outcome	Semester III Sem	(B20EE10) Electrical Technology	L: 3 T: 0 P: 0 C: 3			



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After the co	ompletion of this co	urse, the students should be able to			
1	Study the basics of magnetic circuits and its analysis.				
2	-	iple of operation of DC machines and their applicat	ions.		
3	Analyze the construction, types, performance and its applications				
4	Understand the rotating magnetic field, operation and characteristics.				
5		tion of AC machines.			
Course	Semester	(B20EN01) English for Effective	L: 2 T: 0 P: 0 C:		
Outcome	III Sem	Communication			
		urse, the students should be able to	4		
1		gital text to summarize it for future reference.			
2		e notes according to their needs.			
3		e effectively in spoken and written forms.			
		ently in various contexts and different cultures.			
4		-			
5	speaking skills.	ency in English including reading and listening cor	nprehension, writing and		
Course Outcome	Semester III Sem	(B20EC06) Electronic Circuits Analysis Lab	L: 0 T: 0 P: 3 C: 1.5		
After the co	ompletion of this co	urse, the students should be able to			
1	Understand the con	cept of multistage amplifiers, analysis of multi	stage amplifier and plot		
2	frequency response.	I test emplifier singuits and interment the results			
2		I test amplifier circuits and interpret the results.	tanina tha habariana		
3	•	st equipment and hardware/software tools to charac	terize the benaviour		
4	-	ate single stage and multi stage amplifiers.			
Course					
Outcome	Semester III Sem	(B20EC07) Electronic Simulation EDA Tools Lab	L: 0 T: 0 P: 3 C: 1.5		
Outcome	III Sem ompletion of this co	<b>Tools Lab</b> urse, the students should be able to			
Outcome	III Sem ompletion of this co	Tools Lab			
Outcome	III Sem ompletion of this co Illustrate different ty	<b>Tools Lab</b> urse, the students should be able to	ng MATLAB.		
Outcome After the co 1	III Sem ompletion of this co Illustrate different ty	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi ortance of convolution and correlation for different	ng MATLAB.		
Outcome After the co 1 2	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi ortance of convolution and correlation for different	ng MATLAB. nt applications.		
Outcome After the co 1 2 3	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi ortance of convolution and correlation for differen- gital circuits.	ng MATLAB. nt applications.		
OutcomeAfter the co1234CourseOutcome	III Semompletion of this coIllustrate different tyDemonstrate the impSimulate various digDesign and developSemesterIII Sem	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia	ng MATLAB. nt applications. al circuits.		
OutcomeAfter the co1234CourseOutcome	III Semompletion of this coIllustrate different tyDemonstrate the impSimulate various digDesign and developSemesterIII Semompletion of this co	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1	ng MATLAB. nt applications. al circuits.		
OutcomeAfter the co1234CourseOutcomeAfter the co1	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament	Tools Laburse, the students should be able topes of signals and methods of generating them using the students of convolution and correlation for different situal circuits.gital circuits.functional analysis of combinational & sequentiat(B20EC08) Project Based Learning-1urse, the students should be able to	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1		
OutcomeAfter the co1234CourseOutcome	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha	Tools Laburse, the students should be able topes of signals and methods of generating them using ortance of convolution and correlation for different sital circuits.functional analysis of combinational & sequentiat(B20EC08) Project Based Learning-1urse, the students should be able toal and engineering concepts in projects.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1		
Outcome           After the construction           1           2           3           4           Course           Outcome           After the construction           1           2           3           4           Course           Outcome           After the construction           1           2           3	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful of	Tools Lab urse, the students should be able to pes of signals and methods of generating them using portance of convolution and correlation for different pital circuits. functional analysis of combinational & sequentian (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and creat connections across content of the course.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4	III Sem ompletion of this con Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this con Apply the fundament Develop the skills that Identify meaningful con Design and develop I	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi- ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and crea- connections across content of the course. earning concept models for societal perceptive.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ntivity.		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           5	III Sem mpletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem mpletion of this co Apply the fundament Develop the skills tha Identify meaningful co Design and develop 1 Develop team work a	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi- ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and crea- connections across content of the course. earning concept models for societal perceptive. mong multidisciplinary environment and engages I	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ativity. ifelong learning.		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4	III Sem ompletion of this con Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this con Apply the fundament Develop the skills that Identify meaningful con Design and develop I	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi- ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and crea- connections across content of the course. earning concept models for societal perceptive.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ntivity.		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           Course           0utcome           3           4           5           Course           Outcome	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful co Design and develop 1 Develop team work a Semester IV Sem	Tools Lab urse, the students should be able to pes of signals and methods of generating them usi- ortance of convolution and correlation for differen- gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and crea- connections across content of the course. earning concept models for societal perceptive. mong multidisciplinary environment and engages I	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ativity. ifelong learning.		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           Course           0utcome           3           4           5           Course           Outcome	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful of Design and develop 1 Develop team work a Semester IV Sem ompletion of this co	Tools Lab         urse, the students should be able to         pes of signals and methods of generating them using ortance of convolution and correlation for different sital circuits.         functional analysis of combinational & sequentia         (B20EC08) Project Based Learning-1         urse, the students should be able to         al and engineering concepts in projects.         at include critical thinking, communication and creation connections across content of the course.         earning concept models for societal perceptive.         mong multidisciplinary environment and engages I         (B20EC12) Pulse and Digital Circuits	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ntivity. ifelong learning. L: 3 T: 0 P: 0 C: 3		
Outcome           After the co           1           2           3           4           Course           Outcome           After the co           1           2           3           4           5           Course           Outcome	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful co Design and develop 1 Develop team work a Semester IV Sem ompletion of this co Design the circuits for like computers, contr	Tools Lab urse, the students should be able to pes of signals and methods of generating them using portance of convolution and correlation for different ital circuits. functional analysis of combinational & sequentiat (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and creat connections across content of the course. earning concept models for societal perceptive. mong multidisciplinary environment and engages I (B20EC12) Pulse and Digital Circuits urse, the students should be able to or generating desired wave shapes (non-sinusoidal) ol systems and counting and timing systems.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ntivity. ifelong learning. L: 3 T: 0 P: 0 C: 3 for different applications		
Outcome         After the co         1         2         3         4         Course         Outcome         After the co         1         2         3         4         5         Course         Outcome         After the co         0         1         2         3         4         5         Course         Outcome         After the co	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful co Design and develop 1 Develop team work a Semester IV Sem ompletion of this co Design the circuits for like computers, contr Analyze the applicati	Tools Lab urse, the students should be able to pes of signals and methods of generating them using portance of convolution and correlation for different pital circuits. functional analysis of combinational & sequential (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and creation connections across content of the course. earning concept models for societal perceptive. mong multidisciplinary environment and engages I (B20EC12) Pulse and Digital Circuits urse, the students should be able to r generating desired wave shapes (non-sinusoidal) ol systems and counting and timing systems. ons of diode as Integrator, differentiator, clippers a	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ntivity. ifelong learning. L: 3 T: 0 P: 0 C: 3 for different applications nd clamper circuits.		
Outcome         After the common state         1         2         3         4         Course         Outcome         After the common state         1         2         3         4         5         Course         Outcome         After the common state         1         2         3         4         5         Course         Outcome         After the common state         1         1         1         1	III Sem ompletion of this co Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester III Sem ompletion of this co Apply the fundament Develop the skills tha Identify meaningful of Design and develop 1 Develop team work a Semester IV Sem ompletion of this co Design the circuits for like computers, contr Analyze the applicati Analyze the switchin	Tools Lab urse, the students should be able to pes of signals and methods of generating them using portance of convolution and correlation for different ital circuits. functional analysis of combinational & sequentiat (B20EC08) Project Based Learning-1 urse, the students should be able to al and engineering concepts in projects. at include critical thinking, communication and creat connections across content of the course. earning concept models for societal perceptive. mong multidisciplinary environment and engages I (B20EC12) Pulse and Digital Circuits urse, the students should be able to or generating desired wave shapes (non-sinusoidal) ol systems and counting and timing systems.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1 ativity. ifelong learning. L: 3 T: 0 P: 0 C: 3 for different applications nd clamper circuits. sistor.		



Autonomous

5	Design the time base	generators and sampling gates with the knowledge	of basic principles.	
Course	Semester	(B20EC13) Analog and Digital		
Outcome	IV Sem	Communications	L: 3 T: 0 P: 0 C: 3	
		urse, the students should be able to		
1		e the concepts of AM and AM Demodulation in cor	nmunication.	
2		s angle modulation and demodulation systems.		
3		erstanding of various baseband transmission techni	ques.	
4		erstanding of various digital modulation and democ	-	
5		or detection and error correction codes like block	<u>^</u>	
Course	Semester	(B20EC14) Electromagnetic Theory and		
Outcome	IV Sem	Transmission Lines.	L: 3 T: 0 P: 0 C: 3	
After the co	ompletion of this co	urse, the students should be able to		
1	Apply vector calcult Law, Coulomb's law distributions.	us to electrostatic fields in different engineering ways to find fields and potentials for a variety of situ	ations including charge	
2	situations.	can apply the concept of Magnetostatics in diffe		
3		he concept of conductors, dielectrics & capacitant ninologies and; be able to compute the Pointing vec		
4	Study time varying	Maxwell's equations and their applications is ele	ctromagnetic problems.	
5	Describes the transmission lines with equivalent circuit and explain their characteristics & use its knowledge in different engineering situations.			
5	use its knowledge in	different engineering situations.		
Course	use its knowledge in Semester	a different engineering situations. (B20EC15) Probability Theory and	I • 3 T• 0 P• 0 C• 3	
			L: 3 T: 0 P: 0 C: 3	
Course Outcome	Semester IV Sem ompletion of this co	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to		
Course Outcome	Semester IV Sem ompletion of this co Understand the basic	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process	es.	
Course Outcome After the co 1 2	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension	es.	
Course Outcome After the co 1 2 3	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process	es.	
Course Outcome After the co 1 2 3 4	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro-	es. onal random variables.	
Course Outcome After the co 1 2 3	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes.	es. onal random variables.	
Course Outcome After the co 1 2 3 4	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro-	es. onal random variables.	
Course Outcome After the co 1 2 3 4 5 Course Outcome	Semester IV Sem Ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this co	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to	es. onal random variables. operties.	
Course Outcome After the co 1 2 3 4 5 Course Outcome	Semester IV Sem Ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this co	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization	es. onal random variables. operties.	
Course Outcome After the co 1 2 3 4 5 Course Outcome After the co	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to	bes. onal random variables. operties. L: 3 T: 0 P: 0 C: 3	
Course Outcome After the co 1 2 3 4 5 Course Outcome After the co 1	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system.	bes. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons.	
Course Outcome After the co 1 2 3 4 5 Course Outcome After the co 1 2	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operati	bes. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons.	
Course           Outcome           After the co           1           2           3           4           5           Course           Outcome           After the co           1           2           3           4           5           Course           Outcome           After the co           1           2           3	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce Explain the I/O and r	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operation pro- of Hardwired control and micro programmed control and programmed control programmed control and programmed control and programmed control and programmed control and programmed control programmed control programmed control programmed control programmed c	es. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol.	
Course         Outcome         After the co         1         2         3         4         5         Course         Outcome         After the co         1         2         3         4         5         Outcome         After the co         1         2         3         4         5         Course	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce Explain the I/O and r Understand the conce Semester	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operation epts of Hardwired control and micro programmed contents in depth.	es. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol.	
Course           Outcome           After the construction           1           2           3           4           5           Course           Outcome           After the construction           1           2           3           4           5           Course           3           4           5           Course           0utcome           4           5           Course           Outcome	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce Explain the I/O and r Understand the conce Explain the I/O and r Understand the conce	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operati- epts of Hardwired control and micro programmed co- nemory organization in depth. epts of parallel processing, pipelining and inter pro- (B20EC17) Pulse and Digital Circuits Lab	ees. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol.	
Course           Outcome           After the construction           1           2           3           4           5           Course           Outcome           After the construction           1           2           3           4           5           Course           3           4           5           Course           0utcome           4           5           Course           Outcome	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce Explain the I/O and r Understand the conce Explain the I/O and r Understand the conce Semester IV Sem	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operati- epts of parallel processing, pipelining and inter pro- (B20EC17) Pulse and Digital Circuits Lab urse, the students should be able to	ees. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol. cessor communication. L: 0 T: 0 P: 3 C: 1.5	
Course         Outcome         After the co         1         2         3         4         5         Course         Outcome         After the co         1         2         3         4         5         Course         Outcome         After the co         0         4         5         Course         Outcome         After the co         1         2         3         4         5         Course         Outcome         After the co         1	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Understand the conce Explain the I/O and r Understand the conce Explain the I/O and r Understand the conce Semester IV Sem ompletion of this co Understand the conce Semester IV Sem	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operati- epts of parallel processing, pipelining and inter pro- (B20EC17) Pulse and Digital Circuits Lab urse, the students should be able to cations of diode as integrator, differentiator, clipper	ees. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol. cessor communication. L: 0 T: 0 P: 3 C: 1.5	
Course           Outcome           After the construction           1           2           3           4           5           Course           Outcome           After the construction           1           2           3           4           5           Course           3           4           5           Course           0utcome           4           5           Course           Outcome	Semester IV Sem ompletion of this co Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem ompletion of this co Describe the fundame Understand the conce Explain the I/O and r Understand the conce Explain the I/O and r Understand the conce Semester IV Sem ompletion of this co Understand the conce Semester IV Sem	(B20EC15) Probability Theory and Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimension at the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. epts of register transfer logic and arithmetic operati- epts of parallel processing, pipelining and inter pro- (B20EC17) Pulse and Digital Circuits Lab urse, the students should be able to	ess. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons. ontrol. cessor communication. L: 0 T: 0 P: 3 C: 1.5 rs and clamper circuits.	



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4	Design and analyze U	JJT relaxation oscillator and boot-strap sweep circu	uits		
	Semester	(B20EC18) Analog and Digital			
Course Outcome	IV Sem	Communications lab	L: 0 T: 0 P: 3 C: 1.5		
After the co		urse, the students should be able to			
1		rent types of modulation techniques.			
2	Understanding the multiplexing and coding schemes.				
3	Assess different digital modulation and demodulation techniques.				
4		lation schemes and coding for various applications	•		
Course	Semester IV Sem	(B20EC19) Hardware Design Lab	L: 0 T: 0 P: 2 C: 1		
Outcome		unce the students should be able to			
		urse, the students should be able to jects on PCB up to industrial grade.			
1	· · · ·	gn concepts of various Analog circuits and their app	nlications		
23		he different Digital logic circuits.			
<u> </u>		ino Uno board and to interface various real time ap	plication circuits		
4 Course	Semester	*			
Outcome	IV Sem	(B20EC20) Project Based Learning-2	L:0 T:0 P:2 C:1		
-		urse, the students should be able to			
1		al and engineering concepts in projects.			
2		at include critical thinking, communication and cre	ativity.		
3	—	connections across content of the course.	y		
4	• •	earning concept models for societal perceptive.			
5		among multidisciplinary environment and engages	lifelong learning.		
Course	Semester	(B20EC23) Linear & Digital IC			
Outcome	V Sem	Applications	L: 3 T: 0 P: 0 C: 3		
After the co	ompletion of this co	urse, the students should be able to	1		
1		tional amplifiers with linear integrated circuits.			
2	Classify various activ Op-Amp.	ve filter configurations based on frequency response	se and construct using 741		
3		the concepts of timer using IC 555, basic principle	of PLL.		
4	Understand various A	ADC and DAC techniques			
5	Design Combination	al and Sequential circuits using ICs.			
Course Outcome	Semester V Sem	(B20EC24) Digital Signal Processing	L: 3 T: 0 P: 0 C: 3		
After the co	ompletion of this co	urse, the students should be able to			
1	Identify the different	types of the discrete signals and systems.			
2		FFT and interrelation between DFT and various tr			
3	Understand the chara techniques.	cteristics of FIR filters and classify the different ty	pes of windowing		
4	Design a I IR digital	filters for a given specifications and Apply the kno	wledge to real world		
5	Understand different	types of signal processing architectures.			
Course	Semester	(B20EC25) Control Systems	L: 3 T: 0 P: 0 C: 3		
Outcome	V Sem				
		urse, the students should be able to			
1	Understand the conce	ept of feedback and analyze the control system com	ponents by their		



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Mathematical modeling.         2       Estimate the time domain specifications and steady state error.         3       Apply various time domain techniques to assess the system performance.         4       Formulate different types of analysis in frequency domain to explain the nature of stabilit         5       Test system Controllability and Observability using state space representation and applicate state space representation to various systems.         Course       Semester       (B20EC26) Electronic Measurements and Instrumentation (Professional Elective – I)         After the completion of this course, the students should be able to       L: 3 T: 0 P:					
3Apply various time domain techniques to assess the system performance.4Formulate different types of analysis in frequency domain to explain the nature of stabilit5Test system Controllability and Observability using state space representation and applica5SemesterCourseSemesterOutcomeV SemInstrumentation (Professional Elective – I)					
4       Formulate different types of analysis in frequency domain to explain the nature of stabilit         5       Test system Controllability and Observability using state space representation and applicate state space representation to various systems.         Course       Semester       (B20EC26) Electronic Measurements and Instrumentation (Professional Elective – I)         L: 3 T: 0 P:					
5Test system Controllability and Observability using state space representation and applicate space representation to various systems.Course OutcomeSemester V Sem(B20EC26) Electronic Measurements and Instrumentation (Professional Elective – I)L: 3 T: 0 P:	Formulate different types of analysis in frequency domain to explain the nature of stability of the				
S       state space representation to various systems.         Course       Semester       (B20EC26) Electronic Measurements and Instrumentation (Professional Elective – I)       L: 3 T: 0 P:	•				
OutcomeV SemInstrumentation (Professional Elective – I)L: 3 T: 0 P:	state space representation to various systems.				
OutcomeV SemInstrumentation (Professional Elective – I)	0 C · 3				
After the completion of this course, the students should be able to	00.5				
1 Describe the fundamental concepts, different terminology related to measurement	s and				
principles of instrumentation.					
2 Explain the operations of the various instruments required in measurements.					
3 Apply the measurement techniques for different types of tests.					
4 Select specific instrument for various parameters measurement.					
5 Apply knowledge of different oscilloscopes like CRO, DSO and display devices.					
Course Semester (B20EC27) Computer Networks					
OutcomeV Sem(Professional Elective – I)L: 3 T: 0 P:	0 C: 3				
(I Tolessional Elective – I)					
After the completion of this course, the students should be able to					
1 Will be in a position to understand World Wide internet concepts.					
2 Should be able to demonstrate and explore the basics of Computer Networks and various					
protocols.					
3 Will be in position to administrate a network and flow of information.					
4 Able to contrast different internetworking protocols.					
5 Able to demonstrate different Internet Transport Protocols.					
CourseSemester(B20EC28) Basic JAVA ProgrammingL: 3 T: 0 P:	0 C · 3				
OutcomeV Sem(Professional Elective – I)L. 5 I. 6 I.	00.0				
After the completion of this course, the students should be able to					
1 Understand the use of OOP concepts and solve real world problems using OOP					
techniques.					
2 Solve the inter-disciplinary applications using the concept of inheritance.					
3 Understand the multithreading concepts and develop efficient applications.					
4 Design GUI based applications and develops applets for web applications.					
5 Develop program using JDBC connectivity to access data from database and exec	ute				
different queries to					
Course Semester (D20) (D21) Management Economics 8 L 2 T 0 D					
CourseSemester(B20MB01) Managerial Economics &L: 3 T: 0 P:OutcomeV SemEEE	0 C: 3				
Financial Analysis					
After the completion of this course, the students should be able to					
1 Understand the nature, scope and importance of Managerial Economics.					
2 Know what is demand, analyze demand and how elasticity of demand is used for	pricing				
<sup>2</sup> decisions and to evaluate methods for forecasting demand.					
3 Know how production function is carried out to achieve least cost combination of Inputs	and how				
to analyze cost.					
4 Understand the characteristics of different kinds of markets and outline different form of					
<ul> <li>4 Understand the characteristics of different kinds of markets and outline different form of</li> <li>5 Organization and analyze how capital budgeting techniques are used for investment decis</li> </ul>					



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Course Outcome	Semester V Sem	(B20EC29) Linear & Digital IC Applications Lab	L: 0 T: 0 P: 2 C: 1
After the co	ompletion of this co	urse, the students should be able to	
1		operational amplifiers for various applications.	
2	Understand the differ	ent logical gates & decoders, flip-flops.	
3		of OP-AMPS to design various analog circuits.	
4	Compare linear and d	ligital integrated IC's.	
Course Outcome	Semester V Sem	(B20EC30) Digital Signal Processing Lab	L: 0 T: 0 P: 3 C: 1.5
After the co		urse, the students should be able to	
1		g the discrete Fourier transform (DFT).	
2	Understand Convolut		
3		rithm for efficient computation of DFT.	
4	Design IIR & FIR filt		
Course	Semester	(B20EN03) Advanced English	L: 0 T: 0 P: 3 C: 1.5
Outcome	V Sem	Communication skills lab	
After the co		urse, the students should be able to	
1	· · · · ·	discussion to present their viewpoints briefly	
2	Inculcate flair for w / reports.	riting and felicity in written expression in Rés	umé / Curriculum Vitae
3	•	tly with appropriate body language in intervie	WS.
4	*	building skills and capabilities for effective de	
Course	Semester	(B20EC31) Project Based Learning-3	L: 0 T: 0 P: 2 C: 1
Outcome	V Sem		
Atter the co		urse, the students should be able to	
1		al and engineering concepts in projects.	
2		at include critical thinking, communication and created	allvily.
3		connections across content of the course.	
4 5	-	earning concept models for societal perceptive.	:falana laamina
	<u>^</u>	mong multidisciplinary environment and engages	linelong learning.
Course	Semester	(B20EC32) Microprocessors &	L: 3 T: 0 P: 0 C: 3
Outcome	VI Sem	Microcontrollers	
After the co		urse, the students should be able to	
1	Illustrate the	internal organization of	2000000  millor $2026/2051$
		6	popular 8086/8051
	microprocessors/mi	crocontrollers.	20pulai 8080/8031
	microprocessors/mi Contrast hardware a	crocontrollers. and software interaction and integration.	
2	microprocessors/mi Contrast hardware a Design microproces	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and	
	microprocessors/mi Contrast hardware a Design microproces based systems for re	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications.	
3	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming.	
3 4	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco Explain the Memory	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming. organization classification and their applications.	develop microcontroller
3 4 5	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco Explain the Memory Assess programming	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming.	develop microcontroller
3 4	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco Explain the Memory	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming. organization classification and their applications.	develop microcontroller
3 4 5 Course Outcome	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco Explain the Memory Assess programming Semester VI Sem	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming. organization classification and their applications. interfacing etc of various devices with microproce (B20EC33) VLSI Design	develop microcontroller ssors and external world.
3 4 5 Course Outcome	microprocessors/mi Contrast hardware a Design microproces based systems for re Understand microco Explain the Memory Assess programming Semester VI Sem mpletion of this cours	crocontrollers. and software interaction and integration. ssors and microcontrollers based systems and eal time applications. ontroller 8051 and its programming. organization classification and their applications. interfacing etc of various devices with microproce	develop microcontroller ssors and external world.



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	Design the layout o	f circuits using various design rules. Develop a	nd design the gate level		
3	Design the layout of circuits using various design rules. Develop and design the gate level circuits				
4	Gain the knowledge to design data path subsystems like Adders, Shifters, and ALUs etc.				
5	Illustrate different programmable logic devices and CMOS testing.				
Course Outcome	Semester VI Sem	(B20EC34) Antennas & Wave Propagation	L: 3 T: 0 P: 0 C: 3		
After the c	ompletion of this co	urse, the students should be able to			
1		s like antenna efficiency, beam efficiency, radiation	resistance etc. in the		
2	antenna pattern meas	vs, illustrate antenna measurements and arrange a sourcements in the laboratory.	- ·		
3	independent and Ape				
4	estimate the parameter				
5	3	of Ionosphere for the wave propagation and Solve usable frequency and Skip distance.	problems on Critical		
Course Outcome	Semester VI Sem	(B20EC35) Design of Fault Tolerant Systems (Professional Elective – II)	L: 3 T: 0 P: 0 C:3		
After the c	ompletion of this co	urse, the students should be able to			
1	Understand various c	oncepts of Fault modeling, fault diagnosis, and test	Pattern Generation.		
2	Design fault tolerant	systems based on modular redundancy techniques.			
3	Gain knowledge of B	asic concepts of self checking circuits and able to c	lesign fault safe circuits.		
4	Understand the conce BIST technique.	pts of Design for Testability with various testabilit	y measures including		
5	Study the various Sta	ndard IEEE Test Access Methods required for testi	ng the digital circuits.		
Course Outcome	Semester VI Sem	(B20EC36) Fiber Optical Communications (Professional Elective – II)	L: 3 T: 0 P: 0 C: 3		
After the c	ompletion of this co	urse, the students should be able to			
1		ze the constructional parameters of opticalfibres.			
2	Design an optical sys	tem.			
3	<b>v v v</b>	ue to attenuation, absorption, scattering and bending	g.		
4		cal detectors and choose suitable one for different			
5	- -	of optical system design.	11		
Course Outcome	Semester VI Sem	(B20EC37) Digital Image Processing (Professional Elective – II)	L: 3 T: 0 P: 0 C: 3		
After the c	ompletion of this cou	urse, the students should be able to			
1		of digital image fundamentals and image transform	s.		
2	<u> </u>	hancement in spatial and frequency domain.			
3	-	ent methods to restore an image.			
4		entation techniques and morphological image proce	essing techniques.		
•					



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5	Analyze the different	image compression techniques.		
Course	Semester	(B20EC38) Radar Systems (Professional		
Outcome	VI Sem	<b>Elective – III</b> )	L: 3 T: 0 P: 0 C: 3	
After the co	ompletion of this co	urse, the students should be able to		
1	Illustrate the important	nce of radar fundamentals and analysis of the radar	equation.	
2	Understand the work	ing principle of CW and FM-CW radar and its appl	lications.	
3	Understand the work	ing principle of MTI and pulse Doppler radar.		
4	Understand the differ	ent radar tracking methods.		
5	Understand the radar receivers and also extraction of radar signal from noisy signal.			
Course	Semester			
Course Outcome	VI Sem	(B20EC39) Speech Processing	L: 3 T: 0 P: 0 C: 3	
Outcome	VI Sem	(Professional Elective – III)		
After the co	ompletion of this co	urse, the students should be able to		
1	Learn the fundamenta	als of digital speech processing.		
2		erent time domain models of speech processing.		
3		epts of linear predictive coding for speech processir	ıg.	
4	, in the second s	techniques of speech processing		
5	Make use of different	t speech and speaker recognition techniques and Hi	dden Markov.	
Course	Semester			
Course		(B20EC40) Machine learning	L: 3 T: 0 P: 0 C: 3	
Outcome	VI Sem	(Professional Elective – III)		
After the co	ompletion of this co	urse, the students should be able to		
1		lication on Machine Learning problems.		
2	Describe various algo	orithms on Machine Learning mentioning its streng	ths and weaknesses.	
3	Illustrate the basic the	eory focused on Machine Learning models and Lea	rning Techniques.	
4	Improve the performa	ance of Machine Learning algorithms with differen	t parameters.	
5	Analyze Probabilistic	models and features of Machine Learning.		
Course	Semester		L. 0.T. 0.D.2 C.1	
Outcome	VI Sem	(B20EC41) VLSI & e-CAD Lab	L: 0 T: 0 P:2 C:1	
After the co	ompletion of this co	urse, the students should be able to		
		on High end Simulation tools like Mentor Graphics,	, Tanner EDA etc.	
2	Design digital circuit	s at different levels using programming concepts.		
3	Implement any type of	of digital systems.		
4	Program any availabl	e FPGA and CPLD using implementation tool.		
Course	Semester			
Course Outcome	VI Sem	(B20EC42) Microprocessors &	L: 0 T: 0 P:2 C:1	
Outcome	vi Sem	Microcontrollers Lab		
After the co		urse, the students should be able to		
1	_	nentally basic programming of Microprocessor.		
2	•	essor interfacing with various peripherals for variou	us applications.	
3	Apply the basic progr	ramming of microcontroller.		
4	Examine microproces	ssor interfacing with various peripherals for various	s applications.	
Course Outcome	Semester VI Sem	(B20EC43) Project Based Learning-4	L: 0 T: 0 P: 2 C:1	
	1.4. 6.1.	urse, the students should be able to		



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1	Apply the fundament	al and engineering concepts in projects.			
2	Develop the skills that include critical thinking, communication and creativity.				
3		connections across content of the course.			
4	Design and develop learning concept models for societal perceptive.				
5	<b>v</b>	mong multidisciplinary environment and engages	lifelong learning		
	<u>^</u>	(B20MC05) Logical Reasoning and	incloing learning.		
Course Outcome	Semester VI Sem		L: 2 T: 0 P: 0 C: 0		
		Quantitative Aptitude			
After the co		urse, the students should be able to	a to understand and colum		
1	Apply quantitative reasoning and mathematical analysis methodologies to understand and solve problems.				
2		correctly arrive at meaningful conclusions rega and formulas in order to solve for the desired varia			
3	Interpret given infordata, and apply the m	mation correctly, determine which mathematical odel correctly.	model best describes the		
4	Correctly apply math	nematical language and notation to explain the r	easoning underlying their		
4		ving problems using mathematical or statistical tec			
5	Improve their mather	natical skills in various general aspects to solve rea	l time problems.		
Course Outcome	Semester VII Sem	(B20EC44) Microwave Engineering	L: 3 T: 0 P: 0 C: 3		
After the co	ompletion of this co	urse, the students should be able to			
1		icance of microwaves and microwave transmission	ı lines.		
2	· · ·	wave guide components and applications			
3	-	ristics of various microwave tubes.			
4		pes of microwave solid state devices.			
5		icrowave Measurement.			
Course	Semester	nerowave measurement.			
Outcome	VII Sem	(B20EC45) Embedded Systems	L: 3 T: 0 P: 0 C: 3		
		urse, the students should be able to			
1	Understand and desig				
2		ecture of Arm processors.			
3		ng IO devices and interfacing to external world.			
4	Understand types of 1				
5	• •	d firmware design approaches.			
5					
Course Outcome	Semester VII Sem	(B20EC46) Wireless and Mobile Communication (Professional Elective – IV)	L: 3 T: 0 P: 0 C: 3		
After the e	mulation of this as				
After the co		urse, the students should be able to ents due to multi path fading channel.			
1		e of the fundamental techniques to overcome the d	ifferent feding offects		
2			interent facing effects.		
3	<u> </u>	annel and Non co-channel interference.	pilo antonnas		
<u>4</u> 5	Relate and explain th	for signal and traffic, diversity techniques and mole ne functioning of frequency management, Channe			
	handoff.				
Course	Semester		L: 3 T: 0 P: 0 C: 3		



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Outcome	VII Sem	(B20EC47) CMOS Circuit Design			
Outcome	VII Selli	(Professional Elective – IV)			
After the co	ompletion of this co	urse, the students should be able to			
1		mentals of VLSI design flow & interchange format	s of VLSI design tools		
2		nding to analyze circuit characterization & its performance			
	-	nding to analyze the combinational circuit design u			
3	families In VLSI.	nding to analyze the comomational circuit design u	sing various circuit		
4	Apply the knowledge of sequential circuit design in VLSI for various design applications.				
5	Analyze low power design strategies suitable for various design applications in VLSI.				
G					
Course	Semester	(B20EC48) Artificial Intelligence	L: 3 T: 0 P: 0 C: 3		
Outcome	VII Sem	(Professional Elective – IV)			
After the co	ompletion of this co	urse, the students should be able to			
		AI concepts like the AI technique, level of r	nodels, there underlying		
1	assumptions etc		<i>j</i> 6		
2	Understand the conce	epts of AI search techniques			
3	Apply knowledge Re	presentation techniques			
4		ictures of representation			
5	Ţ	chniques, Create Expert systems			
a					
Course	Semester	(B20EC49) Sensor Networks	L: 3 T: 0 P: 0 C: 3		
Outcome	VII Sem	(Professional Elective – V)			
After the co	ompletion of this co	urse, the students should be able to			
1	Understand the overv	iew of sensor &networks.			
2	Explore the various a	rchitectures of sensors & network			
3	Understand the various	us protocols in sensor networks.			
4		cture and establishment of sensor networks.			
5	-	or network platforms and tools.			
5					
Course	Semester	(B20EC50) Satellite Communication			
	VII Sem	(Professional Elective – V)	L: 3 T: 0 P: 0 C: 3		
Outcome	VII Selli	(I Tolessional Elective – V)			
After the co	annelation of this oor				
	ombielion of this col	urse, the students should be able to			
		urse, the students should be able to prical background, basic concepts and frequency	allocations for satellite		
1		brical background, basic concepts and frequency	allocations for satellite		
1	Understand the histo communication	,			
	Understand the histo communication	prical background, basic concepts and frequency			
1	Understand the histo communication Understand the satell system.etc.	prical background, basic concepts and frequency			
1 2	Understand the histo communication Understand the satell system.etc. Understand various S	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma	nd and monitoring power		
1 2 3	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques	nd and monitoring power		
1 2 3 4 5	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth Understand the applie	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques station technology and terrestrial interface network	nd and monitoring power		
1 2 3 4 5 <b>Course</b>	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth Understand the applic Semester	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques station technology and terrestrial interface network	nd and monitoring power		
1 2 3 4 5	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth Understand the applie	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques station technology and terrestrial interface network cations of Satellites and GPS system. (B20EC51) Robotics and Automation	nd and monitoring power s.		
1 2 3 4 5 <b>Course</b> Outcome	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth Understand the applic Semester VII Sem	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques station technology and terrestrial interface network cations of Satellites and GPS system. (B20EC51) Robotics and Automation (Professional Elective – V)	nd and monitoring power s. L: 3 T: 0 P: 0 C: 3		
1 2 3 4 5 <b>Course</b>	Understand the histo communication Understand the satell system.etc. Understand various S Understand the earth Understand the applic Semester VII Sem Understand the basic	brical background, basic concepts and frequency lite sub systems like Telemetry, tracking, comma atellite Multiple Access techniques station technology and terrestrial interface network cations of Satellites and GPS system. (B20EC51) Robotics and Automation	nd and monitoring power s. L: 3 T: 0 P: 0 C: 3 l automation.		



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	Use manipulators Ac	tuators and Grippers and their design consideration	ns in robotics and
3	automation.	tuators and outpets and then design consideration	lis in robotics and
4		concepts of AVR microcontrollers.	
		mming and interfacing concepts of AVR microcor	ntroller in robotic
5	designing.		
Course Outcome	Semester VII Sem	(B20EC52) MICROWAVE ENGINEERING LAB	L: 0 T: 0 P:2 C: 1
1	Demonstrate a micro	wave bench for measuring microwave parameters.	
2	Measure parameters 1	ike attenuation, VSWR, etc.,	
3	Gain knowledge abou applications	at Various components used for Microwave comm	unication and their
4	Analyze the character	ristics of all microwaves engineering component	
Course Outcome	Semester VII Sem	(B20EC53) EMBEDDED SYSTEMS LAB	L: 0 T: 0 P: 2 C: 1
1		ming concepts of 8bit, 16bit, and 32 bit micro cont	
2		principle and programming concepts of ARM proc	essor
3		nemory, interacting to external world and	
4	Analyze the different time applications.	I/O devices and their interfacing concepts, under	rstand the concepts of real
Course Outcome	Semester VII Sem	(B20EC54) MINI PROJECT AND INTERNSHIP	L: 0 T: 0 P: 0 C: 2
1	Demonstrate a sound	technical knowledge of their selected project topic	2.
2		ze an appropriate list of literature review, analyze	
3		tlining the approach and expected results using go	od oral and written
4		eative thinking in the design of engineering project nunication engineering domain but if possible to ot	
5	Design and develop a	functional product prototype while working in a t	eam
6	Communicate with en	ngineers and the community at large in written and	oral forms.
7	Consider the business	s context and commercial positioning of designed of	levices or systems
Course	Semester		L: 0 T: 0 P: 8 C: 4
Outcome	VII Sem	(B20EC55) PROJECT PHASE – I	
1		technical knowledge of their selected project topic	
2	Identify and summari work and relate them	ze an appropriate list of literature review, analyze to current project.	previous researchers'
3		vork plan and procedures.	
4	presentation skills.	tlining the approach and expected results using go	od oral and written
5		lentification, formulation and solution.	
		ative thinking in the design of engineering project	



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	domains as well.			
7	Design and develop	a functional product prototype while working in a	team	
8	Demonstrate the knowledge, skills and attitudes of a professional engineer when working in a team or working as a team leader.			
9	Communicate with e	engineers and the community at large in written and	l oral forms.	
10	Consider the business context and commercial positioning of designed devices or systems			
Course Outcome	Semester VIII Sem	(B20EC56) Digital Signal Processor & Architecture (Professional Elective – VI)	L: 3 T: 0 P: 0 C: 3	
After the c	ompletion of this co	burse, the students should be able to		
1		T, FFT, DSP system and Explain the DSP compute	ational building blocks and	
1	addressing capabilities.			
2		the architectural features of General purpose proce	essors and DSP processors.	
3	Discuss and underst	and the TMS320C54xx Processor.		
4	Understand the Ana	log devices family of DSP devices.		
5	Analyze the interfac	e of various devices to DSP Processors.		
Course Outcome	Semester VIII Sem	(B20EC57) FPGA Architecture & Applications (Professional Elective – VI)	L: 3 T: 0 P: 0 C: 3	
After the co	ompletion of this co	ourse, the students should be able to		
1	Understand PLDs &	its use depending on application or design		
2	Understand FPGAs	& its use depending on application		
3		tanding to analyzes RAM programmable Xilinx & ectures for applications	z Anti-Fuse Programmable	
4	Develop the underst	anding to analyze PROM programmable Altera FP	GAs& other commercially	
5	Apply the knowledg	e of FPGAs for various design applications		
Course Outcome	Semester VIII Sem	(B20EC58) Internet of Things (Professional Elective – VI)	L: 3 T: 0 P: 0 C: 3	
After the co	ompletion of this co	ourse, the students should be able to		
1	Interpret the visior	of IOT from a global context.		
2	Perceive building	plocks of Internet of Things and its characterist	ics	
3	Learn the basic con	ncepts of Python		
4	Implement the pyt	hon programming using Raspberry.		
5		eb applications and cloud servers for IOT.		
Course	Semester		I. O.T. O.D. 2 C. 1	
Outcome	VIII Sem	(B20EC59) TECHNICAL SEMINAR	L: 0 T: 0 P: 2 C: 1	
After the co	ompletion of this co	ourse, the students should be able to		
1	Write technical do	cuments and give oral presentations related to t	he work completed.	
2		bility to collaborate with others as they work speaking, researching).	c on intellectual projects	
3		f self-efficacy, personal goals, and motivation	in improving academic	
4		viors and characteristics of an effective learner		
5		f fast and rapidly changing by self learning		
6		ersonal skills, soft skills and creativity.		
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Course	Semester				
Outcome	VIII Sem	(B20EC60) PROJECT PHASE - II	L: 0 ]	Γ: 0 <b>P</b> : 16 <b>C</b> : 8	
		ourse, the students should be able to			
1		nd technical knowledge of their selected	l project	topic.	
-		arize an appropriate list of literature rev	1 0	1	
2		and relate them to current project.	,	J 1	
3	Formulate clearly	a work plan and procedures.			
4	Present the project	outlining the approach and expected res	sults usin	g good oral and	
	written presentation skills.				
5		n identification, formulation and solution			
6		creative thinking in the design of engine communication engineering domain but omains as well.			ited
7	Design and develo	p a functional product prototype while v	vorking i	n a team	
8	Demonstrate the k	nowledge, skills and attitudes of a profes			king
0	in a team or working	ng as a team leader.			
9	Communicate with	n engineers and the community at large i	n writter	and oral forms.	
10	Consider the busin	ess context and commercial positioning	of desig	ned devices or syst	tems
Course Outcome	Semester VII or VIII Sem	(B20CE55) Disaster Preparedness Planning Management (Open Elect		L: 3 T: 0 P: 0 C	:3
1	Attain knowledge or	n various types, stages, phases in disaster ma	anagemer	nt	
2		ypes of natural disaster, Mitigation and Man	agement	Systems	
3		ypes of manmade disasters and its effects			
4		sing technology and GIS in disaster mitigati			
5	Know the concepts of	of risk, warning and forecasting methods in	disaster n	nanagement	
Course Outcome	Semester VII or VIII Sem	(B20CE56) Environmental Manager (Open Elective)	ment	L: 3 T: 0 P: 0 C	:3
1		ed for Environmental Management			
2		es of Environment Management system and	standards		
3		hodologies for impact assessment			
4		arious Environment management plan			
5	Identify the techniqu	ues and control measures for Environment n	nanageme	ent	
Course Outcome	Semester VII or VIII Sem	(B20CE57) Urban Planning (Ope Elective)		L: 3 T: 0 P: 0 C	:3
1	· · ·	ance of proper urban planning for a healthy	city		
2	Apply basic method				
3	Describe housing de	-			
4		oort and non-motorized transport facilities for	÷		
5	Describe smart city developments in India and abroad and its various elements				



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Course Outcome	Semester VII or VIII Sem	(B20EE54) Electrical Power Utilisation and Safety (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Know about the electric heating and welding			
2	Gain the knowledge of	on illumination system.		
3	Understand the electr	ical installation, estimation and costing.		
4	Understand the impor	rtance of power factor.		
5	Gain the knowledge of	on safety and protection.		
Course Outcome	Semester VII or VIII Sem	(B20EE55) Concepts of Control systems (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the basic	concept control systems.		
2	Know the mathematic	cal model of the systems.		
3	Estimate the time do	main specifications and steady state error.		
4	Know the frequency	response analysis.		
5	Understand concept of	of stability.		
Course Outcome	Semester VII or VIII Sem	(B20EE56) Renewable Energy Sources (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Know about the global and national energy scenario.			
2	Understand the conce	ept of solar energy.		
3	Know the basics of w	ind energy.		
4	Differentiate the hyde	el and tidal power plants.		
5	Explore the bio-mass	, geothermal and ocean energy.		
Course Outcome	Semester VII or VIII Sem	(B20ME59) Non-Conventional Energy Sources (Open Elective)	C:3 L: 3 T: 0 P: 0	
1	Apply the technology Wind, ocean, biomas	to capture the energy from the renewable sources	like sun,	
2	Use different renewal conventional energy s	ble energy sources to produce electrical power min sources to produce electrical energy	nimize the Use of	
3	,	the conventional energy resources are depleted		
4	Understand direct ene			
5		ods in solar energy system.		
Course Outcome	Semester VII or VIII Sem	(B20ME45) Robotics (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Apply the knowledge	of robotics in real time human life applications.		
2	• •	of CAD/CAM and automation to the robotics.		
3	Compare knowledge unloading etc.	of robot applications in manufacturing like, mater	ial handling, loading and	
4		ics to the spot and continuous arc welding and spr	ay painting.	
5	Relate the Robot App	lication in Manufacturing.		
Course Outcome	Semester VII or VIII Sem	(B20ME33) Mechatronics	L: 3 T: 0 P: 0 C: 3	
1		m, mechatronics design systems and measurement	eveteme	



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2	Work on various actu	ating systems.		
3	Convert the signals from one form to another form.			
4	Estimate the micro controllers and micro processors.			
5	Develop the simple programming code for PLC's.			
Course Outcome	Semester VII or VIII Sem	(B20EC37) Digital Image Processing (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Gain the knowledge of	of digital image fundamentals and image transfo	rms.	
2	Understand image en	hancement in spatial and frequency domain.		
3	Understand the differ	ent methods to restore an image.		
4	Analyze image segme	entation techniques and morphological image pr	ocessing.	
5	Analyze the different	image compression techniques.		
Course Outcome	Semester VII or VIII Sem	(B20EC46) Wireless and Mobile Communication (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1		ents due to multi path fading channel.		
2	<u> </u>	e of the fundamental techniques to overcome th	e different fading effects.	
3	÷	annel and Non co-channel interference.		
4	- -	for signal and traffic, diversity techniques and n		
5	Relate and explain the functioning of frequency management, Channel assignment and types of handoff.			
Course Outcome	Semester VII or VIII Sem	(B20EC49) Sensor Networks (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the overv	iew of sensor &networks.		
2	Explore the various a	rchitectures of sensors & network		
3		us protocols in sensor networks.		
4		cture and establishment of sensor networks.		
5	Explore various sense	or network platforms and tools.		
Course Outcome	Semester VII or VIII Sem	(B20EC61) Biomedical Instrumentation (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the function	ions of bio amplifiers, characteristics of medical	instruments and bio signals.	
2		nternal, external Bio electrodes and relations bet		
3		cepts of Cardiac Instrumentation and gain the ki	nowledge about	
4	-	tic Equipment and their operation.		
5	Acquires knowledge	about neuro-muscular Instrumentation like ECG	EMG and EEG.	
Course Outcome	Semester VII or VIII Sem	(B20CS19) Data base Management Systems (Open Elective)	L: 3 T: 0 P: 0 C: 3	
		untal annuants of database monocomment		
1	Perceive the fundamental concepts of database management.Analyze database models & Entity Relationship models and to draw the E-R diagram for the			
1 2			the E-R diagram for the	
	Analyze database mo given case study. Apply relational Data		bra expressions for queries.	



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5	Compare the basic Da methods including B-	atabase storage structures and access techniques - Tree and Hashing.	: File Organization indexing	
Course Outcome	Semester VII or VIII Sem	(B20CS12) Java Programming (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the use of	f OOP concepts and solve real world problems u	using OOP techniques.	
2	Solve the inter-discip	linary applications using the concept of inheritance.		
3	Develop robust and fa	aster applications by applying different exception	n handling mechanisms.	
4	Understand the multi	threading concepts and develop efficient applica	ations.	
5	Design GUI based ap	plications and develops applets for web applica	tions.	
Course Outcome	Semester VII or VIII Sem	(B20CS55) Introduction to Network Security (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Identifies various typ	es of vulnerabilities, attacks, mechanisms and se	ecurity services.	
2		t symmetric and asymmetric encryption algorith		
3		essage authentication, hashing algorithms.		
4		rity, S/MIME Functionality.		
5	•	tection system and designing of various types of	firewalls.	
Course Outcome	Semester VII or VIII Sem	(B20CS56) Introduction to Cloud Computing (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Ability to understand	various service delivery models of a cloud com	puting architecture.	
2	Ability to understand the ways in which the cloud can be programmed and deployed.			
3	-	Computing Architecture and Management	1 2	
4	Understanding cloud			
5	Understanding cloud			
Course Outcome	Semester VII or VIII Sem	(B20CS37) Internet of Things (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Interpret the vision of	f IoT from global context.		
2	-	cks of Internet of Things and its characteristics.		
3		epts of Python. Implement the python programm		
4	& Sensor Networks.	on areas of IoT. Realize the revolution of Interr		
5	Determine the Marke IoT.	t perspective of IoT. Develop Python web appli	cations and cloud servers for	
Course Outcome	Semester VII or VIII Sem	(B20CS04) Data Structures and Algorithms (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Define the basic tech	niques of algorithm analysis		
2	Examine the linear ar	nd non linear data structures.		
3	Develop Priority Que	eues and Balanced Trees.		
4	Understand Hashing	Techniques and Graph applications.		
5	Apply suitable algori	thms for sorting Technique.		
Course Outcome	Semester VII or VIII Sem	(B20AI03) Artificial Intelligence	L: 3 T: 0 P: 0 C: 3	



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		(Open Elective)		
1	Possess the ability to	formulate an efficient problem space for a prob	lem expressed in English	
2	Possess the ability to select a search algorithm for a problem.			
3		epresenting knowledge using the appropriate tec	chnique	
4		apply AI techniques to solve problems of Game	-	
5		stems, Machine Learning and Natural Languag		
Course Outcome	Semester VII or VIII Sem	(B20AI29) Introduction to Machine Learning (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Explain the theory un	derlying machine learning.		
2	Learn beyond binary	classification.		
3	Recognize and imple	ment various genetic algorithms.		
4		to learn tree, to learn linear, non-linear models	and Probabilistic models.	
5	Able to analyze the d			
Course Outcome	Semester VII or VIII Sem	(B20AI30) Neural Networks (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Describe different net	ural networks of various architectures		
2	Understand the feed f	forward and feed backward.		
3	Design the training of neural networks.			
4	Learn various learning rules.			
5	Develop the testing of neural networks and do the perform analysis of these networks for various pattern recognition application.			
Course Outcome	Semester VII or VIII Sem	(B20AI31) Introduction to Cyber Security (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Outline key terms and	d concepts in cyber law, intellectual property an	d cybercrimes.	
2	Understand basic cry	ptography and stenography.		
3	Explore the vulnerabi	lities, threats and cybercrimes posed by crimina	als.	
4	-	rity challenges phased by mobile devices and id cybercrime, develops the secure counter method		
Course Outcome	Semester VII or VIII Sem	(B20DS24) Introduction to Data science (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1		concepts of Data Science.		
2	• •	data and data pre processing.		
3	Understand the techn	iques for data analytics.		
4	Learn the statistical f	undamentals related to Data Science.		
5	Understand the conce	epts of Machine Learning for Data Science.		
Course	Semester VII or VIII Sem	(B20DS25) Data Handling and	L: 3 T: 0 P: 0 C: 3	
Outcome	VII OI VIII Sein	Visualization (Open Elective)		



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2	Learn the concepts of Visualizing Distributions.			
3	Understand how to Visualizing Proportions and Nested Proportions.			
4	Learn the concepts of Visualizing Associations and Time series data.			
5	Understand the differ	ent Visualizing Trends.		
Course Outcome	Semester VII or VIII Sem	(B20DS26) Introduction to Big Data (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the importance of Big Data.			
2	Learn about the types	of data and Big Data Analytics.		
3	Understand the Big D	Data technology components and applications.		
4	Learn the basics of H	adoop Eco system.		
5	Understand the map r	reduce fundamentals.		
Course Outcome	Semester VII or VIII Sem	(B20DS27) Introduction to Computer Forensics (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Understand the defini	tion of computer forensics fundamentals.		
2	Describe the types of systems.	computer forensics technology. Analyze various	s computer forensics	
3	Illustrate the methods	for data recovery, evidence collection and data	seizure.	
4	Summarize duplication and preservation of digital evidence. Evaluate the effectiveness of available digital forensics tools.			
5	Employ fundamental	computer theory in the context of computer fore	ensics practices.	
Course Outcome	Semester VII or VIII Sem	(B20MB02) Management Science (Open Elective)	L: 3 T: 0 P: 0 C: 3	
1	Outline the fundamer	tals of management and contributions to manag	ement.	
2	Define the social Responsibilities of an organization towards stakeholders and build the suitable organization structure and to identify factors influencing plant location and layout decisions.			
-	organization structure	e and to identify factors influencing plant locatio	n and layout decisions.	
3	Know importance of and Identify the basic	materials management, evaluate quality of production concepts of marketing mix and Human Resource	acts using SQC techniques ce concepts.	
	Know importance of and Identify the basic Know how PERT and managing the efforts	materials management, evaluate quality of production concepts of marketing mix and Human Resource d CPM different and to construct network by proto to accomplish a successful project.	acts using SQC techniques ce concepts. per planning organizing an	
3	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp	materials management, evaluate quality of production concepts of marketing mix and Human Resource CPM different and to construct network by pro-	acts using SQC techniques ce concepts. per planning organizing an ese contemporary	
3 4	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem	materials management, evaluate quality of product concepts of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective)	L: 3 T: 0 P: 0 C: 3	
3 4 5 <b>Course</b>	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem	materials management, evaluate quality of production of marketing mix and Human Resource d CPM different and to construct network by proto accomplish a successful project. To accomplish a successful project. To arry management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship	L: 3 T: 0 P: 0 C: 3	
3 4 5 Course Outcome	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem Explain characteristic	materials management, evaluate quality of product concepts of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective)	L: 3 T: 0 P: 0 C: 3	
3 4 5 Course Outcome 1	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem Explain characteristic Demonstrates Entrep	materials management, evaluate quality of production of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. To accomplish a successful project. To arry management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective) es, Qualities, Skills and Functions of Entrepreneurship	acts using SQC techniques         be concepts.         per planning organizing an         ese contemporary         organizations.         L: 3 T: 0 P: 0 C: 3         ur.	
3 4 5 <b>Course</b> Outcome 1 2	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem Explain characteristic Demonstrates Entrepo	materials management, evaluate quality of product concepts of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. orary management practices and analyze how the sone applicable in modern business and service <b>(B20MB03) Entrepreneurship</b> <b>Development (Open Elective)</b> cs, Qualities, Skills and Functions of Entrepreneurs for the service of the se	acts using SQC techniques         bee concepts.         per planning organizing an         ese contemporary         organizations.         L: 3 T: 0 P: 0 C: 3         Ir.         siness.	
3 4 5 <b>Course</b> Outcome 1 2 3	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem Explain characteristic Demonstrates Entrept Summarizes necessity Interprets about Gove	materials management, evaluate quality of product concepts of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. orary management practices and analyze how the sone applicable in modern business and service <b>(B20MB03) Entrepreneurship</b> <b>Development (Open Elective)</b> es, Qualities, Skills and Functions of Entrepreneurship reneur Scenario in India and abroad.	acts using SQC techniques         be concepts.         per planning organizing an         ese contemporary         organizations.         L: 3 T: 0 P: 0 C: 3         Ir.         siness.         ip promotion schemes.	
3 4 5 <b>Course</b> Outcome 1 2 3 4	Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem Explain characteristic Demonstrates Entrept Summarizes necessity Interprets about Gove	materials management, evaluate quality of product concepts of marketing mix and Human Resource d CPM different and to construct network by prototo accomplish a successful project. orary management practices and analyze how the sone applicable in modern business and service <b>(B20MB03) Entrepreneurship</b> <b>Development (Open Elective)</b> cs, Qualities, Skills and Functions of Entrepreneurs reneur Scenario in India and abroad. y for business ethics and subsides and Entrepreneurship	acts using SQC techniques         be concepts.         per planning organizing an         ese contemporary         organizations.         L: 3 T: 0 P: 0 C: 3         Ir.         siness.         ip promotion schemes.	



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2	Utilize post registration procedures and trade mark registration process
3	Explain the copyright principles and rights
4	Prioritize the law of patents and patent ownership
5	Develop the trade secret and maintenance



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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### <u>Course Outcomes for M.Tech – Power Electronics (43) for</u> <u>the year 2015-16</u>

After the completion	I/I Sem	Machine Modelling and Analysis(A943101)	L: 4 T: 0 P: 0 Total: 4	Credits: 4	
	n of this course, the student				
1	Identify the methods and assumptions in modeling of machines.				
2	-	erent frames for modeling of AC ma			
3		ge and torque equations in state spac		nt machines	
4		ematical models of various DC mad			
5		sformations adopted in 3 phase mach	nines and explore	its starting	
6		oped models in various reference fra	mes through simu	lation study	
7	-	e dynamics in various operating con-		internet states	
8		uits analysis with d-q model of mach			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Modern Control Theory (A943102)	L: 4 T: 0 P: 0 Total: 4	Credits: 4	
	n of this course, the student				
1	Learn various ter and design of con	ms of basic and modern control systems.	tem for the real ti	me analysis	
2	Learn the basic mathematical preliminaries for modeling a control system				
3	Perform state variables analysis for any real time system				
4	Linearize the non-linear system model using various techniques				
5		t of optimal control to any system.	*		
6		for its stability, controllability and c	bservability.		
7		principles and techniques in designin		stems.	
8		solve deterministic optimal cont			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Power Electronic Devices and Circuits (A943103)	L: 4 T: 0 P: 0 Total: 4	Credits: 4	
After the completion	n of this course, the student		•		
1	Understand the ch electronics devices	aracteristics and principle of operations.	on of modern pow	er	
2	Compare the featu	res of various power electronic devic	ces		
3	Comprehend the concepts of different power converters and their application				
4	_	river circuits and its heat manageme			
5	*	source and load inductance on the o		n	
6	•	gn the switched mode regulator for va	<u> </u>		
7		ower factor improvement controllers		rr noution	
8		nic simulation packages for analysin	g and designing p	ower	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4	



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Outcome	I/I Sem	Special Machines (A943104)	Total: 4		
After the completio	on of this course, the student		1 .1 1 0	. 1 0	
1	Learn the constructional features, principle of operation and methods of control of stepper motor.				
2	Realize the need for stepper motors and the various applications in industries.				
	Explore various hybrid stepping motor				
2	Get a clear picture of the operational characteristics and the applications of Switc				
3	Reluctance Motor.				
	Know the various types of PMBLDC motors, rotor position sensors, methods of				
4	control and their applications				
5		f the features, control and the applicat	ions of PMSM		
		pt of linear induction motor and devel		d LIM from	
6	rotory induction n	-	- F		
7		ctional details of permanent magnet as	xial flux machine	es (PMAF)	
8		ations of various special machines in			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	HVDC Transmission (A943105)	0 Total: 4		
	on of this course, the student	s should be able to	0 100000 1		
1		ower handling capabilities of HVDC	lines		
2		configurations and conversion		static powe	
	converters			Ĩ	
3	Learn the rectifi	er and inverter operations, commu	itation process	at converte	
	stations.				
4	Apply AC/DC filters for harmonic elimination in HVDC link				
5	Explore various c	ontrols adapted in HVDC converters			
6		nstability problems in HV AC and DC	C system		
7		er voltage problems in multi-terminal			
8		ous converter faults and protection cir			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Programmable Logic Controllers	0 Total: 4		
		and their Applications (A943106)			
	on of this course, the student				
1	-	ive knowledge of using advanced con	trollers in measu	irement and	
	control instrument				
2		ata acquisition - process of collecting	information from	n field	
	instruments.				
3		mable Logic Controller (PLC), IO Mo		al features.	
4	1 0	ramming in Ladder Logic, addressing	g of I/O.		
5	Apply PID and its	5			
6		gic programming for simple process			
7		nd test programs developed for digital			
8	Reproduce block	diagram representation on industrial a	pplications using	g PLC	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Microcontrollers and Applications	0 Total: 4		
Outcome	I/I Dem	(A943107)			



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1	Relate the basic architecture and addressing modes of a microcontroller.				
2		of computers & microcontrollers and e			
_		icrocontroller software development		-p	
3	•	nbly language programs for the 8-bit,	16-bit and 32-b	it	
-		assembly language code for high-level			
	<b>IF-THENELSE</b> ar		8		
4		I/O interface and to discuss timing iss	ues		
5	Develop Real time Applications of Microcontrollers & Demonstrate RTOS for				
	Microcontrollers.				
6	Translate Hardwar	re applications using Microcontrollers.			
7	Gain working kno	wledge of ports and interrupts			
8	Introduce the need	and use of interrupt structure, timers	in respective ap	plications	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Embedded Systems (A943108)	0 Total: 4		
After the completio	n of this course, the student			-	
1		sics of an embedded system			
2		sues in embedded software developme	**		
3	Learn the method	of designing an embedded system for	any type of appl	lications	
4	Understand the operating systems concepts, types and choosing RTOS				
5	Design, implement and test an embedded system				
6	Understand types of memory and interacting to external world				
7		irmware design approaches			
8	Use ICE and softw	vare tools to address the issues in embe	edded systems		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Digital Control Systems (A943109)	0 Total: 4		
		a abaula ba abla ta			
	n of this course, the student		1 .		
1	Deduce the contro	l system to block diagram for various			
1 2	Deduce the contro Acquire a strong f	l system to block diagram for various oundation in sampling and reconstruct	tion Z-transform		
1	Deduce the contro Acquire a strong f Apply knowledge	l system to block diagram for various	tion Z-transform		
1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems.	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c	tion Z-transform		
1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms.	tion Z-transform liscrete time con		
$ \begin{array}{r} 1\\ 2\\ 3\\ \hline 4\\ 5\\ \hline \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co	tion Z-transform liscrete time con ntrol system.		
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       6       \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont	tion Z-transform liscrete time con ntrol system.		
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       7 \\       7       \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers	tion Z-transform liscrete time con ntrol system. trol systems		
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol	
1 2 3 4 5 6 7 8 <b>Course</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and Subject Name (Subject Code)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:		
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:	trol	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4	trol	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b> <b>I/I Sem</b> n of this course, the student Study the need of	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems	trol	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues	trol Credits: 4	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues constrained case	trol Credits: 4	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un-	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s	
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> 1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un- odern intelligent optimisation technique iques to real world problems such as t	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s	



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7	Apply methods of	sensitivity analysis and validate post	processing resul	ts	
8	Explore various real time optimization problems.				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Digital control systems (A943111)	0 Total: 4		
	on of this course, the student	s should be able to	0 200000		
1	Deduce the control	l system to block diagram for various	analysis		
2	Acquire a strong foundation in sampling and reconstruction Z-transforms.				
3		of mathematics, Z-plane analysis to			
	systems.				
4	Know sampling an	nd reconstruction, Z -transforms.			
5	Replace the conve	ntional control system with Digital co	ontrol system.		
6	Evaluate to Apply	Z-plane analysis of discrete time con	trol systems		
7		ack controllers and observers	•		
8		n stability using root locus, bode and	l Nyquist plots		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Renewable energy systems	0 Total: 4		
		(A943112)			
After the completion	n of this course, the student		lastrical anargy		
2	-	enewable energy sources to produce el		actions	
	Study the characteristics of PV cell- photo voltaic modules and its applications				
3 4		f wind energy conversion systems and			
4	_	Vave energy conversion machines - O	cean Thermal Er	lergy	
~	conversion schemes				
5	Know the need of hybrid energy systems such as geothermal and fuel cells				
6		of various renewable energy sources of			
7		nergy and to avoid the environmental	pollution		
8		mental effects of energy conversion			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P: 0 Total: 4	Credits: 4	
	on of this course, the student		0 10tal. 4		
1		ower handling capabilities of HVDC	lines		
2	Explore various			static power	
	converters	······································	rk	F	
3	Learn the rectifi	er and inverter operations, commu	itation process	at converter	
	stations.				
4	Apply AC/DC file	ters for harmonic elimination in HVD	C link		
5	Explore various c	ontrols adapted in HVDC converters			
6	Identify various in	nstability problems in HV AC and DC	C system		
7	Study various ove	er voltage problems in multi-terminal	DC system		
8		ous converter faults and protection cir			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4	
Outcome	I/I Sem	Analysis of Power Electronic Converters (A943114)	Total: 4		
After the completio	on of this course, the student				
1		characteristics and principle of or	peration of mo	dern power	
_	semiconductor de			1	
	semiconductor de				



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	a 1 1 1	C 11 CC	1.1		
2		oncepts of different power converter	**		
3	-	ortance of AC voltage controllers an	d cyclo-converte	rs for various	
	industrial applicat				
4		n switched mode power electronic c	onverters for vari	ous	
	industrial applications				
5		th modulated inverters which are us		ed drives	
6		e device for a particular converter to	<u> </u>		
7	-	conic simulation packages for ana	lyzing and desi	gning power	
	converters.				
8		te power converter topologies and	design the powe	er stage and	
		ers for various applications			
Course	Year / semester	Subject Name (Subject Code) Embedded Systems (A943115)	L: 4 T: 0 P: 0	Credits: 4	
Outcome	I/I Sem	-	Total: 4		
	n of this course, the student				
1		sics of an embedded system		·	
2	<u>.</u>	sues in embedded software develop	11		
3		of designing an embedded system for		lications	
4	-	erating systems concepts, types and	choosing RIOS		
5	Design, implement and test an embedded system				
6	Understand types of memory and interacting to external world				
7		irmware design approaches			
8		vare tools to address the issues in em			
Course	Year / semester	Subject Name (Subject Code) Power Converters Simulation Lab	L: 0 T: 0 P: 4	Credits:4	
Outcome	I/I Sem	(A943116)	Total:4		
After the completio	n of this course, the student				
1	Able to simulate f	ull converter circuits for various type	es of loading		
2	Acquire programm	ning knowledge to study the systems	s dynamics in stat	e space	
	model				
3	Able to assess the	frequency response of the system			
4	Analyse the system	n stability and PID controller application	ation for steady st	ate system	
	operation.				
Course	operation. Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4	
Course Outcome		Seminar-I (A943117)	L: 0 T: 0 P: 4 Total:4	Credits:4	
	Year / semester	Seminar-I (A943117) Subject Name (Subject Code)	Total:4	Credits:4 T: 0 P: 0 C:	
Outcome Course Outcome	Year / semester I/I Sem Year/Semester I/II Sem	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943	Total:4		
Outcome Course Outcome After the completio	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to	Total:4           3201)         L: 4           4		
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics device	Total:4         3201)       L: 4         4         ess.		
Outcome Course Outcome After the completio 1 2	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics deviced lvanced modulation techniques and	Total:43201)L: 44es.its applications	T: 0 P: 0 C:	
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with	Total:43201)L: 44es.its applications	T: 0 P: 0 C:	
Outcome Course Outcome After the completio 1 2 3	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A942) s should be able to is advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with S.	Total:43201)L: 44es.its applicationsswitching strate	T: 0 P: 0 C: gies for high	
Outcome Course Outcome After the completio 1 2 3 4	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to as advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with s. lesign of resonant converters and sw	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high	
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high	
Outcome Course Outcome After the completio 1 2 3 4 5 6	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o Develop and analy	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to as advanced power electronics deviced advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu vze various converter topologies.	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high	
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application Comprehend the d Gain knowledge o Develop and analy Design AC or DC	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high	



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Course	Year / semester	Subject Name (Subject Code) Power Electronic Control of DC Drives	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	(A943202)	4		
After the completion	on of this course, the student				
1	Learn basic preliminary requirements for operating DC drives				
2	Explore various rectifier fed DC drives				
3	Study the continuous and discontinuous modes of operation of single phase semi				
	and full converter for DC drives				
4	Study the continuous and discontinuous modes of operation of three phase semi an				
	full converter for		-		
5	Perform steady sta	ate analysis of three phase converter controlled	DC motor drive		
6		urrent and speed controllers			
7	Perform steady sta	ate analysis of chopper controlled DC motor dr	rive		
8		mics of speed controlled DC motor drives			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Power Electronic Control of AC Drives	4		
		(A943203)			
After the completio	on of this course, the student		11 0		
1	_	orque characteristics variable voltage and varia	ble frequency		
2	operation	<u> </u>	11 1 1		
2	• •	on of induction motor in constant torque and fie	eld weakening		
2	regions				
3		ator side controls employed for induction drive	2S		
4		l flux control in current fed inverter drive			
5		ency of the drive by applying optimization co			
6		es of vector control methods in rotor of induct			
7		s speed control schemes in synchronous motor			
8	~	eristics and control of variable reluctance moto			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Power Quality (A943204)	4		
After the completio	on of this course, the student		•		
1		t terms and concepts of electric power quality	in power systems.		
2	-	opplications of non-linear load.	1		
3	· · ·	y the difference between system failures, outag	ge and interruptions		
4		ort and long interruptions			
5		calculate the magnitude the single and three p	hases Voltage sag in		
	the system				
6		gate the power quality problems			
7		oplication of FACTS device on DG side.			
8		t characteristics of electric power quality in po			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0		
Outcome	I/II Sem	Advanced Digital Signal Processing	C:3		
After the completion	on of this course, the student	(A943205)			
1		tal knowledge of analysing and processing of	digital systems		
2		ship between continuous time and discrete tim			
<i>L</i>	systems	sing between continuous time and discrete time	o signais and		
	systems				



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5 6 Course	Understand dynan Year / semester I/II Sem	nic modeling of electrical machines Subject Name (Subject Code) Instrumentation & Control (A943210)	L: 3 T: 0 P: 0 C:	
	Understand dynan			
5		· · · · · · · · · · · · · · · · · · ·		
_	Understand behav	ior of electrical machines under steady state an	d transient state.	
	characteristics.	-		
4		basic mathematical analysis of electrical		
3	0	e's equation solution of Electro dynamical equa	ations.	
2		modeling of all electrical machines		
1		e theory of all types of machines		
	n of this course, the student	-	~	
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
6		ted inductors and self capacitance for high freq	mency applications	
5		mers for fly-back converters in CCM		
4		y stored in coupled inductors of transformers		
3		effects that exists the round conductor carrying	AC currents	
2		rties of magnetic core materials		
1		entals of magnetic devices		
After the completie	n of this course, the student	(A943208)		
Outcome	I/II Sem	High-Frequency Magnetic Components	3	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
6	Explore the conce	pt of UPFC and its application.		
5	Learn various seri	es compensators such as TCSC, TSSC		
4	Learn various shu	nt compensation using SVC and STATCOM		
3	Study the impact of	of FACTS devices in the power flow in the AC	system	
2	Learn various con	verters employed for FACTS controllers		
1		s and types of FACTS controllers		
After the completio	n of this course, the student			
Outcome	I/II Sem	(A943207)	3	
Course	Year / semester	Subject Name (Subject Code) Flexible AC Transmission Systems	L: 3 T: 0 P: 0 C:	
6		rious protection aspects for the converters.		
5		ect of Electromagnetic interference (EMI).		
4		nent practical circuits for UPS, SMPS.		
3	Explore various co			
2		esign considerations.		
1	Apply the basic concepts of power electronics for designing converters.			
After the completio	n of this course, the student			
Outcome	I/II Sem	(A943206)	3	
Course	Year / semesterSubject Name (Subject Code)L: 3 T: 0 P: 0 CJ/II SemSwitched Mode Power Supplies (SMPS)3			
6	Get acquainted with FFT algorithms, multi-rate signal processing techniques.			
5	Explore few real world signal processing applications			
4		ligital filters form analysis to synthesis		
	interrelationships.			
	1	entals of time, frequency and Z-Plane analysis		



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After the completio	n of this course, the student	s should be able to	
1		ethods of power generation	
2		portance of instrumentation in power genera	tion
3	Explore various measuring and supervising systems involved in thermal power plant		
5	processes such as boiler and turbine units		
4		is controls employed in boiler	
5		prature and pressure controls in turbine	
6	- · ·		
		power plant instrumentation Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Course	Year / semester	Intelligent Control (A943211)	
Outcome	I/II Sem n of this course, the student		3
1		ture of Intelligent control	
2		tificial neural network and its mathematical n	nodel
$\frac{2}{3}$		neural network with various configurations.	liouei
4		orithm for various optimisation problems	
5		l different system with fuzzy logic controller	<b>T</b> 11
6		ower system problem and apply GA, NN and	
Course	Year / semester	Subject Name (Subject Code) Smart grid technologies (A943212)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem		3
After the completio	n of this course, the student		
1	Recite the structure of an electricity market in either regulated or deregulated market conditions.		
2	Understand the a distribution	advantages of DC distribution and develo	ping technologies ir
3	Discriminate the trade-off between economics and reliability of an electric power system.		
4	Differentiate various investment options (e.g. generation capacities, transmission, renewable, demand-side resources, etc) in electricity markets.		
5		opment of smart and intelligent domestic sys	tems
6		e of an electricity market in either regulated	
-	conditions.		
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) AI Techniques in Electrical Engineering (A943213)	L: 3 T: 0 P: 0 C: 3
After the completio	n of this course, the student		
1	Ŭ	on soft computing techniques such as artificia	I neural networks,
	Fuzzy logic and ge	· · ·	
2		s of feed forward neural networks and feedba	
3	Get the concept of fuzziness involved in various systems and comprehensive knowledge of fuzzy logic control and to design the fuzzy rules		
4		knowledge on genetic algorithm including	three genetic
5	<u> </u>	ower system problems which can utilize these	AI techniques
		bility using AI techniques	
6	ASSESS SYSTEM Star		
6 Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:



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1	To identify the generation system model and recursive relation for capacitive model building				
2	calculate the equivalent transitional rates, cumulative probability and cumulative frequency				
3	Evaluate cumulative probability and cumulative frequency of non-identical generating units and merging generation and load				
4	Distinguish various approaches to evaluate operating reserves and bulk power generation reserve				
5	Analyse the reliab	ility indices on radial and weakly meshed dis	stribution networks		
6		f short circuits in substation and switching sta			
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Energy Auditing, Conservation & Management (A943215)	L: 3 T: 0 P: 0 C: 3		
After the completion	on of this course, the student				
1		y of conservation of energy			
2		thods of energy management			
3	Illustrate the facto	rs to increase the efficiency of electrical equi	ipment		
4	Detect the benefits	s of carrying out energy audits.			
5	Analyze the powe	r factor and to design a good illumination sys	stem		
6	Determine pay bac	ck periods for energy saving equipment.			
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power Converters and Drives Lab (A943216)	L: 0 T: 0 P: 4 C: 2		
After the completion	on of this course, the student				
1	Learn basic speed	measurement and implement closed loop co	ntrol in PMDC motor		
2	Experience the improved control of thyristor drive for PMDC motor over conventional control				
3	Learn to generate PWM signals using DSP				
4		er controls for solar PV systems			
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Seminar-II (A943217)	L: 0 T: 0 P: 4 C:2		
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code) Comprehensive Viva-Voce (A943301)	L: 0 T: 0 P: 0 C:4		



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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### <u>Course outcomes for M.Tech – Power System Automation and</u> <u>Control (45) for the year 2015-16</u>

Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Power System Analysis (A953101)	3
	n of this course, the student	s should be able to	5
1	Identify the methods and assumptions in modeling of machines.		
2	Recognize the different frames for modeling of AC machines.		
3		ge and torque equations in state space form for c	lifferent machines
4		hematical models of various machines like, ir	
	-	hines using modeling equations.	
5		oped models in various reference frames	
6		e dynamics in various operating conditions	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Power System Protection (A953102)	3
After the completio	n of this course, the student	s should be able to	
1	Understand the ba	sic function of a circuit breaker, all kinds of circ	uit breakers and
	relays		
2		and circuit breakers under fault condition	
3	Learn construction	hal details of static relays and importance of dual	ity of comparators
	in them.		
4		n of static relay applied for over current protecti	
5	Able to apply stati	ic relay for transformer and transmission line pre-	otection
6	Basic principle of	operation and application of microprocessor bas	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Modern Control Theory (A953103)	4
After the completio	n of this course, the student		1
1		basic and modern control system for the rea	I time analysis and
	design of control		
2		variables analysis for any real time system.	
3		t of optimal control to any system.	
4		a system for its stability, controllability and obse	· ·
5		principles and techniques in designing linear con	-
6		lve deterministic optimal control problems in te	rms of performance
	indices.	Cubicat Name (Cubicat Code)	
Course	Year / semester	Subject Name (Subject Code) EHV AC Transmission (A953104)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem		4
After the completio	n of this course, the student		Francomission
2	•	ent aspects of Extra High Voltage A.C and D.C.	
2		AC transmission system components, protectio	ii and insulation
2	level for over volt	0	nainaanina
3		stical procedures for line designs, scientific and e	engineering
A	Principles in powe		
4	Power Frequency	Voltage control and over-voltages in EHV lines	



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5	Study the concept	of Corona in E.H.V. lines and impact of RI in E	HV lines
6		cables and study their charcteristics	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0
Outcome	I/I Sem	High Voltage Engineering (A953105)	C:3
	on of this course, the student		0.0
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Digital Signal Processing	3
outcome		(A953106)	
After the completic	on of this course, the student		•
1	_	nderstanding of using advanced controllers in me	easurement and
	control instrumentation.		
2	Illustrate about data acquisition - process of collecting information from field		
	instruments.		
3	Analyze Program	mable Logic Controller (PLC), IO Modules and	internal features.
4	Comprehend Prog	gramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its	s Tuning.	
6	Development of la	adder logic programming for simple process	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Power Quality (A953107)	4
After the completic	on of this course, the student		
1	To relate the basic	e architecture and addressing modes of a microco	ontroller.
2	Distinguish types	of computers & microcontrollers and explain the	e principles of top
	down design to m	icrocontroller software development	
3	demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit		
	Microcontroller, assembly language code for high-level language structures such as		
	IF-THENELSE ar	nd DO-WHILE	
4			
4 5	analyze a typical I	/O interface and to discuss timing issues	te RTOS for
	analyze a typical I		te RTOS for
	analyze a typical I Develop Real time Microcontrollers.	VO interface and to discuss timing issues e Applications of Microcontrollers & Demonstra	te RTOS for
5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	/O interface and to discuss timing issues	
5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b>	O interface and to discuss timing issues Applications of Microcontrollers & Demonstra re applications using Microcontrollers.	L: 3 T: 0 P: 0 C:
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>	
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic	<ul> <li>Applications of Microcontrollers &amp; Demonstrative</li> <li>Pre applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcomplexity</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to mi	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>es should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to midemonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to midemonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 Course Outcome After the completion 1 2 3 4	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem of this course, the student To relate the basic Distinguish types down design to mid demonstrate assen Microcontroller, a IF-THENELSE an analyze a typical I	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to midemonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3 4 5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assen Microcontroller, a IF-THENELSE ar analyze a typical I Develop Real time Microcontrollers.	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language</li> <li>nd DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstration</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3 4 5 6	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for
5 6 Course Outcome After the completion 1 2 3 4 5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>architecture and addressing modes of a microcontroller software development</li> <li>and applications for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for L: 3 T: 0 P: 0 C:
5 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>//O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Distribution Automation (A953109)</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for



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<u> </u>		hybrid energy systems such as geothermal and f of various renewable energy sources on environr		
5	Know the need of	hybrid energy systems such as geothermal and f	uel cells	
	conversion scheme			
4		ave energy conversion machines - Ocean Thern		
3		f wind energy conversion systems and bio-mass		
2		pristics of PV cell- photo voltaic modules and its		
1		enewable energy sources to produce electrical en	ergy	
Outcome	I/I Sem on of this course, the student		3	
Course	Year / semester	Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:	
6		Z-plane analysis of discrete time control system Subject Name (Subject Code)		
5		ntional control system with Digital control syste		
4		nd reconstruction, Z -transforms.		
3		e of mathematics, Z-plane analysis to discrete tin	ie control systems.	
2		oundation in sampling and reconstruction Z-tran		
$\frac{1}{2}$		l system to block diagram for various analysis	oforma	
	on of this course, the student			
Outcome	I/I Sem	Digital control systems (A953111)	3	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
6		tations in these techniques		
	travelling salesma			
5		iques to real world problems such as transportation	on problem,	
4	-	odern intelligent optimisation techniques		
3		e the problem with constrained and unconstraine	d cases	
2	Learn the conventional or classical optimisation techniques			
1		optimisation in electrical engineering problems		
After the completion	on of this course, the student			
Outcome	I/I Sem	Optimization Techniques (A953110)	4	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
6	Know the control schemes of distribution automation and substation automation			
5	Learn the architecture of PLC and its application in power system automation			
4	Learn the importance of EMS in power system operation.			
	Learn to implement power system automation and protection using SCADA.			
3	Classify various power system automation schemes			



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After the completio	on of this course, the student	s should be able to	
1	Understand the	characteristics and principle of operation	of modern power
	semiconductor de	vices.	_
2	Comprehend the c	concepts of different power converters and their a	pplications
3	Analyze and design switched mode regulators for various industrial applications		
4		rious converter topologies	11
5	Ŭ	te device for a particular converter topology.	
6		ronic simulation packages for analyzing and	designing power
0	converters.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Embedded Systems (A953115)	3
	on of this course, the student	s should be able to	0
1		sics of an embedded system	
2		of designing an embedded system for any type o	f applications
3		perating systems concepts, types and choosing RT	11
4		it and test an embedded system	
5		of memory and interacting to external world	
6	• •	irmware design approaches	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:
	I/I Sem	Power Systems Lab-I (A953116)	
Outcome	n of this course, the student	-	2
1		ate the symmetrical and unsymmetrical fault in the	e generator
2		ti effect in the transmission line and implement f	-
2		t operation by constructing the circuits	ecuci protection
3			voltage condition
4		on various static relays for over current and over	
		rential protection of transformer for external and Subject Name (Subject Code)	
Course	Year/Semester	Power System Dynamics (A953201)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem		3
1		f system dynamics and able to analyse steady sta	te stability and
T	transient stability	r system dynamics and dole to analyse steady sta	at stating and
2	2	chronous machine to analyse steady state operat	ion analyse its
2	dynamics of opera		ion analyse us
3		on system analyse the dynamics of the synchron	oue machina
3	connected to infin		ous machine
1			
4		l signal stability of the system using Routh's Hu	witz criterion
5		PSS in control signals	•.1 •
6	Dynamic compense without PSS.	sator analysis of single machine infinite bus syste	em with and
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Flexible AC Transmission Systems (FACTS)	4
		(A953202)	
	on of this course, the student		
1		s and types of FACTS controllers	
2	Learn various con	verters employed for FACTS controllers	
3		of FACTS devices in the power flow in the AC s	



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4	Learn various shu	nt compensation using SVC and STATCOM		
5	Learn various series compensators such as TCSC, TSSC			
6		pt of UPFC and its application.		
Course		Year / semester Subject Name (Subject Code) L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Power System Operation and Deregulation	4	
		(A953203)	-	
	n of this course, the student		1 . 1 1	
1		wledge on restructuring of power industry and r		
2	Impart knowledge on fundamental concepts of congestion management			
3	Knowledge on various ancillary service providers			
4		nternational Transmission pricing paradigms		
5		k of Indian power sector and its initiatives		
6	The reforms in Inc	lian power sector		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Outcome	I/II Sem	Gas Insulated Systems(GIS) (A953204)	4	
	n of this course, the student	s should be able to Subject Name (Subject Code)	L: 4 T: 0 P: 0	
Course	Year / semester	Programmable Logic Controllers and their		
Outcome	I/II Sem	Applications (A953205)	C:4	
After the completio	n of this course, the student			
1	Gain Comprehens	ive knowledge of using advanced controllers in	measurement and	
	control instrument	ation.		
2	Illustrate about da	ata acquisition - process of collecting informatio	on from field	
	instruments.			
3	Analyze Programm	nable Logic Controller (PLC), IO Modules and	internal features.	
4	Comprehend Prog	ramming in Ladder Logic, addressing of I/O.		
5	Apply PID and its	s Tuning.		
6	Develop ladder log	gic programming for simple process		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	High frequency magnetic components	3	
<u> </u>		(A953206)		
After the completio	n of this course, the student	entals of magnetic devices		
2		rties of magnetic core materials		
3		effects that exists the round conductor carrying	AC currents	
4		y stored in coupled inductors of transformers	AC currents	
5	-	mers for fly-back converters in CCM		
	-	•	ionay applications	
<u>6</u>	Year / semester	ted inductors and self capacitance for high frequencies (Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Course		Reactive Power Compensation and		
Outcome	I/II Sem	Management (A953207)	4	
After the completio	n of this course, the student			
1	Identify the necess	sity of reactive power compensation		
2	Describe load com			
3	Select various type	es of reactive power compensation in transmissi	on systems	
	Select various types of reactive power compensation in transmission systems			
4	Characterize distri	Characterize distribution side and utility side reactive power. Understand issues related to power system stability and control.		



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6	Detect reactive po	wer compensation techniques & their practical in	mportance	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power System Reliability (A953208)	L: 3 T: 0 P: 0 C: 3	
After the completio	n of this course, the student			
1	To identify the get	neration system model and recursive relation for	capacitive model	
	building			
2	calculate the equiv	valent transitional rates, cumulative probability a	nd cumulative	
	frequency			
3	Evaluate cumulative probability and cumulative frequency of non-identical			
	generating units and merging generation and load			
4	Distinguish various approaches to evaluate operating reserves and bulk power			
	generation reserve		-	
5	Analyse the reliab	ility indices on radial and weakly meshed distrib	oution networks	
6		f short circuits in substation and switching station		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Voltage Stability (A953209)	3	
	n of this course, the student	s should be able to	U	
1		sity of reactive power compensation		
2	Describe load con			
3		es of reactive power compensation in transmission	on systems	
4		bution side and utility side reactive power.		
5		related to power system stability and control.		
6		wer compensation techniques & their practical i	mnortance	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Outcome	I/II Sem	Instrumentation & Control (A953210)		
After the completio	n of this course, the student			
	c ·			
1		ethods of power generation		
1 2	Understand the im	portance of instrumentation in power generation		
1	Understand the im Explore various m	portance of instrumentation in power generation easuring and supervising systems involved in th		
1 2 3	Understand the im Explore various m processes such as	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units		
1 2 3 4	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler		
1 2 3	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units		
1 2 3 4	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation		
1 2 3 4 5	Understand the im Explore various m processes such as Understand variou Explore the tempe	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	ermal power plant	
1 2 3 4 5 6 <b>Course</b> Outcome	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211)	ermal power plant	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b>	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to	ermal power plant	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control	ermal power plant L: 3 T: 0 P: 0 C: 3	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod	ermal power plant L: 3 T: 0 P: 0 C: 3	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control	ermal power plant L: 3 T: 0 P: 0 C: 3	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod	ermal power plant L: 3 T: 0 P: 0 C: 3	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completio 1 2 3	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations.	ermal power plant L: 3 T: 0 P: 0 C: 3	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completion 1 2 3 4	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem nof this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. prithm for various optimisation problems	ermal power plant L: 3 T: 0 P: 0 C: 3 el	
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> After the completion 1 2 3 4 5 6	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem nof this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control	portance of instrumentation in power generation leasuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. Drithm for various optimisation problems I different system with fuzzy logic controller Dwer system problem and apply GA, NN and Fu Subject Name (Subject Code)	ermal power plant L: 3 T: 0 P: 0 C: 3 el zzy controller	
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       Course \\       Outcome \\       After the completioo \\       1 \\       2 \\       3 \\       4 \\       5 \\       5   \end{array} $	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. Drithm for various optimisation problems I different system with fuzzy logic controller ower system problem and apply GA, NN and Fu	ermal power plant L: 3 T: 0 P: 0 C: 3 el	



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6 Course	Year / semester	Subject Name (Subject Code) Power Systems Lab-II (A953216)	L: 0 T: 0 P: 4 C:	
6	Determine Day Day			
	· · ·	ck periods for energy saving equipment.		
5		r factor and to design a good illumination system	m	
4		s of carrying out energy audits.		
3		rs to increase the efficiency of electrical equipn	nent	
2		thods of energy management		
1		y of conservation of energy		
After the completio	n of this course, the student			
Outcome	I/II Sem	Management (A953215)	3	
Course	Year / semester	Energy Auditing, Conservation &	L: 3 T: 0 P: 0 C:	
6		f short circuits in substation and switching static Subject Name (Subject Code)		
		ility indices on radial and weakly meshed distri		
5	generation reserve		hution naturates	
4	-		i ouik powei	
4		is approaches to evaluate operating reserves and	hulk nower	
5		nd merging generation and load		
3	· · ·	ive probability and cumulative frequency of nor	n-identical	
2	frequency	valent transitional rates, cumulative probability		
2		valent transitional rates, cumulative probability	and cumulative	
1	building	neration system moder and recursive relation to		
Alter the completion		neration system model and recursive relation fo	r canacitive model	
Outcome	I/II Sem		3	
Course		Reliability Engineering (A953214)		
	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
<u> </u>		bility using AI techniques	a wenniques	
5		ower system problems which can utilize these A		
4		knowledge on genetic algorithm including thr	ee genetic operators	
3	-	zy logic control and to design the fuzzy rules		
		f fuzziness involved in various systems and com		
2		s of feed forward neural networks and feedback	neural networks.	
1	_	enetic Algorithms.	7	
		on soft computing techniques such as artificial n	eural networks,	
After the completio	n of this course, the student		<u> </u>	
Outcome	I/II Sem	(A953213)	3	
Course	Year / semester	Subject Name (Subject Code) AI Techniques in Electrical Engineering	L: 3 T: 0 P: 0 C:	
	conditions.			
6	Recite the structure of an electricity market in either regulated or deregulated market			
5	Analyze the development of smart and intelligent domestic systems.			
~	renewable, demand-side resources, etc) in electricity markets.			
4	Differentiate various investment options (e.g. generation capacities, transmission,			
4	system.		•,• , • •	
3		trade-off between economics and reliability of	or an electric power	
	distribution		<u> </u>	
	Understand the advantages of DC distribution and developing technologies in distribution			
2	Understand the	advantages of DC distribution and develop	ing technologies in	



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Outcome	I/II Sem		2		
After the completion of this course, the students should be able to					
1	Study the characteristics of microprocessor based relays				
2	Able to protect the feeder from faulty condition using over current relay operation				
3	Study the Characteristics of IDMT Electromagnetic Over Current Relay				
4	Study the phase failure and phase reversal protection with static negative sequence relay				
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Seminar-II (A953217)	L: 0 T: 0 P: 4 C:2		



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### <u>Course Outcomes for M.Tech – VLSI SYSTEM DESIGN (R20)</u> <u>for the academic year 2020-2021 onwards</u>

Course	Semester	CMOS Digital Integrated Circuit	L: 3 T: 0 P: 0 C: 3		
Outcome	I Sem	Design (M20VL01)			
After the co	mpletion of this c	ourse, the students should be able to			
1	-				
2	Define the basic of CMOS technology. Relate, compare, interpret and make the use of the best CMOS design techniques for				
_	implementation, analysis & design of Combinational& Sequential MOS logic circuits.				
3	Know & tell different types of memories and compare performance evaluation of ea				
	•	o they can be able to think & justify how to i	mprove performance by		
	taking different stru				
4		z justify which dynamic logic circuit can be	used investigate CMOS		
5	circuits.	a CMOS taskniques and also other device task	alaging bagad on singuit		
3	constraints requirem	s CMOS techniques and also other device techn	lologies based on circuit		
Course	Semester	CMOS Analog Integrated Circuit	L: 3 T: 0 P: 0 C: 3		
Outcome	I Sem	Design (M20VL02)			
After the co	ompletion of this c	ourse, the students should be able to			
1	*	eters of MOS Devices & can predict the perf	ormance or behavior of		
	Analog VLSI circu				
2		racterize analog devices and systems to	achieve performance		
2	specifications.	$\sum_{i=1}^{n} \frac{1}{i} = $	·		
3 4		ferent topologies involved in the CMOS amplif issues & measurement techniques related to CM	<u> </u>		
4	amplifier design.	rissues & measurement techniques related to er	vios operational		
5		the comparator for different topologies to achie	ve performance		
	Specifications.	1 1 0	I		
Course	Semester	(Program Elective-I) Digital System	L: 3 T: 0 P: 0 C: 3		
Outcome	I Sem	Design using HDL (M20VL03)			
After the co	ompletion of this c	ourse, the students should be able to			
1		sic concepts of Verilog HDL, digital system of A implementation issues.	lesign flow, timing, and		
2		sics of MOS transistors required for MOS based	circuit & layout design.		
3	Know the differen	t design technique for CMOS Combinational G	Circuit Design & able to		
	select suitable desi	gn technique for given performance specification	on.		
4		different design technique for CMOS Sequenti esign technique for given performance specifica			
5					
-	Understand the design flow from simulation to synthesizable / implementation level for VLSI based system design.				
	V LOI Dubeu system				
Course	Semester	(Program Elective-I) VLSI Signal	L: 3 T: 0 P: 0 C: 3		



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After the co	mpletion of this c	course, the students should be able to		
1	Understand the overview of DSP concepts.			
2	Apply the concepts of iteration bound, pipelining& parallel processing for FIR filter design.			
3	Understand techniques of fast convolution & algorithmic strength reduction in the filter structures.			
4	Perform pipelining & parallel processing on recursive filter structures to achieve high speed & low power.			
5	Use of proper tech	niques for parallel processing design for scaling	and round off noise.	
Course	Semester	(Program Elective-I) VLSI Technology L: 3 T: 0 P: 0 C: 3		
Outcome	I Sem	(M20VL05)		
After the co	mpletion of this c	course, the students should be able to		
1	Understand the dif	fferent MOS technologies.		
2	Appreciate the var	ious techniques involved in the VLSI fabrication	n process.	
3	design in VLSI.	epts, transistor structures, interconnects & desig	n rules related to layout	
4		fferent doping & diffusion mechanism.		
5	Understand the r packaging of VLS	nuances of design rules, scaling, transistors, I devices.	*	
12	Semester	(Program Elective-II) Algorithms For	L: 3 T: 0 P: 0 C: 3	
	I Sem	VLSI Design Automation (M20VL06)		
After the co	mpletion of this c	course, the students should be able to		
1	Understand the pro-	eliminaries required for VLSI system design.		
2	Apply the general	purpose methods for combinational optimizatio	n.	
3		oncept of Layout Compaction, Placement, Flo	oor planning& Routing,	
		ation involved in VLSI system design.		
4		pt related to synthesis & verification in VLSI sy	<u> </u>	
5		n cycle of for FPGA and partitioning-routing co		
6	Explain the algorithm modules.	thms for partitioning, floor planning, placemer	nt and routing the MCM	
Course	Semester	(Program Elective-II) Embedded	L: 3 T: 0 P: 0 C: 3	
Outcome	I Sem	System Design (M20VL07)		
After the co	mpletion of this c	course, the students should be able to		
1		oncept of Embedded Systems.		
2		re of typical embedded system.		
3	Know the embedd			
4		RTOS based Embedded system design & related		
5	Appreciate the n embedded.	nethods for task communication for the dev		
Course	Semester	(Program Elective-II) Device Modeling	L: 3 T: 0 P: 0 C: 3	
Outcome	I Sem	(M20VL08)		
After the co	mpletion of this c	course, the students should be able to	1	



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1       Understand the physics of and design elements of silicon MOSFETs.         2       Understand & study the physics behind the operation of integrated diodes & bipolar transistor.         3       Analyze& study the physics behind the operation of integrated diodes & integrated diodes & integrated.         4       Understand the VLSI fabrication techniques.         5       To design circuits using Hetero Junction Devices with physical insight of their         Course       Semester         English For Research Paper Writing       L: 2 T: 0         Outcome       I Sem         1       Develop the content, structure and format of writing a research paper.         2       Understand the research methodology in research paper writing.	rated bipolar
bipolar transistor.         3       Analyze& study the physics behind the operation of integrated diodes & integrated transistor.         4       Understand the VLSI fabrication techniques.         5       To design circuits using Hetero Junction Devices with physical insight of their         Course         0utcome       I Sem         1       Develop the control this course, structure and format of writing a research paper.	rated bipolar
3       Analyze& study the physics behind the operation of integrated diodes & integrated dindiodes & integrated diodes & integrated diodes & inte	functional.
4       Understand the VLSI fabrication techniques.         5       To design circuits using Hetero Junction Devices with physical insight of their         Course       Semester       English For Research Paper Writing       L: 2 T: 0         Outcome       I Sem       (M20AC01)       Image: Course should be able to         1       Develop the content, structure and format of writing a research paper.	functional.
4       Understand the VLSI fabrication techniques.         5       To design circuits using Hetero Junction Devices with physical insight of their         Course       Semester       English For Research Paper Writing       L: 2 T: 0         Outcome       I Sem       (M20AC01)       I         After the completion of this course, the students should be able to       Develop the context, structure and format of writing a research paper.	
5       To design circuits using Hetero Junction Devices with physical insight of their         Course       Semester       English For Research Paper Writing       L: 2 T: 0         Outcome       I Sem       (M20AC01)       I Sem         After the completion of this course, the students should be able to       Develop the content, structure and format of writing a research paper.	
CourseSemesterEnglish For Research Paper WritingL: 2 T: 0OutcomeI Sem(M20AC01)L: 2 T: 0After the completion of this course, the students should be able toDevelop the content, structure and format of writing a research paper.	
Outcome       I Sem       (M20AC01)         After the completion of this course, the students should be able to       Outcome         1       Develop the content, structure and format of writing a research paper.	F: 0 C: 0
After the completion of this course, the students should be able to         1       Develop the content, structure and format of writing a research paper.	
1Develop the content, structure and format of writing a research paper.	
· · · · · · · · · · · · · · · · · · ·	
2 Understand the research methodology in research paper writing.	
3 Analyze and practice writing a Research Paper.	
CourseSemesterResearch Methodology (M20MC01)L: 2 T: 0	P: 0 C: 2
Outcome I Sem	
After the completion of this course, the students should be able to	
1 Appreciate the flow of research methodologies in the research work.	
2 Design Important Concepts Related to Research Design.	
3 Learn better report writing skills and Patenting.	
4 To write a Research Proposal and Research Report & Research Grant Proposal	1.
5 Understand the importance of Intellectual Property.	
Course         Semester         HDL Programming Laboratory         L: 0 T: 0	P: 4 C: 2
Outcome     I Sem     (M20VL09)	
1         Apply the knowledge in Simulation and Synthesis of Digital Circuits.	
2 DesignVariousCombinationalandSequentialcircuitsusingVerilogHDL&HDL.	
3 Explain the System Modeling with Tasks and Functions.	
4 Design of digital circuits using FPGA/CPLD boards.	
CourseSemesterDigital IC Design LaboratoryL: 0 T: 0	P: 4 C: 2
Outcome I Sem (M20VL10)	
After the completion of this course, the students should be able to	
1 Design CMOS inverters, logic circuits and transmission gates to specifications	5.
2 Design latches and flip-flops as the basic circuit for Random-Access- Memory Read-Only-Memory (ROM) cells.	
3 Understand the Design of Bi-CMOS Inverter, logic circuits.	
4 Design post Layout of Different logic circuits.	
CourseSemesterCMOS Mixed Signal Circuit DesignL: 3 T: 0	P: 0 C: 3
	1.00.5
Outcome     II Sem     (M20VL11)	
After the completion of this course, the students should be able to	
1 Build mixed signal circuits like DAC, ADC, PLL etc &Gain knowledge on fil mixed signal mode &To acquire knowledge on design different architectur	÷



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Course	Semester	(Program Elective-III) High Speed	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem	VLSI Design (M20VL15)			
After the co	mpletion of this	course, the students should be able to			
	<u> </u>	different clocking logic styles in VLSI	evetem design as per		
1	specification.				
2	Understand circuit design margining & design variability for VLSI circuit.				
3	Appreciate the concept of latching strategies to optimize the speed of the system.				
4	GainknowledgeoninterfacetechniquesinvolvedinhighspeedVLSIcircuits.				
5	Ŭ	Analyze the clocking styles in design to optimize the timing issues to support high			
	speed processing				
Course	Semester	(Program Elective-IV) ASIC Design	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem	(M20VL16)			
After the co	mpletion of this	course, the students should be able to			
1		amentals of ASIC and its design methods.			
2	<u> </u>	ge on programmable architectures for ASICs & p			
3		ogrammable ASIC Logic Cells & selection of s	uitable ASIC Logic cells		
4	for design.		•		
4 5		oor planning, placement and routing in VLSI Des pt of optimization algorithms in the design of an			
Course	Semester	(Program Elective-IV) System On	L: 3 T: 0 P: 0 C: 3		
Course					
Outcome	II Sem	Chip Architecture (M20VL17)			
After the co	mpletion of this	course, the students should be able to			
1		edge of SoC architecture & organization.			
2		processor microarchitecture & design trade-off for	or SoC.		
3		emory design for SoC.			
4 5		nect structure for different topologies.			
Course		Embedded system on FPGA.	L: 3 T: 0 P: 0 C: 3		
		(Program Elective-IV) Semiconductor			
Outcome	II Sem	Memory Design & Testing (M20VL18)			
After the co	mpletion of this	course, the students should be able to			
1	Know the design of MOS memories and the various precautionary methods to be used in their design.				
2	Learn overview of memory chip design, DRAM circuits, voltage generators, performance analysis and design issues of ultra-low voltage memory circuits.				
3		ge about High-Performance Subsystem Memorie	es & Analyze RAM and		
3	Demonstrate Advanced Memory Technologies and High-density Memory Packing				
4	Demonstrate Ad	•			
4	Demonstrate Ad Technologies & C	Gains knowledge on various testing methods of s	emiconductor memories.		
	Demonstrate Ad Technologies & C	•	emiconductor memories.		



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After the co	mpletion of this c	course, the students should be able to	
1	Enhance of Physic	al strength and flexibility.	
2	Learn to relax and focus.		
3	Relieve physical and mental tension.		
4		formance/ efficiency.	
Course	Semester	Analog IC Design Laboratory	L: 0 T: 0 P: 4 C: 2
Outcome	II Sem	(M20VL19)	
After the co	mpletion of this c	course, the students should be able to	I
1	Design Various C	haracteristics of MOS Logic.	
2	Design Various Amplifier circuits using CMOS Logic.		
3	Design Various ci	rcuits using Different Logic Styles.	
4	Design Layout of	Different logic circuits.	
Course	Semester	Mixed Signal VLSI Laboratory	L: 0 T: 0 P: 4 C: 2
Outcome	II Sem	(M20VL20)	
After the co	mpletion of this c	course, the students should be able to	
1	Design Various A	mplifier circuits using CMOS Logic.	
2	Design Various Co	omplex circuits using Different Logic Styles.	
3	Design Layout of	Different logic circuits.	
4		cuits are to be designed and implemented using	CAD tools.
Course	Semester	Mini Project (M20VL21)	L: 0 T: 0 P: 4 C: 2
Outcome	II Sem		
After the cor	npletion of this co	urse, the students should be able to	
1	Use fundamental project.	knowledge and skills in engineering and ap	oply it effectively on a
2	1 0	ductDevelopmentProcessincludingbudgetingthrough	oughMiniProject
3			
	Plan for various ac	ctivities of the Miniproject.	
4		ctivities of the Miniproject. c hardware and software implementation skills.	
4 5	Inculcate electroni	c hardware and software implementation skills.	
5	Inculcate electroni Manage any dispu	c hardware and software implementation skills. tes and conflicts within and outside individually	
	Inculcate electroni Manage any dispu Prepare a technica	c hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject.	· ·
5 6	Inculcate electroni Manage any dispu Prepare a technica	c hardware and software implementation skills. tes and conflicts within and outside individually	· ·
5 6 7	Inculcate electroni Manage any dispu Prepare a technica Deliver technical s	c hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject.	v. out.
5 6 7 <b>Course</b>	Inculcate electroni Manage any dispu Prepare a technica Deliver technical s Semester	c hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried	v. out.
5 6 7 <b>Course</b>	Inculcate electroni Manage any dispu Prepare a technica Deliver technical s Semester	ic hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried (Program Elective-V)	v. out.
5 6 7 <b>Course</b> <b>Outcome</b> After the cor	Inculcate electroni Manage any dispu Prepare a technical Deliver technical Semester III Sem	ic hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried (Program Elective-V) High Speed VLSI Architectures for DSP Applications (M20VL22) urse, the students should be able to	out. L: 3 T: 0 P: 0 C: 3
5 6 7 Course Outcome	Inculcate electroni Manage any dispu Prepare a technical Deliver technical Semester III Sem	ic hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried (Program Elective-V) High Speed VLSI Architectures for DSP Applications (M20VL22)	out. L: 3 T: 0 P: 0 C: 3
5 6 7 <b>Course</b> <b>Outcome</b> After the cor 1 2	Inculcate electroni Manage any dispu Prepare a technical Deliver technical s Semester III Sem npletion of this co Apply the concept design.	ic hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried (Program Elective-V) High Speed VLSI Architectures for DSP Applications (M20VL22) urse, the students should be able to	out. L: 3 T: 0 P: 0 C: 3 ths in the VLSI system
5 6 7 <b>Course</b> <b>Outcome</b> After the cor 1	Inculcate electroni Manage any dispu Prepare a technical Deliver technical s Semester III Sem npletion of this co Apply the concep design. Design Multiplier Apply the redund	ic hardware and software implementation skills. tes and conflicts within and outside individually l report based on the Miniproject. seminar based on the Mini Project work carried (Program Elective-V) High Speed VLSI Architectures for DSP Applications (M20VL22) urse, the students should be able to ot of unfolding for optimization of critical pa	out. L: 3 T: 0 P: 0 C: 3 ths in the VLSI system cation in VLSI Design.



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	performance of	High Speed VLSI Design.		
5		low power VLSI DSP system.		
Course	Semester	(Program Elective-V)	L: 3 T: 0 P: 0 C: 3	
Outcome	III Sem	Nano materials & Nano Technology		
		(M20VL23)		
After the con	npletion of this of	course, the students should be able to		
1	Understand the	limitations of the MOSFETs & potential of nanoe	electronics.	
2		understanding of the relation between novel be		
		ntum behavior of the matter at the nano scale as		
	received scaling wisdom.			
3	Understand strue	ctures of carbon nanotubes & its applications.		
4		oncept of molecular electronics in nanoscale fabrorinciple of spintronic.	rication technologies	
Course	Semester	(Program Elective-V)	L: 3 T: 0 P: 0 C: 3	
Outcome	ne III Sem RF Circuit Design (M20VL24)			
After the con	mpletion of this of	course, the students should be able to		
1	Understand the	performance parameters / specifications of the RI	F Circuits.	
2		ze the filter design.		
2		evaluate the performance of various specifica	tions of high frequency	
3	amplifier design, Mixer, Oscillators & Power Amplifiers.			
4	Understand the	source of nonlinearity, noise, process technological	ogy & its impact on the	
4	parameters of individual blocks of receiver & on receiver performance.			
5	Demonstrate the building blocks.	e tools & techniques to evaluate the performance	e specifications of the RF	
Course	Semester	(Open Elective) Soft Computing	L: 3 T: 0 P: 0 C: 3	
Outcome	III Sem	Techniques (M20CS12)		
After the con	mpletion of this of	course, the students should be able to		
1	Understand the	Fundamentals of Neural Networks & Feed Forwa	rd Networks.	
2	Design & analyz	ze the Associative Memories & ART Neural Network	works.	
3	Understand & ev	valuate the performance of Fuzzy Logic & Syster	ns.	
4	Understand the	Genetic Algorithms.		
5		ze Hybrid Systems.		
6		Computing concepts, technologies, and applicat		
7		underlying principle of soft computing with	th its usage in various	
	application.		Ι	
Course	Semester	(Open Elective) Graph Theory &	L: 3 T: 0 P: 0 C: 3	
Outcome	III Sem	<b>Optimization Techniques (M20MA02)</b>		
1	Understand the	various types of graph Algorithms and graph theo	bry properties.	
2		– complete problems.		
3		features of the various tree and matching algorith	ms.	
4	Appreciate the a	pplications of digraphs and graph flow.		
5	Understand the	inear programming principles and its conversion	•	
6	Design and emp	loy appropriate method for solving computing pr	oblems.	



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Course	Semester	(Open Elective) Waste Management	L: 3 T: 0 P: 0 C: 3		
Outcome	III Sem	(M20SE27)			
1	Understand how waste management practices protect environmental health and safety.				
2	Apply physical and chemical analysis on municipal solid wastes.				
3	Enhance the route for solid waste collection and transport system.				
4	Develop a method	to use energy from solid wastes.			
5	Explain different r	nethods of disposal of hazardous solid waste.			
Course	Semester	Dissertation Phase-I (M20VL25)	L: 0 T: 0 P: 20 C:10		
Outcome	III Sem	Sem			
After the cor	npletion of this co	urse, the students should be able to			
1	In Master's Project Phase-I, the students should select a recent topic from a reputed International Journal, preferably IEEE, ACM, Springer in the field that has direct or indirect relation to the area of specialization.				
2	After conducting a detailed literature survey, they should compare and analyze research work done and review recent developments in the area and prepare an initial design of the work to be carried out as Master's Project.				
3		hat the students should refer National and Indings while selecting a topic for their Project.	nternational Journals and		
4	Emphasis should b	be given for introduction to the topic, literature or many more preliminary work carried out on			
5		ubmit a copy of Phase-I Project report cover nting the features of work to be carried out in P			
Course	Semester	Dissertation Phase-II (M20VL26)	L: 0 T: 0 P: 32 C:16		
Outcome	IV Sem				
After the cor	npletion of this co	urse, the students should be able to			
1	<u> </u>	owledge and skills in engineering and apply it	effectively on a project.		
2		of the 'real world' situations that a professiona			
3		creative thinking in the design of VLSI System			
4	Demonstrate a sou	nd technical knowledge of selected project top	ic.		
5		kills and attitude of a professional engineer.			
6	Summarize an app to current project.	propriate list of literature review, analyze previ	ous work and relate them		
7		seminar based on the Project work carried out.			
8	Publish the condu	cted research work in a National / Internation ACM, Springer and Scopus indexed/SCI indexed			
	preferably IEEE, F	servi, springer and scopus indexed/ser indexe			



Viswambhara Educational Society

# VAAGDEVI COLLEGE OF ENGINEERING

#### **UGC-Autonomous**

**Department of Mechanical Engineering** 

#### COURSE OUTCOMES FOR B.TECH - ME R20 FOR THE YEAR 2020-2021

Course Outcome	Semester I Sem	Subject Name (Subject Code) LINEAR ALGEBRA AND CALCULUS (B20MA01)	No. of Hours L:3 T:1 P:0	Credits: 4	
After the c	ompletion of this c	ourse, the students should be able to			
1	Understand the pre- equations using n	rinciples of matrix to calculate the characterist nultiple methods.	ics of system of li	inearalgebraic	
2	Determine eigen v	values, eigen vectors and orthogonally diagonal	ize symmetric ma	trices.	
3	Analyze the natur	e of sequence and series to identify the converg	ence.		
4		single-variable functions graphically and comp ta and Gamma functions.	outationally. Analy	yzeimproper	
5	Calculate Partial without constrain	derivatives, Jacobian and extrema of functions ts.	s of multiple varia	ables with or	
Course Outcome	Semester I Sem	<b>Subject Name (Subject Code)</b> Engineering Chemistry (B20CH01)	No. of Hours L:3 T:1 P:0	Credits:4	
After the c	ompletion of this c	ourse, the students should be able to		•	
1		batteries and corrosion			
2	The knowledge of water treatment and				
3	Ŭ	polymers and their us			
4		wledge of principles and concepts of phase rule	and surface chem	nistry	
5	The knowledge of	combustion and fuel			
Course	Semester	Subject Name (Subject Code)	No. of Hours		
Outcome	I Sem	ENGINEERING GRAPHICS (B20ME02)	L:1 T:0 P:4	Credits: 3	
After the c	ompletion of this c	ourse, the students should be able to			
1	Analyze the Proje	ctions of points.			
2	Understand the Pr	ojections of solids.			
3	Estimate the use of Drawings, dimensioning, scales and conic sections.				
4	Modify the Applications of this knowledge in Computer Graphics.				
5	Compare the conversion of isometric views to Orthographic views.				
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	I Sem	PROGRAMMING FOR PROBLEM SOLVING(B20CS01)	L:4 T:0 P:0		
After the c	ompletion of this c	course, the students should be able to			
1	-	now problems are posed and how they ca	in be analyzed t	for obtaining	
2	Understanding th	ne fundamentals of C programming.			
	6				

3	Learning of sequencing, branching, looping and decision making statements to solve Scientific and engineering problems.				
4	Implementing different operations on arrays and creating and using of functions to solve problems				
5	Ability to design and implement different types of file structures using standard Methodology				
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5	
Outcome	I Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:3		
		INTERACTIVE			
		COMMUNICATION SKILLS LAB (B20EN02)			
After the c	rompletion of this c	course, the students should be able to	1		
		strengths and weaknesses in English usage	in formal and inf	ormal	
	contexts.	strongens and weaknesses in English usage	in formar and in	orman	
		ortably in their individualized contexts			
		research skills in English speaking and writ	ing		
		abulary, pronunciation, receptive and expre	-	nglish	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.	
	I Sem	PROGRAMMING FOR PROBLEM		5	
Outcome		SOLVING LAB (B20CS02)	L:0 T:0 P:3		
After the c	completion of this c	course, the students should be able to			
		essary knowledge on general engineering proble	em solving		
	methodologies.		6		
2	the basic concepts i	ry foundations for step by step computer progra n C programming language.	*	nd to present	
3		ents to write modular and readable C Programs			
4 5	The Course introduces the essential concepts like abstract data types, user defined data types. To analyze the performance of algorithms and how to use such knowledge for later processing				
_	with the help of file	es.		rocessing	
		udents to write working programs to solve prob		Constitue 1	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits: 1	
Outcome	I Sem	ENGINEERING WORKSHOP (B20ME04)	L:0 T:0 P:2		
After the c	completion of this c	course, the students should be able to			
	-	ntal knowledge of various trades and their usag	e in real time App	lications	
		Welding, Black smithy, Fitting, Machine shop			
	Understand the basis for analyzing power tools in construction and wood working, electrical engineering and mechanical engineering			lectrical	
4	Apply basic concept	ts of computer hardware for assembly and disa	ssembly		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	II Sem	DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B20MA02)	L:3 T:1 P:0		
After the c	completion of this c	course, the students should be able to			
		ntal concepts of ordinary differential equations	to real time proble	ems.	

3	Evaluate the multip	le integrals in various coordinate systems.		
4	· · · · · · · · · · · · · · · · · · ·	of gradient, divergence and curl to formulate E	ngineering proble	ms.
5		e and volume integrals using fundamental theo	<u> </u>	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	II Sem	ENGINEERING PHYSICS (B20PH03)	L:3 T:1 P:0	
After com	1	rse, the student shall be/shall		1
	-	ormation concepts in Mechancis		
2		on basics of rigid body dynamics and lasers whi	ch leads to new in	novations and
	improvements	in ousles of fight body dynamics and fasers with		no varions and
3	The knowledge of p	physics relevant to engineering is critical for con	nverting ideas into	technology
4	0	of Physics also helps engineers understand the value of Physics also helps engineers understand the value of the second s	•	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	II Sem	ENGINEERING MECHANICS (B20CE01)	L:3 T:1 P:0	
After com	pletion of this cou	se, the student shall be/shall		
	- -	c concepts of engineering mechanics and force	Systems	
2	Calculate the friction developed in motion of bodies			
3		e centroid and moment of inertia for simple and composite bodies		
4		s of mechanics for solving problems of particles		otion
5		rk Energy method for plane motion		
Course	Semester	Subject Name (Subject Code)	No. of Hours L:1 T:0 P:2	Credits:2
Outcome	II Sem	INTRODUCTION TO PYTHON PROGRAMMING (B20CS06)	L:1 1:0 F:2	
After com	pletion of this cou	se, the student shall be/shall		
	-	nentals of writing Python scripts		
_		e Python scripting elements such as variables an	nd conditional con	trol structures
	· · ·	on scripting using looping statements.		
4	· · ·	ions to facilitate code reuse		
5		vork with modules and packages		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	BASIC ELECTRICAL AND	L:3 T:0 P:0	
	ii bein	ELECTRONICS ENGINEERING (B20EE01)		
After com	nletion of this cour	rse, the student shall be/shall	1	1
1	-	prems, mesh and nodal analysis, series and para	llel networks. Fle	ctrical power
2		AC circuits, reactance, Impedance, Susceptance		•
-		principle of DC motors, Transformers		
		istics of PN Junction diode and zener diode		
	<i>y</i>	Amplifiers and Rectifiers		
Course	Semester	Subject Name (Subject Code)	No. of Hours L:0 T:0 P:3	Credits:1.5
Outcome	II Sem	BASIC ELECTRICAL AND	L.V 1.V F.J	

		ELECTRONICS ENGINEERING LAB		
		(B20EE02)		
After com	pletion of this cou	rse, the student shall be/shall		
1	Learn to simplify c	omplex electric and electronic circuits by apply	ing the KVL and I	KCL laws
2	Identify the optimal loading onmachines			
3	Analyze the performance of DC machines			
4		e the performance and operation of semi condu	cting devices	
C				
Course	Semester	Subject Name (Subject Code) PHYSICS LAB (B20PH05)	L:0 T:0 P:3	ci cuito i i c
Outcome	II Sem	111151C5 LAD (D2011105)		
After com	pletion of this cou	rse, the student shall be/shall		
1		rse helps the student how to operate different ec	uipments related	o engineering.
		udent to develop experimental skills to design r		<b>U U</b>
2		ens the student about modern equipment like So		
3		to these experiments, the student can compare t		
-	experiment	······································		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
	Semester	METALLURGY AND MATERIAL	L:3 T:0 P:0	
Outcome	III Sem	SCIENCE (B20ME07)		
After com	pletion of this cou	rse, the student shall be/shall	•	
1		d formation, grains and grain boundaries in cry	stalline metals	
2		calculating the liquid and solid percentage		
3		nt processes to different materials to get require	d properties	
4		out advanced materials like composites & cera		
5	Č Č	tions and the properties of cast irons and steels		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
	Semester	MECHANICS OF SOLIDS (B20ME08)	L:3 T:0 P:0	
Outcome	III Sem	MEETININES OF SOLIDS (B20ME00)		
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand the con	cepts of stress and strain in mechanics of solids	and material prop	perties.
2		ntal concepts of shear force & bending moment	<b>^</b>	
	supported beam &	overhanging beam with point loads, UDL, grad	ually varying load	s & their
	combination			
3		ntal concepts of Bending stresses & shear stress		
4		methods to determine the deflection & slope of	f different beams l	ike double
		Area moment method & Macaulay's method		
5		equation to determine stresses in Thick cylinder	s and to understan	d the concept
	of torsion and its ap	pplication to circular shafts.	N. 677	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Sem	THERMODYNAMICS (B20ME09)	L:3 T:0 P:0	
After com		rse, the student shall be/shall	1	1
1		ic thermodynamic principles and their applicati	ons	
2		hermodynamics for different thermal systems.		
3		n and steam tables to find the properties of pure	e substances	
4	×	properties of perfect gases, real gases and mixtu		
•	Calculate afforent	reperior of perior Suber, real Suber and Illivia	period	

5	Analyse different p	ower cycles		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Sem	MACHINE DRAWING (B20ME10)	L:2 T:0 P:2	
After com	pletion of this cou	rse, the student shall be/shall		
		s conventions used in machine drawing		
2		and use of various machine components		
3	Interpret and make conclusions about a given drawing			
	Prepare the assembly and part drawings for various machine components			
5	Apply the First ang	le projection to machine parts		
Course Outcome	Semester	Subject Name (Subject Code) BASICS OF ARTIFICIAL	No. of Hours L:2 T:0 P:0	Credits:2
Outcome	III Sem	INTELLIGENCE (B20CS26)		
	-	rse, the student shall be/shall		
		to formulate an efficient problem space for a pr	oblem expressed in	n English
		to select a search algorithm for a problem		
3		erization time and space complexities		
		r representing knowledge using the appropriate		
		to apply AI techniques to solve problems of Ga		
6	Possess the Expert	Systems, Machine Learning and Natural Langu		
Course	Semester	Subject Name (Subject Code)	No. of Hours L:2 T:0 P:0	Credits:2
Outcome	III Sem	ENGLISH FOR EFFECTIVE COMMUNICATION (B20EN01)	L:2 1:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	Skim and scan the	digital text to summarize it for future reference		
		ke notes according to their n		
3	<u> </u>	age effectively in spoken and written forms		
		idently in various contexts and different culture		
5	Acquire basic profi speaking skills	ciency in English including reading and listeni		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	III Sem	HUMAN VALUES & PROFESSIONAL ETHICS (B20MC04)	L:2 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	It ensures students sustained happiness through identifying the essentials of human values and skills.			
2	It facilitates a corre	ect understanding between profession and happi	iness	
3	It helps students un	derstand practically the importance of trust, mu ning interaction with nature		uman
	Ability to develop appropriate technologies and management patterns to create harmony in professional and personal life			
4	· · ·	ersonal life		1
	· · ·	subject Name (Subject Code)	No. of Hours	Credits:1.5
	professional and pe		No. of Hours L:0 T:0 P:3	Credits:1.5
Course Outcome	professional and pe Semester III Sem	Subject Name (Subject Code) MECHANICS OF SOLIDS LAB		Credits:1.5
Course Outcome After com	professional and pe Semester III Sem pletion of this cou	Subject Name (Subject Code) MECHANICS OF SOLIDS LAB (B20ME12)		Credits:1.5

3	Perform Hardness t	est to find hardness of components		
		f springs with all parameters		
		test on Beams and can analyze the Beams		
-		•	No. of Hours	Credits:1.5
Course Outcome	Semester III Sem	Subject Name (Subject Code) METALLURGY LAB (B20ME13)	L:0 T:0 P:3	Creutis.1.5
		···· 414 14 -1 - 11 1 (-1 - 11		
	-	rse, the student shall be/shall ic Crystal structures of various materials		
2		grain boundary, crystal structure of different ma	tomiola	
3		icture of various materials	liter fais	
4	•	cal properties of various Metals and Non-Metal	0	
5		cal properties of ferrous and Nonferrous alloys	18	
-	, i i i i i i i i i i i i i i i i i i i	· · · ·	No. of Hours	Credits:4
Course	Semester	Subject Name (Subject Code)	L:3 T:1 P:0	Creans:4
Outcome	IV Sem	PROBABILITY AND STATISTICS	L.J 1.11.0	
		(B20MA07)		
After com	pletion of this cou	rse, the student shall be/shall		
1	Use probability the	ory and deals with modelling uncertainty in ord	er to evaluate the	probability of
	real world events			
2	Develop discrete pr	obability distributions and its applications, and	use these techniqu	ies to generate
	data from Binomial	and Poisson Distributions		
3	Use the techniques	of continuous probability distributions to generate	ate data from Nor	mal
	Distributions			
4	Perform correlation	and regression analysis, in order to estimate the	e nature and the st	rength of the
	linear relationship b	between two variables		
5	Construct confidence	ce interval to estimates population parameters to	o test the hypothes	is
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
		FLUID MECHANICS AND HYDRAULIC	L:3 T:0 P:0	
Outcome	IV Sem	MACHINERY (B20ME14)		
After com	pletion of this cou	rse, the student shall be/shall		
1	-	and basic sciences and translates this knowledge	ge to understand f	uid flow
	principles and their			
2	Understand fundam	ental knowledge of the mechanics of fluid at re	st and in motion	
3		omena by developing and using the principles, l		
4		actions with natural and constructed systems		
5		ntal knowledge & performance of different turb	ines & pumps	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	THERMAL ENGINEERING-I (B20ME15)	L:3 T:0 P:0	
	-	rse, the student shall be/shall		
		cept and working of two and four strokes I.C. e	-	
2	•	and abnormal condition for the combustion of	SI and CI engines	also the
	parameters which effect the combustion characteristics			
3		e performance of the engine with different para	meters	
		ut compressors and their classifications		
		s compressor on the basis of their working and	requirement and o	can use
	suitable one.			

	1				
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Sem	KINEMATICS OF MACHINES	L:3 T:0 P:0		
Outcome	IV Still	(B20ME16)			
After com	pletion of this cou	rse, the student shall be/shall			
1	Identify the basic n	nechanisms involved in machines			
2	Develop familiarity	y with application of kinematics theories to real-	world machines		
3	Identify the basic r	elations between distance, time, velocity and acc	celeration		
4	Understand analyti	cal linkage analysis, determine cam profiles			
5	Analyze gear trains	s and gear profiles, speed regulation methods			
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
		PRODUCTION TECHNOLOGY	L:3 T:0 P:0		
Outcome	IV Sem (B20ME17)				
After com	pletion of this cou	rse, the student shall be/shall		I	
		lge of casting, welding joints and forces and pow	ver requirements i	n metal	
	forming processes	ge of easting, werding joints and forces and pow	for requirements r	ii iiictui	
2		solidification, pattern allowances, gating and ris	ser design of mold	cavity	
	aspects of casting.	sonanieation, pattern and wallees, gaing and h	ser design of more	currey,	
3		alculations of forces and power requirements in	the metal forming	operations	
4		pplication of welding using the arc welding, gas			
•	soldering and brazi		, resistance	e werding,	
5		occurring in forging operation			
	2		No. of Hours	Credits:1.5	
Course	Semester	Subject Name (Subject Code) FLUID MECHANICS AND HYDRAULIC	L:0 T:0 P:3	creatistic	
Outcome	IV Sem	MACHINERY LAB (B20ME19)			
After com	pletion of this cou	rse, the student shall be/shall		I	
1	_	of fluid mechanics and hydraulic machines and t	ranslates this kno	wledge for	
		I flow principles and their application to experin			
2		by using components vacuum gauge, pressure g		, pipes.	
	motors, pumps & t			, <b>F F</b> ,	
3		theoretical values with the real parameters			
4	1	and the experimental analysis in turbines and put	mps with paramet	ers such as	
		water, speed of brake drum.	I I I I I I I I I I I I I I I I I I I		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
		PRODUCTION TECHNOLOGY LAB	L:0 T:0 P:3		
Outcome	IV Sem	(B20ME20)			
After com	pletion of this cou	rse, the student shall be/shall			
1	-	nowledge and concepts of various experiments			
2		materials (similar/dissimilar) using welding			
3	3 0	ots of extrusion and design of die			
4		nolding and blow molding machines			
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1	
Outcome	IV Sem	FUELS & LUBRICANTS LAB (B20ME21)	L:0 T:0 P:2		
		rsa tha student shall ha/shall	<u> </u>		
		rse, the student shall be/shall			
1		point & fire point of liquid fuels			
2 3		n percentage for liquid fuels			
1	inustrate the viscos	sity of Liquid lubricants			

4	Apply different methods to determine the calorific value of fuels
5	Compare the depth of penetration for different lubricants



Viswambhara Educational Society

VAAGDEVI COLLEGE OF ENGINEERING

**UGC-Autonomous** 

**Department of Mechanical Engineering** 

# COURSE OUTCOMES FOR M.TECH – THERMAL ENGINEERING R20 FOR THE YEAR 2020-2021

Course Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED THERMODYNAMICS (M20TE01)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	ourse, the students should be able to		
1	Emphasize the re	levance of Evaluation of thermodynamic pro	operties of workin	g substance
2		tions of Energy properties of real gases, Vaj		
3	cooling towers	ic mixture properties and psychometric char		
4	levels of tables. Er	on Reactions, Enthalpy of formation. Entrop ergy of formation, Heat reaction		
		n Review binary vapour cycle, co generation cles and Refrigeration cycles	and combined cy	cles, Second
Course Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED FLUID MECHANICS (M20TE02)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	ourse, the students should be able to		
1	Relate Application	ns Of In Viscid Flow Of Incompressible Flu	iids	
2	Apply Basic Law	s Of Fluid Flow		
3	Understanding T	ne Viscous Flow		
4	Contrast Boundar	ry Layer Concepts		
5	Tabulate Fundam	ental Concept Of Turbulence		
Course Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED REFRIGERATION AND AIR CONDITIONING (M20TE03)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	ourse, the students should be able to		
1	Deal with Compo	onents of Vapor Compression System		
2	Develop the study	y skills on Production of Low Temperature.		
3		y skills on Steam Jet refrigeration system,Re tions and applications.	presentation on T	-s and h-s
4		on Construction of Psychometric chart, Requ ermodynamics of human body	irements of Comf	Fort Air –
5		ith Parameters influencing the Effective Ten nditioning systems	nperature. Summe	r, winter and
Course Outcome	Semester I Sem	Subject Name (Subject Code) TURBO MACHINES (M20TE04)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	ourse, the students should be able to	1	

1	Understand the F	undamentals of turbo machines and their ap	plications	
		team nozzle and steam turbine in power pla		of their flow
2	on performance of	1 1		
3	To equip students	with the fundamental of thermodynamics c	concepts for gas dy	namics.
4	Get Knowledge about type and working principle of centrifugal compressors.			
5	Deal with Fundamental concept of Axial flow compressors and different type of cascade systems			
Course Outcome	Semester I Sem	Subject Name (Subject Code) ENERGY MANAGEMENT (M20TE05)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Understand The N	Need Of Energy Management And Its Prince	iples.	
2	Analyze The Req	uirement Of Energy Audit And Its Concept	s.	
3	Applythe Concep	ts Of Economic Analysis And Its Scope.		
4	Select Methods C	Of Evaluation Of Projects.		
5	Survey Fundamen	ntal Concept Energy Audit		
Course Outcome	Semester I Sem	Subject Name (Subject Code) GAS TURBINES (M20TE06)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Explain the Appl	ications and classifications of gas turbines		
2	· · · ·	lifferent processes for improving the perform	nance of the plant	
3		and Real cycle gas turbines and concept of	-	
4		bout fundamental equations and laws of rot		2
5		nd advanced concepts and working principle		e of
Course Outcome	Semester I Sem	Subject Name (Subject Code) NON CONVENTIONAL ENERGY SOURCES (M20TE07)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Know About Sola Passive Heating I	ar Energy Applications: Solar Water Heating Energy	g. Space Heating,	Active And
2	U	Df Earth, Geothermal Regions, Hot Springs.	Hot Rocks	
3		em In Thermionic & Thermoelectric Genera		ator.
4	Compare Fusion,	Fusion Reaction, P-P Cycle, Carbon Cycle, usion, Fuel Cells And Photovoltaic.		
5		urces. Plant Productivity, Biomass Wastes,	Aerobic And Ana	erobic
Course Outcome	Semester I Sem	Subject Name (Subject Code) EQUIPMENT DESIGN FOR THERMAL SYSTEMS (M20TE08)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Get details about	heat exchanger and its classifications.		
2		fect of increasing pipes in performance of he	eat exchanger and	get idea

4       Get Knowledge about processes like vaporization, evaporation and reboiling and study about the equipments used for these processes       Studyet Name (Subject Code) ADVANCED THERMAL ENTROPY ADVANCED THERMAL ENTROP	3	single vapors.	vorking principle of steam condenser and exp			
Course OutcomeSemester 1 SemSubject Name (Subject Code) ADVANCED THERMAL ENGINEERING LAB (M2OTEO9)No. of Hours 1:0 T:0 P:4Credits: 2After the Understand the Analysis of air conditioning unit.2Understand the Analysis of it conditioning unit.3Know about Performance analysis of flat plate collector.4Know about Performance analysis of flat plate collector.No. of Hours L:0 T:0 P:4Credits: 24Know about Performance analysis of flat plate collector.No. of Hours L:0 T:0 P:4Credits: 26Semester Understand the Analysis of flow profile on the designed nozzle.No. of Hours L:0 T:0 P:4Credits: 22Understand the Analysis of flow profile on the designed nozzle.Credits: 22Understand the Analysis of flow profile on the designed nozzle.Credits: 22Understand the Analysis of flow profile on the designed nozzle.3Know about Fuelextand the Analysis of flow profile on the designed nozzle.4Understand beabut Intellectual Property RightCredits: 23Estimate research related information. </td <td>4</td> <td></td> <td colspan="4">about the equipments used for these processes</td>	4		about the equipments used for these processes			
Course Outcome       Semiester I Sem       ADVANCED THERMAL ENGINEERING LAB (M20TE09)       INO. OF HOURS L:0 T:0 P:4       Credits: 2         After the completion of this course, the students should be able to       1       Understand the Analysis of air conditioning unit.	5	To understand th	e working principle of cooling tower			
1       Understand the Analysis of air conditioning unit.         2       Understand the Analysis of heat pipe.         3       Know about Performance analysis of flat plate collector.         4       Know about Performance analysis of evacuative tube concentrator         4       Know about Performance analysis of evacuative tube concentrator         Course       Semester I Sem       Subject Name (Subject Code) MODELING AND ANALYSIS LAB-1 (M20TE10)       No. of Hours L: 0 T: 0 P:4       Credits: 2         After the completion of this course, the students should be able to       1       Understand the Analysis of flow profile on the designed nozzle.       Credits: 2         2       Understand the Analysis of flow profile on the designed nozzle.       1       Understand the Analysis of flow profile on were curved surface.         4       Understand the Analysis of flow profile on were curved surface.       No. of Hours L: 2 T: 0 P:0       Credits: 2         Course       Semester I Sem       Subject Name (Subject Code) (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         3       Estimate research problem formulation.       Analyze research related information.       5       Discuss new and better products for economic growth and social benefits.         5       Outcome       Stress MANAGEMENT (M20AC02)       No. of Hours L: 2 T: 0 P:0       Credits: 0         4       Inderstand The Need Of			ADVANCED THERMAL		Credits: 2	
2       Understand the Analysis of heat pipe.         3       Know about Performance analysis of flat plate collector.         4       Know about Performance analysis of evacuative tube concentrator         Course       Semester I Sem       Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M2OTEI0)       No. of Hours L: 0 T: 0 P:4       Credits: 2         After the completion of this course, the students should be able to       Inderstand the Analysis of flow profile on the designed nozzle.       Credits: 2         2       Understand the Analysis of flow profile on the designed nozzle.       Inderstand the Analysis of flow profile on the designed nozzle.       Course         3       Understand the Analysis of flow profile on the designed nozzle.       Course       Subject Name (Subject Code) (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         4       Understand about Intellectual Property Right       No. of Hours (M20MC01)       Credits: 2       Credits: 2         2       Compose and write quality research reports and attain familiarity with intellectual property rights.       Stimate research problem formulation.       Analyze research related information.         4       Analyze research related information.       Stipect Name (Subject Code) Discuss new and better products for economic growth and social benefits.       Credits: 0         4       Semester I Sem       Stipect Name (Subject Code) StrESS MANAGEMENT (M20ACO2)       No. of Ho	After the c	ompletion of this c	course, the students should be able to			
2       Understand the Analysis of heat pipe.         3       Know about Performance analysis of flat plate collector.         4       Know about Performance analysis of evacuative tube concentrator         Course       Semester I Sem       Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M2OTEI0)       No. of Hours L: 0 T: 0 P:4       Credits: 2         After the completion of this course, the students should be able to       Inderstand the Analysis of flow profile on the designed nozzle.       Credits: 2         2       Understand the Analysis of flow profile on the designed nozzle.       Inderstand the Analysis of flow profile on the designed nozzle.       Course         3       Understand the Analysis of flow profile on the designed nozzle.       Course       Subject Name (Subject Code) (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         4       Understand about Intellectual Property Right       No. of Hours (M20MC01)       Credits: 2       Credits: 2         2       Compose and write quality research reports and attain familiarity with intellectual property rights.       Stimate research problem formulation.       Analyze research related information.         4       Analyze research related information.       Stipect Name (Subject Code) Discuss new and better products for economic growth and social benefits.       Credits: 0         4       Semester I Sem       Stipect Name (Subject Code) StrESS MANAGEMENT (M20ACO2)       No. of Ho	1	Understand the A	Analysis of air conditioning unit.			
3       Know about Performance analysis of flat plate collector.         4       Know about Performance analysis of evacuative tube concentrator         4       Know about Performance analysis of evacuative tube concentrator         Course Outcome       Semester I Sem       Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M20TE10)       No. of Hours L:0 T:0 P:4       Credits: 2         After the completion of this course, the students should be able to       1       Understand the Analysis of flow profile on the designed nozzle.       Credits: 2         2       Understand the Analysis of flow profile on the designed nozzle.       Understand the Analysis of flow on over curved surface.       Course         4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate       Credits: 2         4       Understand the Analysis of flow property Right       No. of Hours L: 2 T: 0 P:0       Credits: 2         6       Semester I Sem       Subject Name (Subject Code) (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         1       Understand about Intellectual Property Right       No. of Hours L: 2 T: 0 P:0       Credits: 2         2       Estimate research problem formulation.       No. of Hours L: 2 T: 0 P:0       Credits: 0         3       Estimate research related information.       StrESS MANAGEMENT (M20AC02)       No. of Hours L: 2 T: 0 P:0       Credits: 0 <tr< td=""><td>2</td><td></td><td></td><td></td><td></td></tr<>	2					
4       Know about Performance analysis of evacuative tube concentrator         Course Outcome       Semester I Sem       Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M2OTEIO)       No. of Hours L:0 T:0 P:4       Credits: 2         After the completion of this course, the students should be able to       1       Understand the Analysis of flow profile on the designed nozzle.       Credits: 2         2       Understand the Analysis of flow profile on the designed nozzle.       4       Understand the Analysis of fluid flow on over curved surface.       4         4       Understand the Analysis of flow grofile on on exerved surface.       8       Subject Name (Subject Code) (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         6       Semester Outcome       Subject Name (Subject Code) I Sem       No. of Hours (M20MC01)       No. of Hours L: 2 T: 0 P:0       Credits: 2         7       Understand about Intellectual Property Right       5       Course on write quality research reports and attain familiarity with intellectual property rights.       3       Estimate research related information.       5       5       Credits: 0         7       Discuss new and better products for economic growth and social benefits.       5       Credits: 0         8       Stipeet Name (Subject Code) Tights.       No. of Hours L: 2 T: 0 P:0       Credits: 0         9       Stipeet Name (Subject Code) StrEESS MANAGEMENT (M20A						
Course Outcome         Semester I Sem         Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I (M20TE10)         No. of Hours L:0 T:0 P:4         Credits: 2           After the completion of this course, the students should be able to         1         Understand the Analysis of flow profile on the designed nozzle.         2           2         Understand the Analysis of fluid flow on over curved surface.         4         Understand the Analysis of force exerted by the fluid jet on fixed flat plate           4         Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Subject Name (Subject Code) (M20MC01)         No. of Hours L: 2 T: 0 P:0         Credits: 2           4         Understand about Intellectual Property Right         No. of Hours (M20MC01)         No. of Hours L: 2 T: 0 P:0         Credits: 2           4         Understand about Intellectual Property Right         No. of Hours (M20MC01)         No. of Hours L: 2 T: 0 P:0         Credits: 2           3         Estimate research related information.         5         Discuss new and better products for economic growth and social benefits.           5         Discuss new and better Subject Name (Subject Code) Outcome         No. of Hours I Semester         No. of Hours STRESS MANAGEMENT (M20AC02)         No. of Hours L: 2 T: 0 P:0         Credits: 0           4         Analyze research related information.         5         Course         Subject Name (Subject Code) STRESS MANAGEMEN	4		· · · · · · · · · · · · · · · · · · ·	rator		
1       Understand the Analysis of flow profile on the designed nozzle.         2       Understand the Designing the diffuser and Analysis of flow profile on the designed diffuser         3       Understand the Analysis of fluid flow on over curved surface.         4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Course Outcome       Semester I Sem       Subject Name (Subject Code) RESEARCH METHODOLOGY (M20MC01)       No. of Hours L:2 T:0 P:0       Credits: 2         After the completion of this course, the students should be able to       1       Understand about Intellectual Property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.       No. of Hours         4       Analyze research related information.       Estimate research products for economic growth and social benefits.         5       Discuss new and better products for economic growth and social benefits.       Credits: 0         4       Inderstand The Need Of Energy Management And Its Principles.       Credits: 0         1       Understand The Need Of Energy Audit And Its Concepts.       Apply The Concepts Of Economic Analysis And Its Scope.         2       Analyze The Requirement Of Energy Audit And Its Concepts.       Compar		Semester	Subject Name (Subject Code) MODELING AND ANALYSIS LAB-I	No. of Hours	Credits: 2	
2       Understand the Designing the diffuser and Analysis of flow profile on the designed diffuser         3       Understand the Analysis of fluid flow on over curved surface.         4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Course Outcome         1       Semester I Sem         1       Understand about Intellectual Property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Credits: 0         Outcome         Analyze The Requirement Of Energy Management And Its Principles.         Analyze The Requirement Of Energy Audit And Its Concepts.         Semester         1       Understand The Need Of Energy Management And Its Principles.         2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Subject Nam	After the c	ompletion of this c	course, the students should be able to			
2       Understand the Designing the diffuser and Analysis of flow profile on the designed diffuser         3       Understand the Analysis of fluid flow on over curved surface.         4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Course Outcome         1       Semester I Sem         1       Understand about Intellectual Property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Credits: 0         Outcome         Analyze The Requirement Of Energy Management And Its Principles.         Analyze The Requirement Of Energy Audit And Its Concepts.         Semester         1       Understand The Need Of Energy Management And Its Principles.         2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Subject Nam	1	Understand the A	analysis of flow profile on the designed nozz.	le.		
3       Understand the Analysis of fluid flow on over curved surface.         4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Course Outcome       Semester I Sem       Subject Name (Subject Code) RESEARCH METHODOLOGY (M20MC01)       No. of Hours L:2 T:0 P:0       Credits: 2         After the completion of this course, the students should be able to       I:2 T:0 P:0       Credits: 2         1       Understand about Intellectual Property Right       Intellectual Property Right       Intellectual property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.       Intellectual property Right       Intellectual property Right         3       Estimate research problem formulation.       Analyze research related information.       Intellectual property Right       Intellectual Property Right         5       Discuss new and better products for economic growth and social benefits.       Credits: 0         6       Semester Outcome       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L:2 T:0 P:0       Credits: 0         1       Understand The Need Of Energy Management And Its Principles.       Intellectual Property Right And Its Concepts.       Intunderstand The Need Of Energy Audit And Its Concepts. </td <td>2</td> <td></td> <td></td> <td></td> <td>gned diffuser.</td>	2				gned diffuser.	
4       Understand the Analysis of force exerted by the fluid jet on fixed flat plate         Course Outcome       Semester I Sem       Subject Name (Subject Code) RESEARCH METHODOLOGY (M20MC01)       No. of Hours L:2 T:0 P:0       Credits: 2         After the completion of this course, the students should be able to       I:2 T:0 P:0       Credits: 2         1       Understand about Intellectual Property Right       Compose and write quality research reports and attain familiarity with intellectual property rights.       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.       No. of Hours L:2 T:0 P:0       Credits: 0         4       Analyze research related information.       No. of Hours L:2 T:0 P:0       Credits: 0         5       Discuss new and better products for economic growth and social benefits.       Credits: 0         6       StrESS MANAGEMENT (M20AC02)       No. of Hours L:2 T:0 P:0       Credits: 0         1       Understand The Need Of Energy Management And Its Principles.       I:2 T:0 P:0       Credits: 0         2       Analyze The Requirement Of Energy Management And Its Principles.       I:2 Analyze The Requirement Of Energy Audit And Its Concepts.       I:3         3       Apply The Concepts Of Economic Analysis And Its Scope.       Ibiscuss The Methods Of Evaluation Of Projects.       Imagemethods Of Evaluation Of Projects.	3					
Course OutcomeSemester I SemRESEARCH METHODOLOGY (M20MC01)No. of Hours L:2 T:0 P:0Credits: 2After the completion of this course, the students should be able to1Understand about Intellectual Property Right5555555555555555555555555555555555555555555555555555555555555555555555555555555555555Subject Name (Subject Code) Analyze The Requirement Of Energy Management And Its Principles.55Credits: 04111111111111111111111111111111111111111111111111111111111111111111111111	4					
1       Understand about Intellectual Property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Course Outcome         Semester       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L: 2 T: 0 P: 0       Credits: 0         After the completion of this course, the students should be able to       It understand The Need Of Energy Management And Its Principles.       It understand The Need Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.       It biscuss The Methods Of Evaluation Of Projects.       It is Subject Name (Subject Code) ADIS Subject Name (Subject Code) ADIS ADI SCOP.       No. of Hours It is Y is T: 0 P: 0         4       Discuss The Methods Of Evaluation Of Projects.       Compare The End Creativity By Self Development Program Like Yoga.         5       Compare The End ADIS OF Evaluation Of Projects.       No. of Hours It is T: 0 P: 0       Credits: 3         4       Discuss The Methods Of Evaluation Of Projects.       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours It is T: 0 P: 0       Credits: 3			RESEARCH METHODOLOGY		Credits: 2	
1       Understand about Intellectual Property Right         2       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Course Outcome         Semester       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L: 2 T: 0 P: 0       Credits: 0         After the completion of this course, the students should be able to       It understand The Need Of Energy Management And Its Principles.       It understand The Need Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.       It biscuss The Methods Of Evaluation Of Projects.       It is Subject Name (Subject Code) ADIS Subject Name (Subject Code) ADIS ADI SCOP.       No. of Hours It is Y is T: 0 P: 0         4       Discuss The Methods Of Evaluation Of Projects.       Compare The End Creativity By Self Development Program Like Yoga.         5       Compare The End ADIS OF Evaluation Of Projects.       No. of Hours It is T: 0 P: 0       Credits: 3         4       Discuss The Methods Of Evaluation Of Projects.       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours It is T: 0 P: 0       Credits: 3	After the c	ompletion of this c	course, the students should be able to			
2       Compose and write quality research reports and attain familiarity with intellectual property rights.         3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Course Outcome I Sem         0utcome       Semester         1       Semester         1       Understand The Need Of Energy Management And Its Principles.         2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem         3       Apply The Concepts of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)         After the completion of this course, the students should be able to       Credits: 3		_				
3       Estimate research problem formulation.         4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Course Outcome       Semester I Sem       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L:2 T:0 P:0       Credits: 0         After the completion of this course, the students should be able to       1       Understand The Need Of Energy Management And Its Principles.       Credits: 0         2       Analyze The Requirement Of Energy Audit And Its Concepts.       3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.       5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         5       Semester II Sem       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours L:3 T:0 P:0       Credits: 3	2	Compose and wr		rity with intellect	ual property	
4       Analyze research related information.         5       Discuss new and better products for economic growth and social benefits.         Course Outcome       Semester       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L:2 T:0 P:0       Credits: 0         After the completion of this course, the students should be able to       1       Understand The Need Of Energy Management And Its Principles.       Credits: 0         2       Analyze The Requirement Of Energy Audit And Its Concepts.       3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.       5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         5       Semester Outcome       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours L:3 T:0 P:0       Credits: 3	3	•	n problem formulation.			
5       Discuss new and better products for economic growth and social benefits.         Course Outcome       Semester I Sem       Subject Name (Subject Code) STRESS MANAGEMENT (M20AC02)       No. of Hours L:2 T:0 P:0       Credits: 0         After the completion of this course, the students should be able to       Image: Completion of this course, the students should be able to       Credits: 0         1       Understand The Need Of Energy Management And Its Principles.       Image: Completion of this concepts.       Image: Completion of this concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.       Image: Compare The Emotion of Projects.       Image: Compare The Emotion of Projects.         5       Compare The Emotion Creativity By Self Development Program Like Yoga.       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours L:3 T:0 P:0       Credits: 3	4					
OutcomeI SemSTRESS MANAGEMENT (M20AC02)L:2 T:0 P:0Credits: 0After the completion of this course, the students should be able to1Understand The Need Of Energy Management And Its Principles.2Analyze The Requirement Of Energy Audit And Its Concepts.3Apply The Concepts Of Economic Analysis And Its Scope.4Discuss The Methods Of Evaluation Of Projects.5Compare The Enhancing Creativity By Self Development Program Like Yoga.CourseSemester II SemAfter the completion of this course, the students should be able to	5			cial benefits.		
1       Understand The Need Of Energy Management And Its Principles.         2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem         Mathematical Section of this course, the students should be able to       No. of Hours L:3 T:0 P:0					Credits: 0	
1       Understand The Need Of Energy Management And Its Principles.         2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem         Mathematical Section of this course, the students should be able to       No. of Hours L:3 T:0 P:0	After the c	ompletion of this c	ourse, the students should be able to			
2       Analyze The Requirement Of Energy Audit And Its Concepts.         3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         No. of Hours ADVANCED HEAT TRANSFER (M20TE11)         After the completion of this course, the students should be able to		-	· · ·	nles		
3       Apply The Concepts Of Economic Analysis And Its Scope.         4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem         Mathematical Section of this course, the students should be able to       No. of Hours L:3 T:0 P:0	-					
4       Discuss The Methods Of Evaluation Of Projects.         5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem         Semester II Sem       ADVANCED HEAT TRANSFER (M20TE11)         After the completion of this course, the students should be able to				•		
5       Compare The Enhancing Creativity By Self Development Program Like Yoga.         Course Outcome       Semester II Sem       Subject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)       No. of Hours L:3 T:0 P:0       Credits: 3         After the completion of this course, the students should be able to       Credits: 3       Credits: 3						
Course OutcomeSemester II SemSubject Name (Subject Code) ADVANCED HEAT TRANSFER (M20TE11)No. of Hours L:3 T:0 P:0Credits: 3After the completion of this course, the students should be able to			0	ogram Like Yoga.		
	Course	Semester	Subject Name (Subject Code) ADVANCED HEAT TRANSFER	No. of Hours	Credits: 3	
	After the c	ompletion of this c	course, the students should be able to			
1 Emphasize the General heat Conduction equation.						

2	Know the Lumpe	ed system analysis		
3	Know about Equations of fluid flow			
4	1	e concept of free convection, boiling and cor	Idensation	
5		ge about transfer of heat in the space and at h		
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED I.C. ENGINES (M20TE12)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	-	ign and operating Parameters		
2		Thermo-chemistry of Fuel-Air mixtures.		
3		e effect of Volumetric Efficiency on the peri	formance of the e	ngines
4		on Mean velocity and turbulent characteristic		ingines.
5		mal combustion Fuel factors, MPFI		
Course Outcome	Semester II Sem	Subject Name (Subject Code) CRYOGENIC ENGINEERING (M20TE13)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	To understand the	e main concept of cryogenic systems.		
2		ortance and applications of gas liquefaction		
3		orking of liquefaction systems for various ty	pes of gases	
4		ith the knowledge of gas separation systems		systems.
5		edge on cryogenic refrigeration systems	1	5
Course Outcome	Semester II Sem	Subject Name (Subject Code) JET PROPULSION AND ROCKET ENGINEERING (M20TE14)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	To understand the	e concept of turbo jet propulsion system and	performance of f	light.
2		o learn the concept of rocketry and its fundation	<u>.</u>	0
3		edge on the effect of nozzle design on the pe		propulsion.
4	<b>.</b>	e combustion chemistry of fuels used in rock	<i>v</i> 1	- • F ======
5		ith the knowledge of advanced rocket engine		
Course Outcome	Semester II Sem	Subject Name (Subject Code) ALTERNATE FUELS (M20TE15)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Know about Ava hydrogen, and an	ilability and properties of alternate fuels, ger	neral use of Alcoh	ols, LPG,
2		ties as engine fuel, alcohols and gasoline ble	nds.	
3		e a problem in performance in SI & CI Engin		
4		nance and emission characteristics, bio diese		ristics
5	To enable studen	ts on Layout of an electric vehicle, advantagestem components.		
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED COMPUTATIONAL FLUID DYNAMICS (M20TE16)	No. of Hours L:3 T:0 P:0	Credits: 3

After the c	completion of this c	ourse, the students should be able to		
1	Understand Finite Difference Method, Finite Volume Method, Finite Element Method			
2	Consider Solution Methods Of Elliptical Equations			
3	Understand Boundary Layer Equations For Laminar, Turbulent Flow			
4	Solve Numerical On Burgers Equations: Explicit And Implicit Schemes, Runge- Kutta			
4	Method.			
5	Apply Knowledg Methods.	e On Formulations Of Incompressible Visco	us Flows By Fini	te Difference
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	II Sem	THERMAL AND NUCLEAR POWER	L:3 T:0 P:0	Credits: 3
outcome	H Sem	PLANTS (M20TE17)	L.5 1.01.0	
After the c	-	course, the students should be able to		
1	Understand the T	ype of Power plants, Direct energy conversion	on system.	
2	Analysis and Uno	derstand Recent developments in power gene	eration.	
3	Know about Feed	d water heaters.		
4	To impart knowle	edge on Combined cycle power plant and its	importance.	
5		e concepts of Nuclear Reactor and its Classif		
~	~	Subject Name (Subject Code)		
Course	Semester	THERMAL MEASUREMENTS &	No. of Hours	Credits: 3
Outcome	II Sem	PROCESS CONTROLS (M20TE18)	L:3 T:0 P:0	
After the c	completion of this c	ourse, the students should be able to	I	
1	Understand the fu	indamental principles of measuring instrume	ents.	
2	Identify the work	ing principle of all the instruments used to de	etermine the flow	
3	Develop the adva	unced thermometers for different type of open	rations.	
4	Measure the leve	l by direct or indirect methods.		
5		e on principles used for process control		
		Subject Name (Subject Code)		
Course	Semester	ADVANCED INTERNAL	No. of Hours	Credits: 2
Outcome	II Sem	COMBUSTION ENGINES LAB	L:0 T:0 P:4	Creans: 2
		(M20TE19)		
After the c	completion of this c	ourse, the students should be able to		
1	Understand the e engine.	ffect of change in compression ratio on the p	erformance of die	esel& petrol
2	Analyze the effect	et of change in fuel injection timing on the pe	erformance of die	sel engine.
3	-	inalysis Flame propagation analysis of gaseo		
4		e of fuels and analyze its effect on the perfor		nd petrol
		Subject Name (Subject Code)		•
Course	Semester	MODELING AND ANALYSIS LAB-II	No. of Hours	Credits: 2
Outcome	II Sem	(M20TE20)	L:0 T:0 P:4	
After the c	completion of this c	ourse, the students should be able to		
1		al stress analysis of piston head of diesel eng	ine for real condi	tion.
2	Design of intake	and exhaust valve for diesel engine.		
3	Analyze the them	nal stress of crank rod of diesel engine for re	al operating cond	itions.
4	Understand effect of thermal stress on the intake and outlet valve of IC engines			

Course	Semester	Subject Name (Subject Code) ENGLISH FOR RESEARCH PAPER	No. of Hours	Credits: 2
Outcome	II Sem	WRITING (M20AC01)	L:0 T:0 P:4	Creuits. 2
After the c	ompletion of this c	course, the students should be able to	· ·	
1	To understand th	e nuances of language and vocabulary in wr	iting a Research P	aper.
2	To develop the content, structure and format of writing a research paper.			
3	To give the pract	ice of writinga Research Paper.		
4	To enable the stu	dents to evolve original research papers with	nout subjected to p	olagiarism
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	III Sem	ADVANCED MATERIALS FOR	L:3 T:0 P:0	Credits: 3
outcome		THERMAL SYSTEMS (M20TE22)		
After the c	-	course, the students should be able to		
1		undamentals of different type of testing meth		
2		Behavior Heat Treatment of Steels and Cast		
3	· · ·	e on fundamentals of Nuclear Power Plant a		S
4		erials in Fuel cells and Solar Cells Electro c	atalyst.	
5	Compare the Mat	terials in Thermal Power Generation.		
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	III Sem	<b>COMPUTER SIMULATION OF SI &amp;</b>	L:3 T:0 P:0	Credits: 3
Outcome	III belli	CI ENGINES (M20TE23)	2.5 1.01.0	
After the c	ompletion of this c	course, the students should be able to		
1		e on importance of computer simulation of l	<u> </u>	
2		e concept of Wiebe's function in SI engine r		
3		portance of Watsons and White house and V	Way models in CI	engines.
4	Understand the b	asics of gas exchange processes.		
5	Equip students w	ith knowledge of heat transfer to the surrour	nding from the IC	engines
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	III Sem	ADVANCED FINITE ELEMENT	L:3 T:0 P:0	Credits: 3
Outcome	III Selli	ANALYSIS (M20TE24)	L.5 1.01.0	
After the c	ompletion of this c	ourse, the students should be able to		
1	Understand The I	Basic Concepts, Historical Back Ground, Ap	plications Of FEN	Л.
2	Analysis And Un	derstand Virtual Energy Principle		
3	Observe 1-D Stru			
4	Impart Knowledg	ge On Hermite Shape Functions, Stiffness M	latrix, And Load V	ector.
5	Apply Finite eler	nent modeling of Axi-symmetric solids		
		Subject Name (Subject Code)		
Course	Semester	ADVANCED OPTIMIZATION	No. of Hours	Credits: 3
Outcome	III Sem	TECHNIQUES & APPLICATIONS	L:3 T:0 P:0	
A 64 ov. 41	omm lottor: - £41.*	(M20MA01)		
	-	ourse, the students should be able to	. 1.	
1		basics of one dimensional Optimization met	nods.	
2		to use Direct search method		
3	Calculate dynam			
4	Construct linear			
5	Analyze integer p	programming		

Course Outcome	Semester III Sem	Subject Name (Subject Code) BUSINESS LAW AND ETHICS (M20MB23)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Know the Busine	ss Laws related to incorporating a company	7	
2	Identify the Impo	rtance of Ethics in Business		
3	Categorize Cyber	Crime and Legal Aspects.		
4	Analyze Business	s Ethics.		
5	Understand Nego	tiable Instruments Act – 1881		
Course Outcome	Semester III Sem	Subject Name (Subject Code) PROJECT MANAGEMENT (M20MB30)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	ompletion of this c	ourse, the students should be able to		
1	Importance of Pro	oject Management.		
2	Project Planning.	Execution and implementation.		
3	Significance of te	eams in projects.		
4	Project evaluate t	echniques.		
5	Role of Schedulin	ng and Network Analysis in Project Plannin	g	

#### COURSE OUTCOMES FOR B.TECH-CSE R20 FOR THE YEAR 2020-2021

				Credits: 4
Course	Year/Semester	Subject Name (Subject Code) LINEAR ALGEBRA AND CALCULUS	No. of Hours	Cicuits. 4
Outcome	I Sem	(B20MA01)	L:3 T:1 P:0	
On successf	ful completion of th	is course, students will be able to:		
1	Understand the print using multiple met	nciples of matrix to calculate the characteristic hods.	s of system of line	ar equations
2	Determine Eigen v	alues, Eigenvectors of matrices.		
3	Analyse the nature	of sequence and series to identify the converge	ence.	
4		ingle-variable functions graphically and compared and Gamma functions.	utationally. Analy	se improper
5	Calculate Partial de	rivatives, extreme of functions of multiple var	iables.	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	MODERN PHYSICS (B20PH01)	L:3 T:0 P:0	
On success	sful completion o	f this course, students are able to:		
1	Understands the ba	sic concepts and hypothesis of quantum mecha	anics	
2	Describes the chara	cteristics and working of lasers and their use ir	n various fields.	
3	Analyze and apply	the concepts of wave optics for accurate determined	mination of theinte	erference in
	thin films, Newton	's rings and the diffraction in single slit etc.		
4	Classify the materi	als on the basis of energy band gap, and eval	uates the carrierco	oncentration of
	given semiconduct	ors for device applications		
5	Apply the concepts	of the light propagation in optical fibres in optical	ticalcommunicatio	on systems
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING(B20EE01)	No. of Hours L:3 T:0 P:0	Credits:3
After the c	ompletion of this a	course, the students should be able to		
1	•	orems, mesh and nodal analysis, series and par	allel networks. El	ectricalpower
2				conneurpower.
	Gain knowledge on Factor	AC circuits, reactance, Impedance, Susceptance		-
3	Factor			-
	Factor Learn the working	AC circuits, reactance, Impedance, Susceptance		-
3	Factor Learn the working Study the character	AC circuits, reactance, Impedance, Susceptano		-
3	Factor Learn the working Study the character	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode		-
3 4 5	Factor Learn the working Study the character Learn the basic of A	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	ce and Admittance	andPower
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code)	ce and Admittance	andPower
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem	AC circuits, reactance, Impedance, Susceptane principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01)	No. of Hours L:4 T:0 P:0	e andPower Credits: 4
3 4 5 Course Outcome	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem completion of this of Understanding how Learning of sequen	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making	ce and Admittance No. of Hours L:4 T:0 P:0	credits: 4
3 4 5 Course Outcome After the c 1	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem completion of this of Understanding how Learning of sequen engineering proble	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making ms.	ve and Admittance	e andPower Credits: 4 solutions. scientific and
345CourseOutcomeAfter the c12	Factor Learn the working Study the character Learn the basic of A Year / semester I Sem Completion of this of Understanding how Learning of sequen engineering proble Implementing diffe	AC circuits, reactance, Impedance, Susceptand principle of DC motors, Transformers istics of PN Junction diode and zener diode Amplifiers and Rectifiers. Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING(B20CS01) course, the students should be able to problems are posed and how they can be analy cing, branching, looping and decision making	vzed for obtaining statements tosolve	e andPower Credits: 4 solutions. scientific and

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I Sem	ENGINEERING DRAWING (B20ME01)	L:0 T:0 P:4		
After the o	completion of this (	course, the students should be able to		I	
1	-	commands, modify the applications and object	t properties in AU	TOCAD	
2		tions of Points and solids			
3	Estimate the use of	drawings, dimensioning, scales and conic sect	tions		
4	Compare the Conve	Compare the Conversion of Isometric views to Orthographic view			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:	
Outcome	I Sem	PHYSICS LAB (B20PH05)	L:0 T:0 P:3	1.5	
After the c	completion of this a	course, the students should be able to	1		
1		ency of tuning for and AC supply with the help	of stretched string	IS	
2		s compare the intensity distribution of interf	,		
3	-	istics of electrical and electronic circuits and		-	
	parameter		I I I I I I I I I I I I I I I I I I I		
4	Explore and unders	stand the applications of semiconducting device	es		
5	Evaluates the wav	elength and radius of curvature of Plano con	vex lens by New	ton's rings	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	I Sem	PROGRAMMING FOR PROBLEM	L:0 T:0 P:3		
Outcome	1 Sem	SOLVING LAB(B20CS02)	1.01.01.3		
After the o	completion of this o	course, the students should be able to			
1	Understand basic s	tructure of the C Programming, data types, dec	laration and usage	e of variables,	
	control structures a	nd all related concepts.			
2	Ability to understa	nd any algorithm and Write the C programming	g code in executab	le form	
3	Implement Program	ns using functions, pointers and arrays, and use	the pre-processor	s to solvereal	
	time problems				
4	Ability to use file s	tructures and implement programs on files.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	II Sem	DIFFERENTIAL EQUATIONS AND	L:3 T:1 P:0		
Outcome	II Selli	VECTOR CALCULUS(B20MA02)	L.3 1.11.0		
After the o	completion of this o	course, the students should be able to			
1	Apply the fundame	ntal concepts of ordinary differential equations	to real time proble	ems	
2	Find the complete	solution of a non homogeneous differential equ	ations and applyi	ng its concep	
	inEngineering prob	olems			
3	Evaluate the multip	le integrals in various coordinate systems.			
4	Apply the concepts	of gradient, divergence and curl to formulate l	Engineering proble	em	
5	Analyse line, surfa	ce and volume integrals using fundamental the	orems.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	II Sem	MODERN CHEMISTRY	L:3 T:0 P:0		
		(B20CH04)			
After the o	completion of this a	course, the students should be able to	1	1	
1	-	electro chemical cells, different batteries			
2	ę	principles and concepts in corrosion & it's con	trol methods.		
3	The knowledge of				
4	ů.	Amino acids, Proteins and Nucleic acids			
5	-	principles and concepts in Forensic drug chem	victry and it's analy	7010	
5	The knowledge of	principles and concepts in Forensic drug chem	nsuly and it's analy	y 515.	

Voor / somester	Subject Name (Subject Code)	No of Hours	Credits: 4
			Creuits. 4
II Sem	ALGORITHMS(B20CS04)	L:4 1:0 P:0	
ompletion of this c	ourse, the students should be able to		
Define the basic tec	chniques of algorithm analysis		
Examine the linear	and non linear data structures.		
Develop Priority Q	ueues and Balanced Trees		
Understand Hashing	g Techniques and Graph applications		
Apply suitable algo	rithms for sorting Technique		
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4
II Sem	PYTHON PROGRAMMING(B20CS03)	L:4 T:0 P:0	
ompletion of this c	ourse, the students should be able to		
_			
Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.
ů.			
	· · ·	code robust byha	ndling errors
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
II Sem	DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)	L:0 T:0 P:3	
ompletion of this c	ourse, the students should be able to	1	I
-	*	d its applications	
Apply suitable algo	rithms for sorting Techniques		
Choose appropriate	algorithm for Searching and Hashing		
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
II Sem	PYTHON PROGRAMMING LAB(B20CS07)	L:0 T:0 P:3	
ompletion of this c	ourse, the students should be able to	·	
-	e Python scripting elements such as variables a	and flow control st	ructures.
Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.
Expressing the Core Apply Python funct		and flow control st	ructures.
Expressing the Core Apply Python funct Extending how to v	e Python scripting elements such as variables a ions to facilitate code reuse		
Expressing the Core Apply Python funct Extending how to v	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the		
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly.	e code robust byh	andling errors
Expressing the Core Apply Python funct Extending how to v Implement file ope	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION		
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02)	e code robust byha No. of Hours	andling errors
Expressing the Core Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to	e code robust byha No. of Hours L:0 T:0 P:3	andling errors Credits: 1.5
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem ompletion of this c Understand the nua	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual	e code robust byha No. of Hours L:0 T:0 P:3 experience and g	andling errors Credits: 1.5 roupactivities.
Expressing the Coro Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem ompletion of this c Understand the nua Speak with clarity a	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual and confidence which in turn enhances their em	e code robust byha No. of Hours L:0 T:0 P:3 experience and g ployability skills.	andling errors Credits: 1.5 roupactivities.
Expressing the Cord Apply Python funct Extending how to v Implement file ope and exceptions prop Year / semester II Sem Ompletion of this c Understand the nua Speak with clarity a Develop their listen	e Python scripting elements such as variables a ions to facilitate code reuse work with lists and sequence data. rations such as read and write and Adapting the perly. Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02) course, the students should be able to nces of English language through audio-visual	e code robust byha No. of Hours L:0 T:0 P:3 experience and g ployability skills.	andling errors Credits: 1.5 roupactivities.
	Define the basic tec Examine the linear Develop Priority Q Understand Hashin Apply suitable algo Year / semester II Sem Defining the funda Expressing the Corr Apply Python funct Extending how to v implement file oper and exceptions prop Year / semester II Sem Defining the linea implement non-line Apply suitable algo Choose appropriate Year / semester II Sem	II SemDATA STRUCTURES AND ALGORITHMS(B20CS04)ompletion of this course, the students should be able to Define the basic techniques of algorithm analysis Examine the linear and non linear data structures.Develop Priority Queues and Balanced TreesUnderstand Hashing Techniques and Graph applicationsApply suitable algorithms for sorting TechniqueYear / semester II SemSubject Name (Subject Code) PYTHON PROGRAMMING(B20CS03)Ompletion of this course, the students should be able to Defining the fundamentals of writing Python scripts.Expressing the Core Python scripting elements such as variables a Apply Python functions to facilitate code reuse.Extending how to work with lists and sequence data.mplement file operations such as read and write and Adapting the and exceptions properly.Year / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to Data STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to DATA STRUCTURES AND ALGORITHMS LAB(B20CS08)ompletion of this course, the students should be able to Explaining the linear data structures such as Trees, Graphs and itsApply suitable algorithms for sorting TechniquesChoose appropriate algorithm for Searching and HashingYear / semester II SemII SemSubject Name (Subject Code) PYTHON PROGRAMMING LAB(B20CS07)	II SemDATA STRUCTURES AND ALGORITHMS(B20CS04)L:4 T:0 P:0mpletion of this course, the students should be able to Define the basic techniques of algorithm analysis Examine the linear and non linear data structures. Develop Priority Queues and Balanced TreesDefine the basic techniques and Graph applicationsApply suitable algorithms for sorting TechniqueSubject Name (Subject Code) PYTHON PROGRAMMING(B20CS03)No. of Hours L:4 T:0 P:0Year / semester II SemSubject Name (Subject Code) PYTHON PROGRAMMING(B20CS03)No. of Hours L:4 T:0 P:0Seplesting the fundamentals of writing Python scripts.Expressing the Core Python scripting elements such as variables and flow control st Apply Python functions to facilitate code reuse.No. of Hours L:4 T:0 P:0Year / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB (B20CS08)No. of Hours L:0 T:0 P:3Year / semester II SemSubject Name (Subject Code) DATA STRUCTURES AND ALGORITHMS LAB (B20CS08)No. of Hours L:0 T:0 P:3Suplaining the linear data structure such as List, Stack, Queue and its applications mplement non-linear data structure such as Trees, Graphs and its applications Apply suitable algorithms for sorting Techniques Choose appropriate algorithm for Searching and HashingNo. of Hours L:0 T:0 P:3

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	II Sem	ENGINEERING & IT	L:0 T:0 P:3	Cituits. 1.5
Outcome	II Selli	WORKSHOP LAB(B20ME03)	L:01:0F:5	
After the o	-	course, the students should be able to		
1		ntal knowledge of House wiring and soldering	and their usage ir	n real time
	Applications.			
2	-	electronic components and measuring instrum		
3	Use basic concepts	of computer hardware for assembly and disasse	embly.	
4	Use Microsoft tool	s for exercise.	1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DESIGN AND ANALYSIS OF	L:3 T:0 P:0	
		ALGORITHMS(B20CS10)		
After the o		course, the students should be able to	ild now solution a	laorithma
1	-	b few known methods of solution processes, bu otic performance of algorithms and to write rig		-
	algorithms.	one performance of argorithms and to write fig	jorous correctness	proofs for
2	÷	e data structures and algorithm design methods	for specified class	ses of
2	applications;		for specifica clus	505 01
3	~ ~	hoice of data structures and algorithm design n	nethods would im	pact the
	performance of pro	grams and how to compare them.		
4	Design methods su	ch as the greedy method, divide and conquer, d	ynamic programn	ning,
	backtracking and b	ranch and bound		
5	Perceive methods t	o deal with logarithmic type, polynomial type a	and non-polynom	ial type of
	classesof problems	and Synthesis of efficient algorithms in comm	on engineering de	sign situations
	would bediscussed			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DIGITAL LOGIC DESIGN & MICRO	L:3 T:0 P:0	
		PROCESSORS(B20EC09)		
		course, the students should be able to		
1	Understand the bas algebra.	ic concepts of different Number systems and b	asic theorems usin	ng inBoolean
2	<b>U U</b>	cuits using basic logic gates by reducing the B	oolean expression	s with thehelp
	of Karnaugh Map.			
3	5	pes of combinational and sequential circuits.		
4		pes of sequential circuits.		
5	Understand the inte	ernal organization of popular8086 microprocess	sors	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	MATHEMATICAL FOUNDATIONS OF	L:3 T:0 P:0	
		COMPUTER SCIENCE(B20CS11)		
After the o	completion of this o	course, the students should be able to	1	
1	-	s of propositions, predicate formulae, Rules of	inference.	
2	Illustrate and descr	ibe various types of Relations and Functions.		
3		of Mathematics, Combinations & Permutations	Binomial Multir	omial
5			, 2moniur iviuitii	()IIIIIII
	theorems, Pigeon h			
4	Develop to solve the	e recurrence relations by using various method	ls	
5	Perceive the basic of	concepts of graph theory and apply for real time	e examples.	
		· • • • •	-	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	JAVA PROGRAMMING (B20CS12)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Understand the use	of OOP concepts and solve real world problem	is using OOP tech	niques.
2	Solve the inter-disc	ciplinary applications using the concept of inher	itance.	
3	Develop robust and	l faster applications by applying different excep	tion handling me	chanisms.
4	Understand the mu	ltithreading concepts and develop efficient appl	ications.	
5	Design GUI based	applications and develops applets for web appli	cations.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	III Sem	ENGLISH FOR EFFECTIVE	L:2 T:0 P:0	
		COMMUNICATIONS(B20EN01)		
		course, the students should be able to		
1		digital text to summarize it for future reference.		
2 3		ke notes according to their needs. ge effectively in spoken and written forms.		
4		idently in various contexts and different culture		
5	Acquire basic profi	ciency in English including reading and listenin	ng comprehension	, writing and
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome		DIGITAL LOGIC DESIGN & MICRO	L:0 T:0 P:3	
		PROCESSORS LAB(B20EC10)		
		course, the students should be able to	NOD YOD YA	
1	flops.	is types of logic gates (AND, OR, NOT, NANI		(OR) and flip
2		a various types of combinational and sequential		
3	Develop microproc	sessor based programs for Arithmetic and Logic	al Operations	
4	Develop microproc	essor based programs for various problems.		
Course		Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	III Sem	DESIGN AND ANALYSIS OF	L:0 T:0 P:3	
		ALGORITHMS LAB(B20CS13)		
After the o		course, the students should be able to		
1		ppropriate algorithm design techniques for solv	ing problems.	
2		n in an effective manner		
3		erative and recursive algorithms		
4	Ability to analyze t	he performance of algorithms.	ſ	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	III Sem	JAVA PROGRAMMING LAB(B20CS14)	L:0 T:0 P:3	
After the o	completion of this o	course, the students should be able to		
1	Use the Java SDK o	environment to create, debug and run simple Ja	va programs.	
2	Write Java program	ns to implement error handling techniques using	g exception handl	ng
3	-	aded applications with synchronization.		
4	Design simple Grap	phical User Interface applications and event dri	ven programming	

Course	Year / semester	Subject Name (Subject Cade)	No. of Hours	Credits:3
Course		Subject Name (Subject Code) OPERATING SYSTEMS		Creans:5
Outcome	IV Sem	(B20CS16)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Compare various (	Deperating Systems architectures, IO structures, I	Network Structure	;
2	Analyze the virtual	l memory, paging and memory allocation techni	iques for variousa	pplications
3	Apply Deadlock p	revention and Deadlock Detection algorithms and	nd perceive the w	orking of an
	operating system as	s a File manager, I/O manager, Process manage	r.	
4	Understand the over	erview of Disk Storage Structure.		
5	Analyze assess acc	ess controls to protect files.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	IV Sem	FORMAL LANGUAGES AND AUTOMATA THEORY(B20CS17)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Explain basic conc	epts in formal language theory, grammars, auto	mata theory(DFA	&NFA),
	computability theo	ry, and complexity theory.		
2	_	on rules of regular expressions and grammars, i	ncluding context:	free and
	context: sensitive §	grammar		
3	Construct a pushdo	own automata and context free, regular, normal	form grammars to	odesign
	computer language			
4		or various problems using a theoretical comput	er (Turing machin	ne)for a
	computer language			
5	<u>^</u>	nship among language classes and grammars wi	•	
	Chomsky Hierarch	y, and Distinguish between decidability and uno	lecidability.	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	COMPUTER ORGANIZATION & ARCHITECTURE(B20CS18)	L:3 T:0 P:0	
After the c	completion of this	course, the students should be able to	I	I
	-	ucture, function of various functional units of co	omputer.	
2	Understand the bas	sic design of Computer, and its organization		
3	Perceive control un	it operations and Micro Program example.		
4	Understand differe	ent computer arithmetic algorithms for various a	rithmetic operation	on
5	Identity and compa	re different methods of input-output.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	DATABASE MANAGEMENT	L:3 T:0 P:0	
Outcome	I v Sem	SYSTEMS(B20CS19)	L.5 1.01.0	
		course, the students should be able to		
1		mental concepts of database management.		
2	Analyze database r	nodels & Entity Relationship models and to dra	w the E-R diagram	m forthe given
	case study.			
3	Apply relational D	atabase Theory, and be able to write relational a	algebra expression	ns forqueries
4	Apply Normalizati	on Process to construct the database and explain	n Basic Issues of	ransaction
	processing			
5	Compare the basic	Database storage structures and access techniqu	ies: File	
	•	ing methods including B- Tree and Hashing		
	Organizationindex	mg methous menualing D- 1100 and mashing		

Course				
Outcome	Year / semester	<mark>Subject Name (Subject Code)</mark> PROBABILITY AND	No. of Hours	Credits:3
outcome	IV Sem	STATISTICS(B20MA07)	L:3 T:0 P:3	
After the c	completion of this	course, the students should be able to	1	
1		ory and deals with modeling uncertainty in ord	er to evaluateThe	probability of
	real world events.			
2		robability distributions and its applications, and l and Poisson Distributions.	use the technique	es togenerate
3	Use the techniques Distributions.	of continuous probability distributions to gener	ate data from Nor	rmal
4		n and regression analysis, in order to estimate th	he nature and thes	trength of the
		between two variables.		e
5	Construct confiden	ce interval to estimates population parameters t	to test the hypothe	sis.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	IV Sem	OPERATING SYSTEMS	L:0 T:0 P:3	
		LAB(B20CS20)		
After the o		course, the students should be able to		
1		ling algorithms, Page replacement algorithms.		
2	-	lgorithm for Dead Lock Avoidance & Dead Lo	ock Prevention	
3	Describe the conce	pts of paging and segmentation.		
4	Make use of Linux	commands		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS LAB(B20CS21)	L:0 T:0 P:3	
After the c	completion of this	course, the students should be able to	1	
1		hema for given Application.		
2	Transform ER Mod	del to Relational Model.		
3	Apply the normalized	zation techniques for development of application	n software to real	isticproblems.
4	Construct SQL que	ries to retrieve information from database		
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome		WEB TECHNOLOGIES LAB(B20CS22)	L:0 T:0 P:3	Creation
		ourse, the students should be able to	1.01.0	
	-	,	6.1	11 / /
1	Design and implen	nent dynamic websites with good aesthetic sens w's	e of designing an	d latest
2	Understand, analyz	e and apply the role of languages like HTML,	CSS, XML, JavaS	cript, PHPand
	•	orkings of the web and web applications		<b>x</b> · ·
3	Create dynamic we	b pages using JavaScript		
4	Build web applicat			
		Subject Name (Subject Code)	N. CTT	Creative C
Course	Year / semester	SOFTWARE ENGINEERING(B20CS29)	No. of Hours	Credits:3
Outcome	V Sem		L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to		
1		ngineering and list core principles of software e	ngineering and ur	nderstand
	various process mo		~~~~	
23		tanding of software requirements and be able to		
3	Understand softwa and be able to mod	re design engineering process using structural a lel	ind object oriented	approaches
4		chniques of verification and validation in the pa	rocess of software	edevelopment,
		trategies on different level of implementation (		
5		le to compute quality measures and develop a s	oftware quality as	ssurance plan
	for a software deve	elopment.		

			1	1 1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	DATA COMMUNICATIONS AND	L:3 T:0 P:0	
A. 6( ) (1		COMPUTER NETWORKS(B20CS30)		
After the co		ourse, the students should be able to		
1	Illustrate basic cor reference model.	nputer network technology, functions of each	layer in the OSI	and TCP/IP
2	Gain the knowledg	e on error control and flow control mechanisms		
3	Obtain the skills of	f subnetting and routing mechanisms.		
4	Analyze the feature	es and Operations of TCP/UDP, congestion cor	ntrol and QoS Tec	hniques.
5	Familiarity with t network design and	he essential protocols of application layer, a d implementation.	nd how they can	be used in
Course Outcome	Year / semester V Sem	Subject Name (Subject Code) DATA WAREHOUSING AND DATA MINING(B20CS24)	No. of Hours L:3 T:0 P:0	Credits:3
After the o	completion of this	course, the students should be able to		
1	Develop an unders various operations.	tanding of data warehouse, designing and using	-	Ç
2		ing concepts and develops understanding of dat		
3		k of Association rule mining, association rule m		d their
4	Develop an under	e sample data sets, evaluate these methods base standing of classification and prediction, class le sample data sets, evaluate these methods base	sification method	ls and their
5		al understanding of clustering, various clustering at a sets, evaluate these methods based on need.	ng methods and t	heirapplication
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VSem	ARTIFICIAL INTELLIGENCE (B20AI03)	L:3 T:0 P:0	
After the co	ompletion of this co	ourse, the students should be able to		
1	Possess the ability	to formulate an efficient problem space for a pr	oblem expressed	in English.
2	Possess the ability	to select a search algorithm for a problem.	-	
3	Possess the skill fo	r representing knowledge using the appropriate	technique	
4		to apply AI techniques to solve problems of Ga		
5	Possess the Expert	Systems, Machine Learning and Natural Langu	age Processing	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VSem	COMPILER DESIGN(B20CS31)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-I)		
After the co		ourse, the students should be able to		
1	Apply the knowled	lge of modern phases of compiler and its feature	es.	
2	Identify the similar	rities and differences among varies parsing tech	niques.	
3	Explain semantic a	nalysis in the context of the compilation proces	58.	
4	Design a symbol ta	ble format for the language defined by a gramn	nar	
5		generation algorithm		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	PRINCIPLES OF PROGRAMMING LANGUAGES (B20CS32) (PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to	1	
1	Able to analyze sy	ntax-related concepts including context-free gra vith function implementations.	ammars, parse tree	es, semantic
2		ign issues of various reference types and its im	plementation rela	ted to these
3		I the concepts of Abstraction and Encapsulation	constructs of class	sses, interfaces,
		s Language Examples.		
4		nd the nature and implementation of object-orie	ented languages.	
5	Able to Compare the	he Functional Programming Languages and Log	gic Programming	Languages.

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	NETWORK PROGRAMMING (B20CS33)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-I)		
After the co	mpletion of this co	ourse, the students should be able to		
1	Demonstrate advar	aced knowledge of OSI layers, TCP & UDP con	ncepts	
2	Networking. Sumr	narize the TCP socket functions and Byte Order	ring.	
3	Make use of TCP c	lient server applications and analyze I/O Multip	lexing and socke	t options.
4	Define about the E	lementary UDP sockets and Address conversio	ns.	
5		er networking information, Pseudo -Terminals		s, Control
	Terminals.	C C		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	V Sem	DATA COMMUNICATIONS AND	L:0 T:0 P:3	
Outcome	v Sem	COMPUTER NETWORKS LAB(B20CS34)	1.01.01.3	
After the co	mpletion of this co	ourse, the students should be able to		
1	Implement data lin	k layer farming methods.		
2	Analyze error dete	ction and error correction codes.		
3	Implement and ana	alyze routing and congestion issues in network of	design.	
4	Implement Encodi	ng and Decoding techniques used in presentation	n layer.	
Course	-	Subject Name (Subject Code)	No. of Hours	Credits:1.5
	V Sem	ARTIFICIAL INTELLIGENCE LAB	L:0 T:0 P:3	ci cuits.i.s
Outcome	v Sem	(B20AI04)	L:0 1:0 P:5	
After the co	mpletion of this co	ourse, the students should be able to		
1	Demonstrate Know	ledge of the building blocks of AI as presented	in terms of intelli	gent agents.
2	Analyze and forma	lize the problem as a state space, graph and desi	gn heuristics	
3	Develop intelligent	algorithms for constraint satisfaction problems	and also design ir	ntelligent
	systemsfor game p	laying.		
4	Attain the capabilit	y to represent various real life problem domains	using logicbased	techniques
	anduse this to perfe	orm inference or planning.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	V Sem	INDIAN CONSTITUTION(B20MC03)	L:2 T:0 P:0	
A 64 41				
After the co	mpletion of this co	burse, the students should be able to		
1	-	Durse, the students should be able to ndamental rights and duties of a citizen		
	Demonstrate the fu			
1	Demonstrate the fu Classify the admin	ndamental rights and duties of a citizen		
1 2	Demonstrate the fu Classify the admin Identify the power	ndamental rights and duties of a citizen istrative structure of the Indian union	nsibilities	
1 2 3	Demonstrate the fu Classify the admini Identify the power Categorize the vari	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions	nsibilities	
1 2 3 4 5	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of electio	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo n commission and its roles		Credits:3
1 2 3 4 5 <b>Course</b>	Demonstrate the fu Classify the admin Identify the power Categorize the vari Functions of election Year / semester	ndamental rights and duties of a citizen strative structure of the Indian union of state government and make use of positions ous department and local administrations respo	No. of Hours	Credits:3
1 2 3 4 5	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of electio	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code)		Credits:3
1 2 3 4 5 <b>Course</b> Outcome	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo in commission and its roles Subject Name (Subject Code) MACHINE LEARNING	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06)	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election Year / semester MSem	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) ourse the students should be able to : underlying machine learning	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co	Demonstrate the fu Classify the admining Identify the power Categorize the varie Functions of election Year / semester MSem Dempletion of this construction Explain the theory Learn beyond bina	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) ourse the students should be able to : underlying machine learning	No. of Hours	Credits:3
1 2 3 4 5 <b>Course</b> <b>Outcome</b> After the co 1 2	Demonstrate the fu Classify the admini Identify the power Categorize the vari Functions of election <b>Year / semester</b> <b>WSem</b> <b>Ompletion of this constant of the semester</b> Explain the theory Learn beyond bina Recognize and imp	ndamental rights and duties of a citizen istrative structure of the Indian union of state government and make use of positions ous department and local administrations respo- on commission and its roles Subject Name (Subject Code) MACHINE LEARNING (B20AI06) Durse the students should be able to : underlying machine learning ry classification.	No. of Hours L:3 T:0 P:0	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	CLOUD COMPUTING	L:3 T:0 P:0	
After the co		(B20CS36) ourse, the students should be able to		
1	-	nd various service delivery models of a cloud co	omputing archites	turo
2		nd the ways in which the cloud can be program		
2 3	•	ud Computing Architecture and Management	inieu anu deploye	u
	-	· · · ·		
4	-	ud service Models		
5	Understanding clo	ud service providers.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	INTERNET OF THINGS(B20CS37)	L:3 T:0 P:0	
After the co	ompletion of this c	ourse, the students should be able to		
1	Interpret the vision	n of IoT from global context.		
2	Perceive building	blocks of Internet of Things and its characterist	ics.	
3	Learn the basic con	ncepts of Python. Implement the python program	nming using Rasp	berry.
4	Perceive the applie Cloud &Sensor No	cation areas of IoT. Realize the revolution of Ir etworks	nternet in Mobile	Devices,
5	Determine the Ma for IoT.	rket perspective of IoT. Develop Python web a	pplications and cl	oud servers
Course	Year / semester		No. of Hours	Credits:3
Outcome	VI Sem	SOFTWARE PROJECT MANAGEMENT (PROFESSIONAL ELECTIVE-II) (B20CS38)	L:3 T:0 P:0	
After the co	mpletion of this c	ourse, the students should be able to		
1	Gain knowledge o	f software economics, phases in the life cycle o	f software develo	oment, project
	-	project control and process instrumentation.		
2	Summarize softwa	pre economics, software development life cycle, points, project organization and responsibilities,	—	
3		oftware development approach. Compare variou	us project organiz	ations and
4	perspective.	and minor milestones, artifacts and metrics for	-	
5	Design software management.	product using conventional and modern	principles of so	ftware projec
Course	Year / semester		No. of Hours	Credits:3
Outcome	VI Sem	NETWORK SECURITY AND CRYPTOGRAPHY (B20CS39) (PROFESSIONAL ELECTIVE-II)	L:3 T:0 P:0	
After the c	completion of this	course, the students should be able to	J	1
1	Identifies various t	ypes of vulnerabilities, attacks, mechanisms and	d security services	
2	Compare and cont	rast symmetric and asymmetric encryption algo	orithms.	
3	Implementation of	message authentication, hashing algorithms and	d able to understa	nd kerberos.
4	Explore the attacks	s and controls associated with IP, transport level	l, web and E-mail	security.
5	Develop intrusion	detection system, solutions for wireless network	ks and designing of	of varioustype
	of firewalls.			

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	WEB SERVICES (B20CS40)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-II)		
After the o		course, the students should be able to		
1	·	ervice client and server with interoperable syste SOA, WSDL, UDDI and EBXML	ms like core distri	buted
2		ze the principles of SOAP.		
3	Perceive the imple	ment Web Services life cycle, Anatomy of WSI	DL definition docu	iment.
4		semantics of web services. Working with UDDI	, programming wi	th UDDI,
	UDDIdata structur			
5	Explore interopera webservices	bility between different frameworks. Design we	b based applicatio	ons that use
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	MACHINE LEARNING LAB (B20AI08)	L:0 T:0 P:3	
After the o		course, the students should be able to		
1		pplication on Machine Learning problems.		
2		lgorithms on Machine Learning mentioning its		
3	· ·	mance of Machine Learning algorithms with dif	ferent parameters	
4		est issues raised by current researchers.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	CLOUD COMPUTING LAB(B20CS41)	L:0 T:0 P:3	
After the co		ourse, the students should be able to		
1		mputing fundamentals, technologies, applicatio	ns and implement	ation of
		Oracle VM Virtual box.	0 111 0	
2	Development know and Networking.	vledge of cloud computing using Amazon Web	Services like Cor	npute, Storage
3	Providing Security	to the Cloud System using Identity Access Ma	anagement(IAM).	
4	Attain the Capabili Web Services.	ty of design, development of agile and highly a	vailable systems ı	ısingAmazon
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	VI Sem	INTERNET OF THINGS LAB(B20CS42)	L:0 T:0 P:3	
	mulation of this a	avera the students should be able to		
After the cu		ourse, the students should be able to y of life of humans through IoT technology for the	hat student closer	interaction
1		ment and the society.	hat student closer	Interaction
2		onents that forms part of IoT specific Application	on.	
3		t appropriate IoT Devices and Sensors based on		
4	Improve the Python	n programming skills for writing IoT Application	on	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	VI Sem	LOGICAL REASONING AND	L:2 T:0 P:0	
		QUANTITATIVE APTITUDE(B20MC05)		
		course, the students should be able to		
1	Apply quantitative problems.	reasoning and mathematical analysis methodol	ogies to understar	id and solve
2	Apply quantitative	e correctly arrive at meaningful conclusions	regarding their a	nswers and
		ons and formulas in order to solve for the desire		
3	Interpret given inf	ormation correctly, determine which mathemat	tical model best d	escribes the
	data,and apply the	model correctly.		
4		athematical language and notation to explain th solving problems using mathematical or statisti		lying their
5		nematical skills in various general aspects to solv		ms
5	mprove then mat	ioniationi skins ni various general aspects to solv	ve rear time proble	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	DEEP LEARNING(B20AI10)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1		sics of Artificial Neural Networks.		
2		us Learning Networks and Special Networks.		
3	Understand the De	ep Neural Network.		
4	Develop different	parameters for Regularization for Deep Learnin	g.	
5		for training Deep Models		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS(B20MB01)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1	Understand the nat	ure, scope and importance of Managerial Econo	mics.	
2	Know what deman	d is, analyze demand and how elasticity of dema thods for forecasting demand.		cingdecisions
3		tion function is carried out to achieve least cost	combination of	
	Inputsand how to a			
4		racteristics of different kinds of markets and ou		m
	-	ation and analyze how capital budgeting technic	ques are used for	
	investment decisio			
5		are final accounts and how to interpret them, and	alyze and interpre	tfinancial
	statements using ra			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SOFTWARE TESTING(B20CS44)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE – III)		
After the c	completion of this (	course, the students should be able to		
1	Design test cases s	uitable for a software development for different	domains.	
2	Prepare test planni	ng based on the document.		
3		sts to be carried out.		
4	-	and test cases designed.		
5	Use of automatic to	6		
		<u> </u>		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SOFTWARE ORIENTED ARCHITECTURE (PROFESSIONAL ELECTIVE – III) (B20CS45)	L:3 T:0 P:0	
After the c	ompletion of this	course, the students should be able to		
1				
	Design various ser		ation	
2	invouer service can	lidate derived from existing business documenta	auon.	
1		sition of S()A		
3	Design the compos			
4	Design the compose Design application	services for technology abstraction.		
4 5	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation.		1
4	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation. Subject Name (Subject Code)	No. of Hours	Credits:3
4 5	Design the compose Design application Principles of Servio	services for technology abstraction. ce-Orientation.	No. of Hours L:3 T:0 P:0	Credits:3
4 5 Course Outcome	Design the compose Design application Principles of Service Year / semester VII Sem	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46)		Credits:3
4 5 Course Outcome	Design the compose Design application Principles of Service Year / semester VII Sem completion of this of	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III)		Credits:3
4 5 Course Outcome After the c	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> of Perceive of scripting	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to		Credits:3
4 5 Course Outcome After the c 1	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple s	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to ng and the contributions of scripting languages.	L:3 T:0 P:0	
4 5 Course Outcome After the c 1 2	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to Ing and the contributions of scripting languages. cripts to automate system administration. If the strengths and weakness of Perl, TCL and R ge for solving a given problem.	L:3 T:0 P:0	
4 5 <b>Course</b> Outcome After the c 1 2 3 3	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua Acquire programm	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to ng and the contributions of scripting languages. cripts to automate system administration. f the strengths and weakness of Perl, TCL and R ge for solving a given problem. ing skills in scripting language	L:3 T:0 P:0 Ruby; and select a	n
4 5 Course Outcome After the c 1 2 3	Design the compose Design application Principles of Service <b>Year / semester</b> <b>VII Sem</b> <b>completion of this</b> Perceive of scriptin Develop simple se Gain knowledge of appropriate langua Acquire programm	services for technology abstraction. ce-Orientation. Subject Name (Subject Code) SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III) course, the students should be able to Ing and the contributions of scripting languages. cripts to automate system administration. If the strengths and weakness of Perl, TCL and R ge for solving a given problem.	L:3 T:0 P:0 Ruby; and select a	n

After the completion of this course, the students should be able to           1         Explain the foundations, definitions and capabilities of Bigdata.           2         List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, and enabling technologies of big data analytics.           3         Understand concepts on Handoop Ecosystem in Big data.           4         Analyze the Map reduce programming in Big data Analytics.           5         Apply Security big data technologies in business intelligence using geospatial\. data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.           Course         Year / semester           Subject Name (Subject Code)         No. of Hours           Credits:3         Credits:3           Outcome         VII Sem           2         Apply the different algorithms and define the policy.           3         Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.           4         Evaluate the eligibility traces, Eligibility traces used for sampling.           5         Create Function Approximation Methods.           Course         Year / semester           Subject Name (Subject Code)         No. of Hours           Credits:3         Credits:3           6         Create Function Approximation Methods.         L:3 T:0		-			
Outcome       VITSEIN       (PROFESSIONAL ELECTIVE – IV)       L3 1 30 F30         After the completion of this course, the students should be able to       Image: the students should be able to       Image: the definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts, and enabling technologies of big data analytics.       Image: the definitions, concepts, and enabling technologies of big data analytics.         5       Apply Security big data technologies in business intelligence using geospatial/, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours         Course       Vear / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         1       Understand the ky features of Reinforcement Learning.       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these matrics.         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Grept SSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Grept SSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         6       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         6       Create Function Apeproximation Methods. </td <td>Course</td> <td>Year / semester</td> <td></td> <td>No. of Hours</td> <td>Credits:3</td>	Course	Year / semester		No. of Hours	Credits:3
After the completion of this course, the students should he able to         1       Explain the foundations, definitions and capabilities of Bigdata.         2       List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, architectures and challenges in Big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud comuting.         Course Year / semester         VIISEM         VIISEM         VIISEM         Analyze the Map reduce programming in Big data         No. of Hours         Veral / semester         Valget Name (Subject Code)         Outcome         VII Sem         Subject Name (Subject Code)         Viet / Semester         Subject Name (Subject Code)         Viet / Semester         Subject Name (Subject Code)         Outcome         VII Sem         Cytery Semester	Outcome	VII Sem		L:3 T:0 P:0	
1       Explain the foundations, definitions and capabilities of Bigdata.         2       List the definitions, concepts, and challing technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial/k data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester       Subject Name (Subject Code) VII Sem       No. of Hours LAS TO P:0         Outcome       VII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L.3 T:0 P:0         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       Credits:3         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       Credits:3         6       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48)       L:3 T:0 P:0         7       Apply the difference scale should be able to       Credits:3         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       Credits:2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       I dentify various sc					
2       List the definitions, concepts, architectures and challenges in Big data environment. Outline the definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial. data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         Cutcome       VII Sem         2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Evaluate the vulnerabilities, threats and cybercrimes, develops the secure counter methods to maintain securi	After the c	completion of this o	course, the students should be able to		
definitions, concepts, and enabling technologies of big data analytics.         3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatialλ data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours       Credits:3         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       L:3 T:0 P:0         1       Understand the key features of Reinforcement Learning.       2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       State Function Approximation Methods.         4       Evaluate the eligibility traces. Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       L:3 T:0 P:0         Course       Year / semster       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0         4       Evaluate the eligibility traces. the students should be able to       I:3 T:0 P:0       Credits:3         5       Create Function Approximation Methods.       L:3 T:0 P:0       Credits:3         6       VII Sem       Subject Name (Subject Code	1	Explain the founda	tions, definitions and capabilities of Bigdata.		
3       Understand concepts on Handoop Ecosystem in Big data.         4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatialλ, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course Year / semester Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)         After the completion of this course, the students should be able to       1.3 T:0 P:0         1       Understand the key features of Reinforcement Learning.       2.4 Paph yhe different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       5         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5         5       Create Function Approximation Methods.       No. of Hours L:3 T:0 P:0         6       Year / semester Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0         7       Create Function Approximation Methods.       1.3 T:0 P:0       Credits:3         6       Valact the eligibility traces, Eligibility traces used for sampling.       5       Create Function approximation Methods.         7       Outfore key trams and concepts in cyber law, intellectual property and cybercrimes.       L:3 T:0 P:0       Credits:3         1       Outli	2				. Outline the
4       Analyze the Map reduce programming in Big data Analytics.         5       Apply Security big data technologies in business intelligence using geospatial, data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         Analyze multiple criteria for analyzing RL algorithms and belie to       1       Understand the key features of Reinforcement Learning.       2         2       Apply the different algorithms and define the policy.       3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3         5       Create Function Approximation Methods.       No. of Hours L:3 T:0 P:0       Credits:3         6       Vill Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         4       Evaluate the eligibility traces, the students should be able to       1       Outcome       Vill Sem       Credits:3         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       Identify various security challenges phased by mobile devices.       4         4       Identify various stypes of tools and methods used in cybercrime, develops the secure counter	2			ics.	
5       Apply Security big data technologies in business intelligence using geospatial\u03bb data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing.         Coursee       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       1       Understand the key features of Reinforcement Learning.       2         2       Apply the different algorithms and define the policy.       3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5       Create Function Approximation Methods.         Coursee       Vear / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         4       Evaluate the eligibility traces, the students should be able to       1       Outcome       Vis Sem       Credits:3         5       Create Function Approximation Methods.       Credits:3       Credits:3         6       Utime key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various sec	3	Understand concep	ots on Handoop Ecosystem in Big data.		
bissed analytics, social networking, Web 2.0, reality mining, and cloud computing.       No. of Hours       Credits:3         Outcome       VII Sem       REINFORCEMENT LEARNING (B20AI15)       No. of Hours       Credits:3         1       Understand the key features of Reinforcement Learning.       1       L:3 T:0 P:0       Its 3:0         2       Apply the different algorithms and define the policy.       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.       No. of Hours       Credits:3         4       Evaluate the eligibility traces, Eligibility traces used for sampling.       Credits:3       Credits:3         5       Create Function Approximation Methods.       L:3 T:0 P:0       Credits:3         6       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0       Credits:3         7       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       cybercrimes.       L:3 T:0 P:0       Credits:3         2       Explore the vulnerabilities, threats and cybercrime, develops the secure counter methods to maintain security protection       S       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Mini I PROJECT & INTERNSHIP       L					
Outcome         VII Sem         REINFORCEMENT LEARNING (B20A115) (PROFESSIONAL ELECTIVE - IV)         L:3 T:0 P:0           After the completion of this course, the students should be able to         1         Understand the key features of Reinforcement Learning.         2           2         Apply the different algorithms and define the policy.         3         Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.           4         Evaluate the eligibility traces, Eligibility traces used for sampling.         5         Create Function Approximation Methods.         No. of Hours         Credits:3           6         Outcome         VII Sem         Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE - IV)         No. of Hours         Credits:3           7         Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2         Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3         1           3         Identify various security challenges phased by mobile devices.         4         4         10         0utline key terms and concepts in cyber law, intellectual property and cybercrime, develops the secure counter methods to maintain security protection         5         Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         0         Course         Year / semester         Subject Name (Subject Code)	5	based analytics, so	cial networking, Web 2.0, reality mining, and c		a, location-
Outcome       UPROFESSIONAL ELECTIVE – IV)       LST NOTS         After the completion of this course, the students should be able to       1       Understand the key features of Reinforcement Learning.         2       Apply the different algorithms and define the policy.       3         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester         Subject Name (Subject Code)       No. of Hours         Credits:3       Credits:3         Outcome       VII Sem         VIN Sem       CyBER SECURITY & ETHICAL         HACKING (B20CS48)       L:3 T:0 P:0         (PROFESSIONAL ELECTIVE – IV)       After the completion of this course, the students should be able to         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in orde	Course	Year / semester		No. of Hours	Credits:3
1       Understand the key features of Reinforcement Learning.         2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces. Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course Vear / semester Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)         After the completion of this course, the students should be able to       1         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various specurity challenges phased by mobile devices.         4       Identify various security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) (B20CS49)       No. of Hours L:0 T:0 P:0         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4	Outcome	VII Sem		L:3 T:0 P:0	
2       Apply the different algorithms and define the policy.         3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         0utcome       VII Sem       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       Identify various security challenges phased by mobile devices.         4       Identify various security challenges phased by mobile devices.       Identify various security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Coursee         6urse       Year / semester       Subject Name (Subject Code) (B20CS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       Vii Sem       Credits:2       Credits:2         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employ	After the c	-	course, the students should be able to		
3       Analyze multiple criteria for analyzing RL algorithms and evaluate algorithms on these metrics.         4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Outcome         VII Sem       Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       No. of Hours L:3 T:0 P:0       Credits:3         4       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       4         4       Identify various security risk management policies in order to adequately protect an organization's critical information and assets.       5       Credits:2         Course Outcome       Year / semester       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP       No. of Hours       Credits:2         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure       4         4       Elaborate the completed task and compile the report.       Credits:1       Course       No. of Hours       Credits:1         2       Develop leadership ability and responsibility to execute the given task       <					
4       Evaluate the eligibility traces, Eligibility traces used for sampling.       5         5       Create Function Approximation Methods.       No. of Hours       Credits:3         0utcome       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         4       Evaluate the eligibility traces, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Course       Year / semester       Subject Name (Subject Code) (B20CS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1         0utcome       Year / semester       Subject Name (Subject Code)				1 1	
4       Evaluate the eligibility traces, Eligibility traces used for sampling.         5       Create Function Approximation Methods.         Course       Year / semester       Subject Name (Subject Code) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         0utcome       VII Sem       Credits:3 (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0       Credits:3         4       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Credits:2         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course	3	<b>v</b> 1	riteria for analyzing RL algorithms and evaluat	e algorithms on t	nese
5       Create Function Approximation Methods.       No. of Hours       Credits:3         Course       Year / semester       Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       No. of Hours       Credits:3         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Credits:2         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B	4		ility traces Eligibility traces used for sampling		
Course Outcome         Year / semester VII Sem         Subject Name (Subject Code) CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)         No. of Hours L:3 T:0 P:0         Credits:3           After the completion of this course, the students should be able to         1         Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2           2         Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3         Identify various security challenges phased by mobile devices.         4           4         Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5         Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Vill Sem         No. of Hours (B20CS49)         Credits:2           1         Enhance students' knowledge in current technology         2         Develop leadership ability and responsibility to execute the given task 3         Enhance their employability skills along with real corporate exposure         4           4         Elaborate the completed task and compile the report.         No. of Hours L:0 T:0 P:3         Credits:1. No. of Hours L:0 T:0 P:3           2         Vear / semester VII Sem         Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)         No. of Hours L:0 T:0 P:3         Credits:1. L:0 T:0 P:3           After the completion of this course, the					
Outcome       VII Sem       CYBER SECURITY & ETHICAL HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.       2         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       No. of Hours       Credits:2         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)       No. of Hours L:0 T:0 P:3       Credits:1.         After t	Course			No of Hours	Credits:3
Outcome       VITSem       HACKING (B20CS48) (PROFESSIONAL ELECTIVE – IV)       L:S 1:0 F:0         After the completion of this course, the students should be able to       1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.       3         3       Identify various security challenges phased by mobile devices.       4         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection       5         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.       Coefficient Code)       No. of Hours       Credits:2         6       Vil Sem       Subject Name (Subject Code)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.       Credits:1         6       Vil Sem       DieEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         2       Develop leadership ability so of Artificial Neural Networks.       2       Describe the various Learning Networks and S					Cituits.5
After the completion of this course, the students should be able to         1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         MINI PROJECT & INTERNSHIP       L:0 T:0 P:0         1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         Outcome       VII Sem         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability Skills along with real corporate exposure	Outcome	VII Sem		L:3 1:0 P:0	
1       Outline key terms and concepts in cyber law, intellectual property and cybercrimes.         2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester Subject Name (Subject Code) MINI PROJECT Code)       No. of Hours L:0 T:0 P:3       Credits:1.         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         4       Elaborate the completed task and compile the report.       No. of Hours DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3         4       Elaborate t			(PROFESSIONAL ELECTIVE – IV)		
2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various sypes of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:2         0utcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:2         2       Develop leadership ability and responsibility to execute the given task       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours       Credits:1.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         4       Elaborate the completed task and compile the report.       Course       Develop leadership ability and responsibility to execute the given task       1.       Understand the basics of Artificial Neural Networks.       2.       Describe the various Learning Networks and Special Networks       2.       Describe the various Learning Networks.       3.       Understand the Deep Neural Networks.	After the c	completion of this o	course, the students should be able to		
2       Explore the vulnerabilities, threats and cybercrimes posed by criminals.         3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Coursee Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Coursee Outcome       Year / semester       Subject Name (Subject Code) MINI PROJECT Code)       No. of Hours L:0 T:0 P:3         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       Credits:1.       Credits:1.         Outcome       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AII3)       No. of Hours L:0 T:0 P:3         After the complet	1	~	s and concepts in cyber law, intellectual pro	perty and	
3       Identify various security challenges phased by mobile devices.         4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3       Credits:1.         4       Elaborate the completed task and compile the report.       Credits:1.       Credits:1.         0utcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         4       Elaborate the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks.	2	2	rabilities, threats and cybercrimes posed by		
4       Identify various types of tools and methods used in cybercrime, develops the secure counter methods to maintain security protection         5       Analyze the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) Mo. of Hours L:0 T:0 P:3       Credits:2         1       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.		•		••••••	
methods to maintain security protection       Image: Construct of the cyber security risk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code) MINI PROJECT & INTERNSHIP (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course Outcome       Year / semester       Subject Name (Subject Code) (B20CS49)       No. of Hours (Credits:2)         2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours (Credits:1, DEEP LEARNING LAB (B20AI13))       No. of Hours (Credits:1, DEEP LEARNING LAB (B20AI13))       Credits:1, DEEP LEARNING LAB (B20AI13)         4       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3         3       Understand the Deep Neural Network.       3       Understand the Deep Neural Network.	1	2		welong the secur	counter
Analyze the cyber security fisk management policies in order to adequately protect an organization's critical information and assets.         Course Outcome       Year / semester VII Sem       Subject Name (Subject Code)       No. of Hours       Credits:2         1       Enhance students' knowledge in current technology       1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.       No. of Hours       Credits:1.         Outcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         6       Liaborate the completed task and compile the report.       Course       Vear / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         0utcome       VII Sem       DEEP LEARNING LAB (B20A113)       L:0 T:0 P:3       Credits:1.         1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.				evelops the secure	counter
Outcome       Year / semester VII Sem       Subject Value (subject Code) (B20CS49)       No. of Hours L:0 T:0 P:0       Credits:2         1       Enhance students' knowledge in current technology       2       Develop leadership ability and responsibility to execute the given task       3         3       Enhance their employability skills along with real corporate exposure       4       Elaborate the completed task and compile the report.         Course       Year / semester VII Sem       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.	5			r to adequately p	protect an
Outcome       VII Sem       MINI PROJECT & INTERNSHIP (B20CS49)       L:0 T:0 P:0         1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)       No. of Hours       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.		Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         Develop leadership ability and responsibility and responsibility to execute the given task         Course       Year / semester         VII Sem       Subject Name (Subject Code)         DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3         After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Outcome				
1       Enhance students' knowledge in current technology         2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         No. of Hours         Credits:1.         Outcome       VII Sem         After the completion of this course, the students should be able to       1         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.					
2       Develop leadership ability and responsibility to execute the given task         3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester         VII Sem       Subject Name (Subject Code)         Deter LEARNING LAB (B20AI13)       No. of Hours         Credits:1.         After the completion of this course, the students should be able to         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	1	<b>F 1</b>	· · · ·		
3       Enhance their employability skills along with real corporate exposure         4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.			0		
4       Elaborate the completed task and compile the report.         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.		-			
Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:1.         Outcome       VII Sem       DEEP LEARNING LAB (B20AI13)       L:0 T:0 P:3       Credits:1.         After the completion of this course, the students should be able to       1       Understand the basics of Artificial Neural Networks.       2         2       Describe the various Learning Networks and Special Networks       3       Understand the Deep Neural Network.				exposure	
Outcome         VII Sem         DEEP LEARNING LAB (B20AI13)         L:0 T:0 P:3           After the completion of this course, the students should be able to         1         Understand the basics of Artificial Neural Networks.           2         Describe the various Learning Networks and Special Networks         3           3         Understand the Deep Neural Network.	4	Elaborate the con	npleted task and compile the report.	1	
After the completion of this course, the students should be able to       L.01:01:3         1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Course	Year / semester		No. of Hours	Credits:1.5
1       Understand the basics of Artificial Neural Networks.         2       Describe the various Learning Networks and Special Networks         3       Understand the Deep Neural Network.	Outcome	VII Sem	DEEP LEARNING LAB (B20AI13)	L:0 T:0 P:3	
<ul> <li>2 Describe the various Learning Networks and Special Networks</li> <li>3 Understand the Deep Neural Network.</li> </ul>	After the c				
3 Understand the Deep Neural Network.	1				
	2	Describe the variou	as Learning Networks and Special Networks		
4 Develop different parameters for Regularization for Deep Learning.	3	Understand the De	ep Neural Network.		
	4	Develop different r	parameters for Regularization for Deep Learnin	g.	

	XZ /			0 1 4
Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE-I	No. of Hours L:0 T:0 P:8	Credits:4
		(B20CS50)		
1	Identify the probl	em by applying acquired knowledge.		
2	Analyze and cate	gorize executable project modules.		
3		tools for designing project modules.		
4		nodules through effective team work after e	efficient testing	
		appleted task and compile the project report.	ę	
Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) HUMAN VALUES AND PROFESSIONAL ETHICS(B20MC05)	No. of Hours L:2 T:0 P:0	Credits:0
After the c	completion of this o	course, the students should be able to		
		tance of ethics and values in life and society.		
	<u>^</u>	ponsibility and mould them as best professionals	S.	
		n and achieve harmony in life.		
		erspective on the socialization of men and wom	on	
		tant issues related to gender in contemporary Ir		
	*	<u> </u>		
Course		Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	DESIGN PATTERNS (B20CS51) (PROFESSIONAL ELECTIVE – V)	L:3 T:0 P:0	
		course, the students should be able to		
		riate design patterns to solve object oriented de		
	• •	ment appropriate solutions to recurring program	• •	• •
		tation and specifications, including design patte	ern catalogs and e	xisting
	source code.			
3	Indorstand basic a			
		lements of structural patterns and their implement		
4	Understand basic e	lements of creational patterns and their implem	entations.	
4 5	Understand basic e	lements of creational patterns and their implem lements of behavioral patterns and their implem	entations.	ith growth in
4 5	Understand basic e Understand basic e the field of using d	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns	entations.	ith growth in Credits:3
4 5	Understand basic e Understand basic e	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52)	entations. nentation along w	1
4 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V)	entations. nentation along w No. of Hours	1
4 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3
4 5 Course Outcome After the c 1	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3
4 5 Course Outcome After the c 1 2	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain.	nentations. nentation along w No. of Hours L:3 T:0 P:0	Credits:3
4 5 Course Outcome After the c 1 2 3	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3
4 5 <b>Course</b> Outcome After the c 1 2 3 4	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart com	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code)	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work	Credits:3
4 5 Course Outcome After the c 1 2 3 4 5 5 Course Outcome	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	nentations. nentation along w No. of Hours L:3 T:0 P:0 I decentralization. s to proof of work chain	Credits:3
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this o	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc tions of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	No. of Hours L:3 T:0 P:0 decentralization. s to proof of work chain	Credits:3
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this o Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this o	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	No. of Hours L:3 T:0 P:0 decentralization. s to proof of work chain	Credits:3
4 5 Course Outcome 1 2 3 4 5 6 0 4 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns Subject Name (Subject Code) BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) course, the students should be able to amentals of blockchain, history, technology and hic concepts and its use in blockchain. understand structure of blockchain, alternatives intracts, solidity and Web3 to implement blockc tions of blockchain and its challenges Subject Name (Subject Code) PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) course, the students should be able to	No. of Hours L:3 T:0 P:0 decentralization. s to proof of work chain	Credits:3
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c 1 2	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti Apply methods for	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns <b>Subject Name (Subject Code)</b> BLOCK CHAIN TECHNOLOGIES (B20CS52) (PROFESSIONAL ELECTIVE – V) <b>course, the students should be able to</b> amentals of blockchain, history, technology and nic concepts and its use in blockchain. understand structure of blockchain, alternatives ntracts, solidity and Web3 to implement blockc ations of blockchain and its challenges <b>Subject Name (Subject Code)</b> PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V) <b>course, the students should be able to</b> c Process Automation & Bot Creation.	No. of Hours L:3 T:0 P:0	Credits:3
4 5 Course Outcome After the c 1 2 3 4 5 Course Outcome After the c 1 2 3 3	Understand basic e Understand basic e the field of using d Year / semester VIII Sem completion of this of Introduce the funda Revise cryptograph Define bitcoin and Introduce smart con Understand applica Year / semester VIII Sem completion of this of Understand Roboti Apply methods for Analyze devices to	lements of creational patterns and their implem lements of behavioral patterns and their implem esign patterns           Subject Name (Subject Code)           BLOCK CHAIN TECHNOLOGIES           (B20CS52)           (PROFESSIONAL ELECTIVE – V)           course, the students should be able to           amentals of blockchain, history, technology and           nic concepts and its use in blockchain.           understand structure of blockchain, alternatives           ntracts, solidity and Web3 to implement blockc           tions of blockchain and its challenges           Subject Name (Subject Code)           PRINCIPLES OF ROBOTICS(B20AI24)           (PROFESSIONAL ELECTIVE – V)           course, the students should be able to           c Process Automation & Bot Creation.           Bots Upload and Credentials.	No. of Hours L:3 T:0 P:0	Credits:3

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Course		Subject Name (Subject Code) COMPUTER VISION (B20AI26)	No. of Hours	Credits:3
Outcome	VIII Sem	(PROFESSIONAL ELECTIVE – VI)	L:3 T:0 P:0	
After the c	completion of this (	course, the students should be able to		
1		nent of algorithms and techniques.		
2	1	ret the visible world around us with real time p	roblems.	
3		ental concepts on multi-dimensional signal proc		traction.
		sual geometric modeling, stochastic optimizatio		,
4		ip and contribute in research developments in th		er vision.
5	Explain different	applications ranging from Biometrics, Me	dical diagnosis,	document
		of visual content, to surveillance, advanced rer		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	DATA PRIVACY & SECURITY(B20DS21)	L:3 T:0 P:0	
Outcome	v III Selli	(PROFESSIONAL ELECTIVE – VI)	L:3 1:0 F:0	
After the c	completion of this	course, the students should be able to		
1		as types of Substitution ciphers.		
2		techniques to break the ciphers and unde	rstands transposi	tion
	techniques.		F	
3		ast block cipher and stream cipher algorithms		
4	-	asymmetric key cryptographic algorithms and u	understand key m	anagement in
	public key cryptog	raphy.		-
5	Explore different	types of steganography techniques to hide	the data in text	and
	images.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	NATURAL LANGUAGE PROCESSING	L:3 T:0 P:0	
Outcome	v III Selli	(PROFESSIONAL ELECTIVE – VI)	L.J 1.01.0	
		(B20AI19)		
After the c	completion of this	course, the students should be able to		
1	Show sensitivity to	b linguistic phenomena and an ability to model t	hem with formal	
	grammars.			
2		rry out proper experimental methodology for tra	aining and evaluat	ting empirical
	NLP systems			
3	<b>_</b>	probabilities, construct statistical models over	U I	and
4		s using supervised and unsupervised training m	ethods.	
4 5		plement, and analyze NLP algorithms		
	<b>.</b>	erent language modelling Techniques.	_	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	VIII Sem	TECHNICAL SEMINAR(B20CS53)	L:0 T:0 P:2	
After the s	ompletion of this	course, the students should be able to		L
After the c	-	chnical topics from interested domains.		
-				
,	Analyze the applicability of modern tools and technology.			
2		· · · · · · · · · · · · · · · · · · ·	n a avatamatia -	nnroach
3	Discuss and justi	fy the technical aspects of the chosen topic	in a systematic a	pproach
	Discuss and justi Develop Presenta	fy the technical aspects of the chosen topic : tion and Communication skills.		
3	Discuss and justi Develop Presenta Year / semester	fy the technical aspects of the chosen topic attion and Communication skills. Subject Name (Subject Code)	in a systematic a	pproach Credits:8
3 4	Discuss and justi Develop Presenta	fy the technical aspects of the chosen topic : tion and Communication skills.		
3 4 Course Outcome	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54)	No. of Hours	
3 4 Course Outcome	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to	No. of Hours	
3 4 Course Outcome After the c 1	Discuss and justi Develop Presenta Year / semester VIII Sem	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54)	No. of Hours	
3 4 Course Outcome After the c 1 2	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules.	No. of Hours	
3 4 Course Outcome After the c 1	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate	fy the technical aspects of the chosen topic in ation and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge.	No. of Hours	
3 4 Course Outcome After the c 1 2	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate Choose efficient	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules. tools for designing project modules.	No. of Hours L:0 T:0P:16	
3 4 Course Outcome After the c 1 2 3	Discuss and justi Develop Presenta Year / semester VIII Sem completion of this Identify the prob Analyze and cate Choose efficient Combine all the 1	fy the technical aspects of the chosen topic : tion and Communication skills. Subject Name (Subject Code) MAJOR PROJECT PHASE-II(B20CS54) course, the students should be able to lem by applying acquired knowledge. gorize executable project modules.	No. of Hours L:0 T:0P:16	

## COURSE OUTCOMES FOR M.TECH-CSE R18 FOR THE YEAR 2018-2020

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0	 }_11			
On successi 1	ui completion of tr	is course, students will be able to:		
Ĩ				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1	-			
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				<u> </u>
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1 2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				<u> </u>
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1 2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				<u> </u>
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1 2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1 2				
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On succoss	ful completion of	this course, students are able to:		
On success		this course, students are able to.		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

## COURSE OUTCOMES FOR B.TECH-CSE R22 FOR THE YEAR 2022-2023

			_	Credits: 4		
Course	Year/Semester	Subject Name (Subject Code) MATRICES AND CALCULUS(B22MA01)	No. of Hours	Creans: 4		
Outcome	I Sem	MATRICES AND CALCULUS(B22MA01)	L:3 T:1 P:0			
)n successf	ul completion of th	is course, students will be able to:				
1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations					
2	Ū.	Find the Eigen values and Eigen vectors. Reduce the quadratic form to canonical form using orthogonal transformations.				
3	Solve the applicat	tions on the mean value theorems.				
4	Evaluate the impr	roper integrals using Beta and Gamma func	tions			
5		alues of functions of two variables with/ withound apply the concept to find areas, volumes.				
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) ENGINEERING CHEMISTRY (B22CH01)	No. of Hours L:3 T:1 P:0	Credits:4		
On success	sful completion of	f this course, students are able to:				
1	-	uire the basic knowledge of electrochemica	al procedures re	lated		
2	The students are able to understand the basic properties of water and its usage in domestic and industrial purposes					
3	They can learn t engineering mater	he fundamentals and general properties of rials.	polymers and o	other		
4		potential applications of chemistry and pagood engineers and entrepreneurs.	ractical utility in	1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	PROGRAMMING FOR PROBLEM SOLVING(B22CS01)	L:3 T:0 P:0			
After the o	completion of this c	course, the students should be able to	I			
1	To write algorith	ms and to draw flowcharts for solving probl harts to C programs.	ems. To convert	the		
2	-	inters, strings and structures to write C prog	grams.			
3	Ability to design ar	nd implement different types of file structures u	sing standard me	thodology.		
	To decompose a problem into functions and to develop modular reusable code. Searching and sorting problems					
4	To decompose a p	problem into functions and to develop mode	ular reusable coo	le.		
5	Searching and sor	rting problems.				
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL ENGINEERING(B22EE03)	No. of Hours L:2 T:0 P:0	Credits: 2		

Analyze circuit th Electrical power Gain knowledge o Admittance and P Learn the working	ourse, the students should be able to eorems, mesh and nodal analysis, series an on AC circuits, reactance, Impedance, Susc ower Factor g principle of DC motors, Transformers	L	rks,				
Electrical power Gain knowledge of Admittance and P Learn the working Understand the co	on AC circuits, reactance, Impedance, Susc ower Factor	L					
Gain knowledge of Admittance and P Learn the working Understand the co	ower Factor	eptance and					
Admittance and P Learn the working Understand the co	ower Factor	eptance and					
Learn the working Understand the co			Admittance and Power Factor				
Understand the co	principle of DU motors Transformers						
Machines	onstruction and performance characteristics	of Electrical					
Introduce compor	nents of Low Voltage Electrical Installation	18					
Year / semester I Sem	Subject Name (Subject Code) COMPUTER AIDED ENGINEERING GRAPHICS(B22ME03)	No. of Hours L:1 T:0 P:4	Credits: 3				
ompletion of this c	ourse, the students should be able to						
		iects sketch coni	cs and				
	-						
		pment of surface	s of solids				
11		1					
Conversion of orthographic projection into isometric view and vice versa manually and by							
using computer ai							
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1				
I Sem	ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)	L:0 T:0 P:2					
ompletion of this c	ourse, the students should be able to						
Know the working	g principles of functional units of a basic C	omputer					
Understand progr	ram development, the use of data structu	<u> </u>	nms in				
		ems.					
			-				
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1				
I Sem	ENGINEERING CHEMISTRY LABORATORY(B22CH02)	L:0 T:0 P:2					
ompletion of this c	ourse, the students should be able to						
Students are able	to prepare polymers like bakelite and nylor	n-6,6.					
Estimations sapor	ification value, and viscosity of lubricant of	oils.					
Year / semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING LABORATORY(B22CS03)	No. of Hours L:0 T:0 P:2	Credits: 1				
	ompletion of this of Apply computer a different types of Appreciate the ne Read and interpre Conversion of ort using computer ai Year / semester I Sem ompletion of this of Know the working Understand progr problem solving. Know the need an Understand progr problem solving. Know the need an Understand the sig Understand Autor Year / semester I Sem ompletion of this of Able to determine Able to perform r find out the conce solutions. Students are able Estimations sapor Year / semester I Sem	GRAPHICS(B22ME03)         ompletion of this course, the students should be able to         Apply computer aided drafting tools to create 2D and 3D ob         different types of solids         Appreciate the need of Sectional views of solids and Develo         Read and interpret engineering drawings         Conversion of orthographic projection into isometric view a using computer aided drafting         Year / semester       Subject Name (Subject Code)         ELEMENTS OF COMPUTER SCIENCE         AND ENGINEERING(B22CS02)         ompletion of this course, the students should be able to         Know the working principles of functional units of a basic C         Understand program development, the use of data structure problem solving.         Know the need and types of operating system, database system         Understand the significance of networks, internet, WWW and Understand Autonomous systems, the application of artificia         Year / semester       Subject Name (Subject Code)         ENGINEERING CHEMISTRY         LABORATORY(B22CH02)         ompletion of this course, the students should be able to         Able to determine the hardness of water         Able to perform methods such as conductometry, and potent find out the concentrations or equivalence points of acid, and solutions.         Students are able to prepare polymers like bakelite and nylow         Estimations saponification value, and v	GRAPHICS(B22ME03)ompletion of this course, the students should be able toApply computer aided drafting tools to create 2D and 3D objects sketch conidifferent types of solidsAppreciate the need of Sectional views of solids and Development of surfaceRead and interpret engineering drawingsConversion of orthographic projection into isometric view and vice versa mausing computer aided draftingYear / semesterSubject Name (Subject Code) ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)ompletion of this course, the students should be able toKnow the working principles of functional units of a basic ComputerUnderstand program development, the use of data structures and algorith problem solving.Know the need and types of operating system, database systems.Understand Autonomous systems, the application of artificial intelligence.Year / semesterSubject Name (Subject Code) ENGINEERING CHEMISTRY LABORATORY(B22CH02)No. of Hours Lo T:0 P:2ompletion of this course, the students should be able toAble to determine the hardness of waterAble to perform methods such as conductometry, and potentiometry in orde find out the concentrations or equivalence points of acid, and PH of unknow solutions.Students are able to prepare polymers like bakelite and nylon-6,6.Estimations saponification value, and viscosity of lubricant oils.Year / semester I SemSubject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING LABORATORY(B22CS03)No. ofHours L:0 T:0 P:2				

1	Understand basic structure of the C Programming, data types, declaration and usage of variables, control structures and all related concept.			
2		and any algorithm and Write the C program	nming code in	
3	Implement Progra solve realtime pro	ams using functions, pointers and arrays, a oblems.	and use the pre-	processors to
4	Ability to use file structures and implement programs on files and Implement programs on sorting and searching techniques.			
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL ENGINEERING LABORATORY(B22EE04)	No. of Hours L:0 T:0 P:2	Credits: 1
After the o	completion of this c	ourse, the students should be able to		
1	Verify the basic e	lectrical circuits through different laws and	l theorems	
2	Analyse the transient responses of R, L and C circuits for DC excitation			
3	Create resonance condition in series R-L-C circuit			
4	Analyze the perfo	Analyze the performance of DC shunt motor, single phase transformer and Three-phase		
	Induction Motor.			

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	II Sem	ORDINARY DIFFERENTIAL	L:3 T:1 P:0		
		EQUATIONS AND VECTOR CALCULUS (B22MA02)			
After the o		course, the students should be able to re given differential equation of first order is ex	act or not		
2	•	ential equation and apply the concept of differe		eal world	
2	problems.	ential equation and apply the concept of difference	initial equation to r	ear world	
3		oncepts of differential calculus to vector function	ons in a simple and	d natural	
	fashion.	-	_		
4		oncepts of differential calculus to vector function	ons in a simple and	d natural	
5	fashion.		<b>6</b>	- (1	
5	Evaluate the line, s	urface and volume integrals and converting the	m from one to an	other.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4	
Outcome	II Sem	APPLIED PHYSICS(B22PH01)	L:3 T:1 P:0		
			L.5 1.11.0		
		course, the students should be able to			
1		cal world from fundamental point of view			
		isualize the difference between conductor,	semiconductor,	and an	
2		sification of solids.	• • • • 1•		
2	Identify the role of	of semiconductor devices in science and eng	gineering Applic	cations	
3	Explore the fundation	amental properties of dielectric, magnetic m	naterials and energy	rgy for their	
	applications.				
4	Appreciate the fea	atures and applications of Nano materials.			
5		us aspects of Lasers and Optical fibre and t	heir applications	s in diverse	
	Fields.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2.5	
Outcome	II Sem	ENGINEERING WORKSHOP(B22ME01)	L:0 T:1 P:3		
After the o	completion of this o	course, the students should be able to			
1		e on machine tools and their operations.			
2	5 1	facturing of components using workshop tr	ades including n	luming	
		foundry, house wiring and welding.	adds menading p	B,	
3		y suitable tools for different trades of Engin	ooring processo	including	
5		-	leering processes	sincluding	
4		removing, measuring, chiseling.			
4	Apply basic elect	rical engineering knowledge for house wiri	ng practice.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	II Sem	ENGLISH FOR SKILL ENHANCEMENT (B22EN01)	L:2 T:0 P:0		
A.C. 1	l				
After the o		course, the students should be able to	turaa		
2		nportance of vocabulary and sentence struc		1.0.0	
2	Choose appropriate vocabulary and sentence structures for their oral andwritten			len	
		communication.			
	communication.				
3	communication. Demonstrate their	r understanding of the rules of functional gr			
4	communication. Demonstrate their	r understanding of the rules of functional gr nension skills using known and unknown pa			
	communication. Demonstrate their Develop compreh		ssages.	dreports in	
4 5	communication. Demonstrate their Develop compreh Take an active pa various contexts	ension skills using known and unknown pa rt in drafting paragraphs, letters, essays, ab	ssages. stracts, précis ar	-	
4	communication. Demonstrate their Develop compreh Take an active pa	ension skills using known and unknown pa	ssages.	dreports in Credits: 2	

After th	After the completion of this course, the students should be able to			
1	Acquire the knowledge of PN diode and its characteristics.			
2	Design the rectifiers with and without filters for specified DC voltage.			
3	Illustrate the voltage- current characteristics of Junction Transistor and different configurations of transistor			
4	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.			
5	Acquire the knowledge about the role of special purpose devices and their applications.			

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
Outcome	II Sem	APPLIED PHYSICS LABORATORY (B22PH02)	L:0 T:0 P:3	
After the o	completion of this o	course, the students should be able to		
1		ation of the Planck's constant using Photo elec	ctric effect and ide	entify the
		is n-type or p-type by Hall experiment.	· ·	
$\frac{2}{3}$		n physics in semiconductor devices and optoel	ectronics.	
3	Gain the knowledg	e of applications of dielectric constant.		
4		iation of magnetic field and behavior of hyster		
	Gain the knowledg	e of decay of chargeand determine time consta	int of RC circuit	
Course	Year / semester:	Subject Name(Subject Code) PYTHON	No. of Hours	Credits:2
Outcome	II Sem	PROGRAMMING	L:0 T:1 P:2	
		LABORATORY(B22CS04)		
1	Develop the appli	cation specific codes using python.		
2	· · · · ·	gs, Lists, Tuples and Dictionaries in Python	l.	
3		icture of exception handling for all general pur		
4	Verify programs	using modular approach, file I/O, Python st	andard library. I	mplement
	DigitalSystems u	• • • •	5	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	II Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:2	
		COMMUNICATION SKILLS		
		LABORATORY(B22EN02)		
After the o	completion of this a	course, the students should be able to	1	
1		uances of English language through audio-	visual experience	ce and
	groupactivities.		1	
2	Neutralize their a	ccent for intelligibility.		
3		ening skills so that they may appreciate its	role in developi	ng LSRW
		and improve their pronunciation.	-	-
4	Involve in speaki	ng activities in various contexts.		
5	Speak with clarity	y and confidence which in turn enhance the	ir employability	skills.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1
Outcome	II Sem	IT WORKSHOP(B22CS05)	L:0 T:0 P:2	
After the o	completion of this o	course, the students should be able to		
1	Perform Hardwar	e troubleshooting. Understand Hardware c	omponents and i	nter
	dependencies	C	1	
2	1	ter systems from viruses/worms		
3	<u> </u>	ons using spreadsheets.		
4		ntation preparation		
	1	* *		

C	<b>TT</b>		NT 077	<b>a b c</b>
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENVIRONMENTAL SCIENCE(B22CH03)	No. of Hours L:3 T:0 P:0	Credits: 0
Aftor the c	omplotion of this	course, the students should be able to		
			dorstand /avalu	ata /
1		ourse, the Engineering graduate will un ogies on the basis of ecological principles		
	-	in turn helps in sustainable development		Cinai
	regulations which	i in turn helps in sustainable development		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DIGITAL ELECTRONICS(B22EC12)	L:3 T:0 P:0	
After the c	completion of this (	course, the students should be able to		1
1	1	ledge on numerical information in differen	t forms and Boo	lean
	-	for Combinational function minimization.		
2	8	uits by applying minimization techniques a		characterize
		families for their AC and DC parameter's.		
3		ze various combination logic circuits and u	nderstand the fu	ndamental's
4	of sequential circ		_	
4	Design and analy	ze sequential circuits for various cyclic fun-	ctions.	
5	Acquire the know	vledge on concepts of Memories and PLA	-	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DATA STRUCTURES(B22CS11)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1	Ability to select t	he data structures that efficiently model the	information in a	a problem.
2	Ability to assess of	efficiency trade-offs among different data s	structure implen	nentations
	or combinations.			
	Implement and know the application of algorithms for sorting and pattern matching.			
3		now the application of algorithms for sorting	g and pattern ma	aching.
3	Implement and ki	now the application of algorithms for sorting using a variety of data structures, including		
	Implement and ki Design programs		g hash tables, bi	
-	Implement and ki Design programs general tree struc	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and	g hash tables, bi	
4	Implement and ki Design programs general tree struc	using a variety of data structures, including	g hash tables, bi AVL-trees.	nary and
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04)	g hash tables, bi AVL-trees. No. of Hours	nary and
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and
4 Course Outcome After the c 1	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and Credits:4
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and Credits:4
4 Course Outcome After the c 1 2	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables vzing experimental data.	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis	nary and Credits:4
4 Course Outcome After the c 1	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis	nary and Credits:4
4 Course Outcome After the c 1 2	Implement and ki Design programs general tree struc Year/semester III Sem completion of this Apply the concep Formulate and so methods for analy Apply concept of	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables vzing experimental data.	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies.	nary and Credits:4
4 Course Outcome After the c 1 2 3	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the concept	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code)	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies.	nary and Credits:4
4 Course Outcome After the c 1 2 3 4	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the concept	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its.	nary and Credits:4
4 Course Outcome After the c 1 2 3 4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the com Year / semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code) COMPUTER ORGANIZATION AND ARCHITECTURE(B22CS12)	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its. No. of Hours	nary and Credits:4
4 Course Outcome After the c 1 2 3 4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the com Year / semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. estimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code) COMPUTER ORGANIZATION AND	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its. No. of Hours L:3 T:0 P:0	nary and Credits:4 stical Credits: 3

	system.				
3	Evaluate cost per	formance and design trade-offs in designi	ng and construc	ting a	
	computerprocesso	or including memory.			
4	Design a pipeline	for consistent execution of instructions wit	h minimum haza	ards.	
5	Recognize and manipulate representations of numbers stored in digital computers.				
Course		Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III Sem	OBJECT ORIENTED PROGRAMMING THROUGH JAVA(B22CS13)	L:3 T:0 P:0		
After the o	completion of this c	course, the students should be able to			
1	Demonstrate the l	behavior of programs involving the basic pr	ogramming con	structs	
	like controlstruc	ctures, constructors, string handling and gai	bage collection.		
2		implementation of inheritance (multilevel,			
		and implement keywords		1 /	
3	• •	ag concepts to develop inter process commu	inication.		
4	Understand the pr	rocess of graphical user interface design ar	nd implementation	on using	
	AWT orswings.		Ĩ	C	
5	0	hat interact abundantly with the client envir	ronment and dep	loy on the	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	III Sem	DATA STRUCTURES LAB(B22CS14)	L:0 T:0 P:3		
After the o	completion of this c	course, the students should be able to	I		
1	Ability to develo	p C programs for computing and real-lif	e applications u	sing basic	
	elements like con	ntrol statements, arrays, functions, point	ers and strings,	and data	
		cks, queues and linked lists.	_		
2	Ability to Implem	nent searching and sorting algorithms			
Course		Subject Name (Subject Code) OBJECT ORIENTED PROGRAMMING	No. of Hours	Credits: 1.5	
Outcome	III Sem	THROUGH JAVA LAB(B22CS15)	L:0 T:0 P:3		
After the o	completion of this o	course, the students should be able to			
1	Able to write prog framework.	grams for solving real world problems using	g the java collect	tion	
2	Able to write prog	grams using abstract classes.			
3	Able to write mul	tithreaded programs			
4	Able to write GU	I programs using swing controls in Java.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1	
Outcome	III Sem	DATA VISUALIZATION - R PROGRAMMING/ POWER BI(B22DS01)	L:0T:0 P:2		
After the o	completion of this o	course, the students should be able to			
1	Understand How	to import data into Tableau.			
2	Understand Table	eau concepts of Dimensions and Measures.			
3	Develop Program Properties.	is and understand how to map Visual Layou	its and Graphica	1	
4		rd that links multiple visualizations.			
5		er interfaces to create Frames for providing	solutions to real	world	
	problems.				

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Course Outcome	Year / semester III Sem	Subject Name (Subject Code) GENDER SENSITIZATION LAB(B22MC07)	No. of Hours L:0 T:0 P:2	Credits:0		
After the c	ompletion of this	course, the students should be able to				
1			mortant iccusa	related to		
1	gender in contem	ve developed a better understanding of in	inportant issues	related to		
2	C	1 V	hielegiaal as	aialaaiaal		
Z		e sensitized to basic dimensions of the				
		d legal aspects of gender. This will be achie	-	scussion of		
3	materials derived from research, facts, everyday life, literature and film. Students will attain a finer grasp of how gender discrimination works in our society					
3	and how to count		ation works in o	our society		
4			flahan and its	nalation to		
4		quire insight into the gendered division o	f labor and its	relation to		
~	politics and econ		• 1.	1 1 1'		
5		students and professionals will be better	equipped to wo	rk and live		
	together as equals		1 malles of life			
6	Students will dev	elop a sense of appreciation of women in al	I walks of life.			
7	<b>T</b> 1			. 1		
/		ng accounts of studies and movements as				
		on and relief to women, the textbook w	vill empower s	students to		
	understand and re	espond to gender violence.				
Course						
Outcome		Subject Name (Subject Code) DISCRETE MATHEMATICS(B22CS16)	No. of Hours	Credits:3		
	IV Sem	DISCRETE WATTLEWATTCS(D22C510)	L:3 T:0 P:0			
After the o	completion of this	course, the students should be able to				
1	Understand and c	construct precise mathematical proofs				
2	Apply logic and s	set theory to formulate precise statements				
3	Analyze and solv	e counting problems on finite and discrete s	structures			
4		nipulate sequences				
5	Apply graph theo	bry in solving computing problems				
Course	Year/	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	semesterIV	BUSINESS ECONOMICS AND FINANCIAL	L:3 T:0 P:0			
outcome	Sem	ANALYSIS(B22MB01)				
		<b>course, the students should be able to</b> l understand the various Forms of Business an	nd the immediate			
1		Business. The Demand, Supply, Production, (				
	Pricingaspects ar	e learnt. The Students can study the firm's fir				
~		tements of a Company				
Course		Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17)	No. of Hours	Credits: 3		
Outcome	IV Sem	OPERATING STSTEMS(B22CS17)	L:3 T:0 P:0			
After the o	completion of this	course, the students should be able to				
1	Will be able to co	ontrol access to a computer and the files that	t may be shared			
2		knowledge of the components of compute		pective		
	roles incomputin			-		
3	-	ize and resolve user problems with standard	operating envir	onments.		
4		nowledge of how programming languages				
-	Sam practical K	now leage of now programming languages	, operating sys	iems, and		
	architectures into	ract and how to use each effectively.				

				1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS (B22CS18)	L:3 T:0 P:0	
After the co	mpletion of this c	ourse, the students should be able to		
1	Gain knowledge	of fundamentals of DBMS, database design	and normal for	ms
-		of SQL for retrieval and management of da		
3	Be acquainted wi	th the basics of transaction processing and c	concurrency con	trol.
4	Familiarity with o	database storage structures and access techn	iques	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	N Sem	SOFTWARE ENGINEERING (B22CS19)	L:3 T:0 P:0	
After the co	mpletion of this c	ourse, the students should be able to		
1	Ability to translat	te end-user requirements into system and so	ftware requirem	ents using
	-	ructure the requirements in a Software Requ	-	-
2		y appropriate software architectures and patt		
2		of a system and be able to critically compared	•	
3		ence and/or awareness of testing problems an		
	develop a simplet			•
		0 1	NT CIT	0 14 1
Course		Subject Name (Subject Code) OPERATING SYSTEMS LAB(B22CS20)	No. of Hours	Credits:1
Outcome	semester		L:0 T:0 P:2	
	<b>N</b> Sem			
After the co	mpletion of this c	ourse, the students should be able to		
1	Simulate and imp	plement operating system concepts such as	scheduling, dead	dlock
	management, file	management and memory management.		
2	Able to implement	nt C programs using Unix system calls		
Course	Vear / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
course				
Outcome		DATABASE MANAGEMENT SYSTEMS	L.0 T.0 P.2	
Outcome	IV Sem		L:0 T:0 P:2	
	IV Sem	DATABASE MANAGEMENT SYSTEMS	L:0 T:0 P:2	
After the c	<b>V</b> Sem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21)		
After the c	<b>V Sem</b> completion of this Design database	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to	ormalization	tion
After the c	<b>V Sem</b> completion of this Design database Acquire skills in	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no	ormalization d data manipula	
After the c 1 2 3	V Sem completion of this Design database Acquire skills in Develop solution	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition and s for database applications using procedures	ormalization d data manipula s, cursors and tri	ggers
After the c 1 2 3 <b>Course</b>	<b>N Sem</b> completion of this Design database Acquire skills in Develop solution <b>Year / semester</b>	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an	ormalization d data manipula s, cursors and tri No. of Hours	
After the of 1 2 3 Course Outcome	<b>V Sem</b> completion of this Design database Acquire skills in Develop solution <b>Year / semester</b> <b>VSem</b>	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23)	ormalization d data manipula s, cursors and tri	ggers
After the c 1 2 3 Course Outcome After the co	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b>	ggers Credits:1
After the c 1 2 3 Course Outcome After the co 1	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip	ggers Credits:1
After the c 1 2 3 Course Outcome After the co 1 2	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Demonstrate Adv	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1
After the c 1 2 3 Course Outcome After the co 1 2	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Demonstrate Adv	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1
After the c 1 2 3 Course Outcome After the co 1 2 3 ·	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Dewelop Server –	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition and s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1
After the c         1         2         3         Course         Outcome         After the co         1         2         3	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem Demonstrate Adv Demonstrate Adv Develop Server –	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about - side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1
After the c         1         2         3         Course         Outcome         After the co         1         2         3         4         5	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w Dewelop Server – Develop the server Design a Single F	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to vebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about side implementation using Java technologi er – side implementation using Node JS. Page Application using React.	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC es lik	ggers Credits:1 t.
After the c         1         2         3         Course         Outcome         After the co         1         2         3	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w Dewelop Server – Develop the server Design a Single F	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about - side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1

After the	After the completion of this course, the students should be able to			
1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before			
	the arrival of Gandhi in Indian politics.			
2	Discuss the intellectual origins of the framework of argument that informed the			
	conceptualization of social reforms leading to revolution in India.			
3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party			
	[CSP]under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of			
	direct elections through adult suffrage in the Indian Constitution			
4	Discuss the passage of the Hindu Code Bill of 1956.			

## COURSE OUTCOMES FOR B.TECH-CSE R22 FOR THE YEAR 2022-2023

			_	Credits: 4		
Course	Year/Semester	Subject Name (Subject Code) MATRICES AND CALCULUS(B22MA01)	No. of Hours	Creans: 4		
Outcome	I Sem	MATRICES AND CALCULUS(B22MA01)	L:3 T:1 P:0			
)n successf	ul completion of th	is course, students will be able to:				
1	Write the matrix i the system of equ	representation of a set of linear equations an ations	nd to analyse the	solution of		
2	Find the Eigen values and Eigen vectors. Reduce the quadratic form to canonical form using orthogonal transformations.					
3	Solve the applications on the mean value theorems.					
4	Evaluate the impr	roper integrals using Beta and Gamma func	tions			
5		alues of functions of two variables with/ withound apply the concept to find areas, volumes.				
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) ENGINEERING CHEMISTRY (B22CH01)	No. of Hours L:3 T:1 P:0	Credits:4		
On success	sful completion of	f this course, students are able to:				
1	-	uire the basic knowledge of electrochemica	al procedures re	lated		
2	in domestic and	able to understand the basic properties of vindustrial purposes				
3	They can learn t engineering mater	he fundamentals and general properties of rials.	polymers and o	other		
4		potential applications of chemistry and pagood engineers and entrepreneurs.	ractical utility in	1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	PROGRAMMING FOR PROBLEM SOLVING(B22CS01)	L:3 T:0 P:0			
After the o	completion of this c	course, the students should be able to	I			
1	To write algorith	ms and to draw flowcharts for solving probl harts to C programs.	ems. To convert	the		
2	-	inters, strings and structures to write C prog	grams.			
3	Ability to design ar	nd implement different types of file structures u	sing standard me	thodology.		
	• •	problem into functions and to develop mode	•			
4	To decompose a p	problem into functions and to develop mode	ular reusable coo	le.		
5	Searching and sor	rting problems.				
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL ENGINEERING(B22EE03)	No. of Hours L:2 T:0 P:0	Credits: 2		

Analyze circuit th Electrical power Gain knowledge o Admittance and P Learn the working		L	rks,		
Electrical power Gain knowledge of Admittance and P Learn the working Understand the co	on AC circuits, reactance, Impedance, Susc ower Factor	L			
Gain knowledge of Admittance and P Learn the working Understand the co	ower Factor	eptance and			
Admittance and P Learn the working Understand the co	ower Factor	eptance and			
Learn the working Understand the co		Admittance and Power Factor			
Understand the co	principle of DU motors Transformers				
	Learn the working principle of DC motors, Transformers				
Machines	onstruction and performance characteristics	of Electrical			
Introduce compor	nents of Low Voltage Electrical Installation	18			
Year / semester I Sem	Subject Name (Subject Code) COMPUTER AIDED ENGINEERING GRAPHICS(B22ME03)	No. of Hours L:1 T:0 P:4	Credits: 3		
ompletion of this c	ourse, the students should be able to				
		iects sketch coni	cs and		
	-				
		pment of surface	s of solids		
		1			
Conversion of orthographic projection into isometric view and vice versa manually and b					
using computer ai	ded drafting				
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1		
I Sem	ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)	L:0 T:0 P:2			
ompletion of this c	ourse, the students should be able to				
Know the working	g principles of functional units of a basic C	omputer			
Understand progr	ram development, the use of data structu	<u> </u>	nms in		
		ems.			
			-		
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
I Sem	ENGINEERING CHEMISTRY LABORATORY(B22CH02)	L:0 T:0 P:2			
ompletion of this c	ourse, the students should be able to				
Students are able	to prepare polymers like bakelite and nylor	n-6,6.			
Estimations sapor	ification value, and viscosity of lubricant of	oils.			
Year / semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING LABORATORY(B22CS03)	No. of Hours L:0 T:0 P:2	Credits: 1		
	ompletion of this of Apply computer a different types of Appreciate the ne Read and interpre Conversion of ort using computer ai Year / semester I Sem ompletion of this of Know the working Understand progr problem solving. Know the need an Understand progr problem solving. Know the need an Understand the sig Understand Autor Year / semester I Sem ompletion of this of Able to determine Able to perform r find out the conce solutions. Students are able Estimations sapor Year / semester I Sem	GRAPHICS(B22ME03)         ompletion of this course, the students should be able to         Apply computer aided drafting tools to create 2D and 3D ob         different types of solids         Appreciate the need of Sectional views of solids and Develo         Read and interpret engineering drawings         Conversion of orthographic projection into isometric view a using computer aided drafting         Year / semester       Subject Name (Subject Code)         ELEMENTS OF COMPUTER SCIENCE         AND ENGINEERING(B22CS02)         ompletion of this course, the students should be able to         Know the working principles of functional units of a basic C         Understand program development, the use of data structure problem solving.         Know the need and types of operating system, database system         Understand the significance of networks, internet, WWW and Understand Autonomous systems, the application of artificia         Year / semester       Subject Name (Subject Code)         ENGINEERING CHEMISTRY         LABORATORY(B22CH02)         ompletion of this course, the students should be able to         Able to determine the hardness of water         Able to perform methods such as conductometry, and potent find out the concentrations or equivalence points of acid, and solutions.         Students are able to prepare polymers like bakelite and nylow         Estimations saponification value, and v	GRAPHICS(B22ME03)ompletion of this course, the students should be able toApply computer aided drafting tools to create 2D and 3D objects sketch conidifferent types of solidsAppreciate the need of Sectional views of solids and Development of surfaceRead and interpret engineering drawingsConversion of orthographic projection into isometric view and vice versa mausing computer aided draftingYear / semesterSubject Name (Subject Code) ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)ompletion of this course, the students should be able toKnow the working principles of functional units of a basic ComputerUnderstand program development, the use of data structures and algorith problem solving.Know the need and types of operating system, database systems.Understand Autonomous systems, the application of artificial intelligence.Year / semesterSubject Name (Subject Code) ENGINEERING CHEMISTRY LABORATORY(B22CH02)No. of Hours Lo T:0 P:2ompletion of this course, the students should be able toAble to determine the hardness of waterAble to perform methods such as conductometry, and potentiometry in orde find out the concentrations or equivalence points of acid, and PH of unknow solutions.Students are able to prepare polymers like bakelite and nylon-6,6.Estimations saponification value, and viscosity of lubricant oils.Year / semester I SemSubject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING LABORATORY(B22CS03)No. ofHours L:0 T:0 P:2		

1		structure of the C Programming, data typ structures and all related concept.	bes, declaration	and usage of	
2	Ability to understand any algorithm and Write the C programming code in executable form.				
3	Implement Programs using functions, pointers and arrays, and use the pre- processors to solve realtime problems.				
4	Ability to use file structures and implement programs on files and Implement programs on sorting and searching techniques.				
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) BASIC ELECTRICAL ENGINEERING LABORATORY(B22EE04)	No. of Hours L:0 T:0 P:2	Credits: 1	
After the o	completion of this c	ourse, the students should be able to			
1	Verify the basic e	lectrical circuits through different laws and	l theorems		
2	Analyse the trans	ient responses of R, L and C circuits for DO	C excitation		
3	Create resonance	condition in series R-L-C circuit			
4	Analyze the perfo	rmance of DC shunt motor, single phase tr	ansformer and	Three-phase	
	Induction Motor.				

		1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	II Sem	ORDINARY DIFFERENTIAL	L:3 T:1 P:0	
		EQUATIONS AND VECTOR CALCULUS (B22MA02)		
After the o		course, the students should be able to re given differential equation of first order is ex	act or not	
2	•	ential equation and apply the concept of differe		eal world
2	problems.	ential equation and apply the concept of difference	initial equation to r	ear world
3		oncepts of differential calculus to vector function	ons in a simple and	d natural
	fashion.	-	_	
4		oncepts of differential calculus to vector function	ons in a simple and	d natural
5	fashion.		<b>6</b>	- (1
5	Evaluate the line, s	urface and volume integrals and converting the	m from one to an	other.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	II Sem	APPLIED PHYSICS(B22PH01)	L:3 T:1 P:0	
			L.5 1.11.0	
		course, the students should be able to		
1		cal world from fundamental point of view		
		isualize the difference between conductor,	semiconductor,	and an
2		sification of solids.	• • • • 1•	
2	Identify the role of	of semiconductor devices in science and eng	gineering Applic	cations
3	Explore the fundation	amental properties of dielectric, magnetic m	naterials and energy	rgy for their
	applications.			
4	Appreciate the fea	atures and applications of Nano materials.		
5		us aspects of Lasers and Optical fibre and t	heir applications	s in diverse
	Fields.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2.5
Outcome	II Sem	ENGINEERING WORKSHOP(B22ME01)	L:0 T:1 P:3	
After the o	completion of this o	course, the students should be able to		
1		e on machine tools and their operations.		
2	5 1	facturing of components using workshop tr	ades including n	luming
		foundry, house wiring and welding.	adds menading p	B,
3		y suitable tools for different trades of Engin	ooring processo	including
5		-	leering processes	sincluding
4		removing, measuring, chiseling.		
4	Apply basic elect	rical engineering knowledge for house wiri	ng practice.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	II Sem	ENGLISH FOR SKILL ENHANCEMENT (B22EN01)	L:2 T:0 P:0	
A.C. 1	l			
After the o		course, the students should be able to	turaa	
2		nportance of vocabulary and sentence struc		1.0.0
2	n noose appropria	te vocabulary and sentence structures for th	ieir orai andwrit	len
	communication.			
3	communication. Demonstrate their	r understanding of the rules of functional gr		
4	communication. Demonstrate their	r understanding of the rules of functional gr nension skills using known and unknown pa		
	communication. Demonstrate their Develop compreh		ssages.	dreports in
4 5	communication. Demonstrate their Develop compreh Take an active pa various contexts	ension skills using known and unknown pa rt in drafting paragraphs, letters, essays, ab	ssages. stracts, précis ar	-
4	communication. Demonstrate their Develop compreh Take an active pa	ension skills using known and unknown pa	ssages.	dreports in Credits: 2

After th	e completion of this course, the students should be able to
1	Acquire the knowledge of PN diode and its characteristics.
2	Design the rectifiers with and without filters for specified DC voltage.
3	Illustrate the voltage- current characteristics of Junction Transistor and different configurations of transistor
4	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.
5	Acquire the knowledge about the role of special purpose devices and their applications.

	1			1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5		
Outcome	II Sem	APPLIED PHYSICS LABORATORY (B22PH02)	L:0 T:0 P:3			
After the o	completion of this o	course, the students should be able to				
1		ation of the Planck's constant using Photo elec	ctric effect and ide	entify the		
		is n-type or p-type by Hall experiment.	· ·			
$\frac{2}{3}$		n physics in semiconductor devices and optoel	ectronics.			
3	Gain the knowledge of applications of dielectric constant.					
4	Understand the var					
	Gain the knowledg	e of decay of chargeand determine time consta	int of RC circuit			
Course	Year / semester:	Subject Name(Subject Code) PYTHON	No. of Hours	Credits:2		
Outcome	II Sem	PROGRAMMING	L:0 T:1 P:2			
		LABORATORY(B22CS04)				
1	Develop the appli	cation specific codes using python.				
2	· · · · ·	gs, Lists, Tuples and Dictionaries in Python	l.			
3		icture of exception handling for all general pur				
4	Verify programs	using modular approach, file I/O, Python st	andard library. I	mplement		
	DigitalSystems u	• • • •	5	1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
Outcome	II Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:2			
		COMMUNICATION SKILLS				
		LABORATORY(B22EN02)				
After the o	completion of this a	course, the students should be able to	1			
1		uances of English language through audio-	visual experience	ce and		
	groupactivities.		1			
2	Neutralize their a	ccent for intelligibility.				
3		ening skills so that they may appreciate its	role in developi	ng LSRW		
		and improve their pronunciation.	-	-		
4	Involve in speaki	ng activities in various contexts.				
5	Speak with clarity	y and confidence which in turn enhance the	ir employability	skills.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1		
Outcome	II Sem	IT WORKSHOP(B22CS05)	L:0 T:0 P:2			
After the o	completion of this o	course, the students should be able to				
1	Perform Hardwar	e troubleshooting. Understand Hardware c	omponents and i	nter		
	dependencies	C	1			
2	1	ter systems from viruses/worms				
3	<u> </u>	ons using spreadsheets.				
4		ntation preparation				
	1	* *				

C	<b>TT</b>		NT 077	<b>a b c</b>
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENVIRONMENTAL SCIENCE(B22CH03)	No. of Hours L:3 T:0 P:0	Credits: 0
Aftor the c	omplotion of this	course, the students should be able to		
			dorstand /avalu	ata /
1		ourse, the Engineering graduate will un ogies on the basis of ecological principles		
	-	in turn helps in sustainable development		Cinai
	regulations which	i in turn helps in sustainable development		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DIGITAL ELECTRONICS(B22EC12)	L:3 T:0 P:0	
After the c	completion of this (	course, the students should be able to		1
1	1	ledge on numerical information in differen	t forms and Boo	lean
	-	for Combinational function minimization.		
2	8	uits by applying minimization techniques a		characterize
		families for their AC and DC parameter's.		
3		ze various combination logic circuits and u	nderstand the fu	ndamental's
4	of sequential circ		_	
4	Design and analy	ze sequential circuits for various cyclic fun-	ctions.	
5	Acquire the know	vledge on concepts of Memories and PLA	-	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	DATA STRUCTURES(B22CS11)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1	Ability to select t	he data structures that efficiently model the	information in a	a problem.
2	Ability to assess of	efficiency trade-offs among different data s	structure implen	nentations
	or combinations.			
	Implement and know the application of algorithms for sorting and pattern matching.			
3		now the application of algorithms for sorting	g and pattern ma	aching.
3	Implement and ki	now the application of algorithms for sorting using a variety of data structures, including		
	Implement and ki Design programs		g hash tables, bi	
-	Implement and ki Design programs general tree struc	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and	g hash tables, bi	
4	Implement and ki Design programs general tree struc	using a variety of data structures, including	g hash tables, bi AVL-trees.	nary and
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04)	g hash tables, bi AVL-trees. No. of Hours	nary and
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and
4 Course Outcome After the c 1	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and Credits:4
4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0	nary and Credits:4
4 Course Outcome After the c 1 2	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data.	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis	nary and Credits:4
4 Course Outcome After the c 1	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis	nary and Credits:4
4 Course Outcome After the c 1 2	Implement and ki Design programs general tree struc Year/semester III Sem completion of this Apply the concep Formulate and so methods for analy Apply concept of	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data.	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies.	nary and Credits:4
4 Course Outcome After the c 1 2 3	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the concept	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code)	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies.	nary and Credits:4
4 Course Outcome After the c 1 2 3 4	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the concept	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its.	nary and Credits:4
4 Course Outcome After the c 1 2 3 4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem Completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the com Year / semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. cestimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code) COMPUTER ORGANIZATION AND ARCHITECTURE(B22CS12)	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its. No. of Hours	nary and Credits:4
4 Course Outcome After the c 1 2 3 4 Course Outcome	Implement and ki Design programs general tree struc Year/semester III Sem completion of this of Apply the concep Formulate and so methods for analy Apply concept of Correlate the com Year / semester III Sem	using a variety of data structures, including tures, search trees, tries, heaps, graphs, and Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04) course, the students should be able to ts of probability and distributions to case st olve problems involving random variables rzing experimental data. estimation and testing of hypothesis to case cepts of one unit to the concepts in other un Subject Name (Subject Code) COMPUTER ORGANIZATION AND	g hash tables, bi AVL-trees. No. of Hours L:3 T:1 P:0 udies. and apply statis e studies. its. No. of Hours L:3 T:0 P:0	nary and Credits:4 stical Credits: 3

	system.						
3	Evaluate cost performance and design trade-offs in designing and constructing a						
	computerprocessor including memory.						
4	Design a pipeline for consistent execution of instructions with minimum hazards.						
5	Recognize and manipulate representations of numbers stored in digital computers.						
Course	Year / semester Subject Name (Subject Code) No. of Hours Credits:						
Outcome	III Sem	OBJECT ORIENTED PROGRAMMING THROUGH JAVA(B22CS13)	L:3 T:0 P:0				
After the completion of this course, the students should be able to							
1	Demonstrate the behavior of programs involving the basic programming constructs						
	like controlstructures, constructors, string handling and garbage collection.						
2	Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple)						
	by using extend and implement keywords						
3	Use multithreading concepts to develop inter process communication.						
4	Understand the process of graphical user interface design and implementation using AWT orswings.						
5	Develop applets that interact abundantly with the client environment and deploy on the server.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5			
Outcome	III Sem	DATA STRUCTURES LAB(B22CS14)	L:0 T:0 P:3				
After the o	completion of this o	course, the students should be able to					
1	Ability to develo	p C programs for computing and real-lif	e applications u	sing basic			
	elements like control statements, arrays, functions, pointers and strings, and data						
	structures like sta	cks, queues and linked lists.					
2	Ability to Implement searching and sorting algorithms						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5			
Outcome	III Sem	OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB(B22CS15)	L:0 T:0 P:3				
After the o	completion of this o	course, the students should be able to					
1	Able to write programs for solving real world problems using the java collection framework.						
2	Able to write programs using abstract classes.						
3	Able to write multithreaded programs						
4	Able to write GUI programs using swing controls in Java.						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	III Sem	DATA VISUALIZATION - R PROGRAMMING/ POWER BI(B22DS01)	L:0T:0 P:2				
After the o	completion of this o	course, the students should be able to					
1	Understand How	to import data into Tableau.					
2	Understand Table	eau concepts of Dimensions and Measures.					
3	Develop Programs and understand how to map Visual Layouts and Graphical Properties.						
4	Create a Dashboard that links multiple visualizations.						
5	Use graphical user interfaces to create Frames for providing solutions to real world						
	problems.						

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Course Outcome	Year / semester III Sem	Subject Name (Subject Code) GENDER SENSITIZATION LAB(B22MC07)	No. of Hours L:0 T:0 P:2	Credits:0			
After the c	completion of this	course, the students should be able to					
			mortant issues	related to			
	Students will have developed a better understanding of important issues related to gender in contemporary India.						
	Students will be sensitized to basic dimensions of the biological, sociological,						
2							
	psychological and legal aspects of gender. This will be achieved through discussion of						
3	materials derived from research, facts, everyday life, literature and film.						
	Students will attain a finer grasp of how gender discrimination works in our society						
	and how to counter it.						
	Students will acquire insight into the gendered division of labor and its relation to						
	politics and economics.						
5	Men and women students and professionals will be better equipped to work and live						
	together as equals. Students will develop a sense of appreciation of women in all walks of life.						
6	Students will dev	elop a sense of appreciation of women in al	I walks of life.				
7			11 /1	1 (1)			
1	Through providing accounts of studies and movements as well as the new laws that						
	provide protection and relief to women, the textbook will empower students to						
	understand and re	espond to gender violence.					
Commo		1					
Course Outcome	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
outcome	IV Sem	DISCRETE MATHEMATICS(B22CS16)	L:3 T:0 P:0				
After the c	completion of this	course, the students should be able to	L				
	-	construct precise mathematical proofs					
2	Apply logic and set theory to formulate precise statements						
	Analyze and solve counting problems on finite and discrete structures						
3		· · · · · · · · · · · · · · · · · · ·	structures				
	Analyze and solv	e counting problems on finite and discrete s	structures				
4	Analyze and solv Describe and man	e counting problems on finite and discrete s nipulate sequences	structures				
4 5	Analyze and solv Describe and man Apply graph theo	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems		Credits:3			
4 5 Course	Analyze and solv Describe and man Apply graph theo Year /	e counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code)	No. of Hours	Credits:3			
4 5	Analyze and solv Describe and man Apply graph theo Year / semesterIV	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems		Credits:3			
4 5 Course	Analyze and solv Describe and man Apply graph theo Year / semester IV	e counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL	No. of Hours	Credits:3			
4 5 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems <b>Subject Name (Subject Code)</b> BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) <b>course, the students should be able to</b>	No. of Hours L:3 T:0 P:0				
4 5 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students wil	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to l understand the various Forms of Business an	No. of Hours L:3 T:0 P:0	economic			
4 5 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems <b>Subject Name (Subject Code)</b> BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) <b>course, the students should be able to</b> I understand the various Forms of Business an Business. The Demand, Supply, Production, O	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru	economic icture,			
4 5 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to l understand the various Forms of Business an	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru	economic icture,			
4 5 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru	economic icture,			
4 5 Course Outcome After the c 1	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems <b>Subject Name (Subject Code)</b> BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) <b>course, the students should be able to</b> I understand the various Forms of Business an Business. The Demand, Supply, Production, G re learnt. The Students can study the firm's fin tements of a Company	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru nancial position b	economic icture, by analysing			
4 5 Course Outcome After the c 1 Course Outcome	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta Year / semester IV Sem	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17)	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru- nancial position b No. of Hours	economic icture, by analysing			
4 5 Outcome After the c 1 Course Outcome After the c	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta Year / semester IV Sem completion of this	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to	No. of Hours L:3 T:0 P:0 nd the impact of Cost, Market Stru- nancial position b No. of Hours L:3 T:0 P:0	economic icture, by analysing			
4 5 Course Outcome After the c 1 Course Outcome After the c 1	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this Pricingaspects an the Financial Sta Year / semester IV Sem Will be able to co	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to ontrol access to a computer and the files that	No. of Hours L:3 T:0 P:0 Ind the impact of Cost, Market Stru- nancial position b No. of Hours L:3 T:0 P:0	economic acture, by analysing Credits: 3			
4 5 Course Outcome After the c 1 Course Outcome After the c 1 2	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this Pricingaspects an the Financial Sta Year / semester IV Sem completion of this Will be able to co Demonstrate the	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to ontrol access to a computer and the files that knowledge of the components of computer	No. of Hours L:3 T:0 P:0 Ind the impact of Cost, Market Stru- nancial position b No. of Hours L:3 T:0 P:0	economic acture, by analysing Credits: 3			
4 5 Course Outcome After the c 1 Course Outcome After the c 1 2	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta Year / semester IV Sem completion of this Will be able to co Demonstrate the roles incomputin	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to ontrol access to a computer and the files that knowledge of the components of compute g.	No. of Hours L:3 T:0 P:0 and the impact of Cost, Market Stru- nancial position to No. of Hours L:3 T:0 P:0 t may be shared ers and their res	economic octure, by analysing Credits: 3 pective			
4 5 Course Outcome After the c 1 Course Outcome After the c 1 2 3	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta Year / semester IV Sem completion of this Will be able to co Demonstrate the roles incomputin Ability to recogn	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to ontrol access to a computer and the files that knowledge of the components of compute g. ize and resolve user problems with standard	No. of Hours L:3 T:0 P:0 Ind the impact of Cost, Market Stru- nancial position to No. of Hours L:3 T:0 P:0 t may be shared ers and their res	economic octure, by analysing Credits: 3 pective onments.			
4 5 Outcome After the c 1 Course Outcome After the c 1 2 3 4	Analyze and solv Describe and man Apply graph theo Year / semesterIV Sem completion of this The students will variables on the Pricingaspects an the Financial Sta Year / semester IV Sem completion of this Will be able to co Demonstrate the roles incomputin Ability to recogn Gain practical k	re counting problems on finite and discrete s nipulate sequences ory in solving computing problems Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01) course, the students should be able to I understand the various Forms of Business an Business. The Demand, Supply, Production, O re learnt. The Students can study the firm's fin tements of a Company Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17) course, the students should be able to ontrol access to a computer and the files that knowledge of the components of compute g.	No. of Hours L:3 T:0 P:0 Ind the impact of Cost, Market Stru- nancial position to No. of Hours L:3 T:0 P:0 t may be shared ers and their res	economic octure, by analysing Credits: 3 pective onments.			

				1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS (B22CS18)	L:3 T:0 P:0			
After the co	mpletion of this c	ourse, the students should be able to				
1	Gain knowledge	of fundamentals of DBMS, database design	and normal for	ms		
-		of SQL for retrieval and management of da				
3	Be acquainted wi	th the basics of transaction processing and c	concurrency con	trol.		
4	Familiarity with o	amiliarity with database storage structures and access techniques				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	N Sem	SOFTWARE ENGINEERING (B22CS19)	L:3 T:0 P:0			
After the co	mpletion of this c	ourse, the students should be able to				
1	Ability to translat	te end-user requirements into system and so	ftware requirem	ents using		
	-	ructure the requirements in a Software Requ	-	-		
2		y appropriate software architectures and patt				
2		of a system and be able to critically compared	•			
3		ence and/or awareness of testing problems an				
	develop a simplet			•		
		0 1	NT CIT	0 14 1		
Course		Subject Name (Subject Code) OPERATING SYSTEMS LAB(B22CS20)	No. of Hours	Credits:1		
Outcome	semester		L:0 T:0 P:2			
	<b>N</b> Sem					
After the co	mpletion of this c	ourse, the students should be able to				
1	Simulate and imp	plement operating system concepts such as	scheduling, dead	dlock		
	management, file	management and memory management.				
2	Able to implement	nt C programs using Unix system calls				
Course	Vear / semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
course						
Outcome		DATABASE MANAGEMENT SYSTEMS	L.0 T.0 P.2			
Outcome	IV Sem		L:0 T:0 P:2			
	IV Sem	DATABASE MANAGEMENT SYSTEMS	L:0 T:0 P:2			
After the c	<b>V</b> Sem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21)				
After the c	<b>V Sem</b> completion of this Design database	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to	ormalization	tion		
After the c	<b>V Sem</b> completion of this Design database Acquire skills in	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no	ormalization d data manipula			
After the c 1 2 3	V Sem completion of this Design database Acquire skills in Develop solution	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition and s for database applications using procedures	ormalization d data manipula s, cursors and tri	ggers		
After the c 1 2 3 <b>Course</b>	<b>N Sem</b> completion of this Design database Acquire skills in Develop solution <b>Year / semester</b>	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an	ormalization d data manipula s, cursors and tri No. of Hours			
After the of 1 2 3 Course Outcome	<b>V Sem</b> completion of this Design database Acquire skills in Develop solution <b>Year / semester</b> <b>VSem</b>	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23)	ormalization d data manipula s, cursors and tri	ggers		
After the c 1 2 3 Course Outcome After the co	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b>	ggers Credits:1		
After the c 1 2 3 Course Outcome After the co 1	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip	ggers Credits:1		
After the c 1 2 3 Course Outcome After the co 1 2	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Demonstrate Adv	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1		
After the c 1 2 3 Course Outcome After the co 1 2	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Demonstrate Adv	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1		
After the c 1 2 3 Course Outcome After the co 1 2 3 ·	V Sem completion of this Design database Acquire skills in Develop solution Vear / semester VSem mpletion of this co Build a custom w Dewelop Server –	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition and s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1		
After the c         1         2         3         Course         Outcome         After the co         1         2         3	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem Demonstrate Adv Demonstrate Adv Develop Server –	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about - side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1		
After the c         1         2         3         Course         Outcome         After the co         1         2         3         4         5	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w Dewelop Server – Develop the server Design a Single F	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to vebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about side implementation using Java technologi er – side implementation using Node JS. Page Application using React.	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC es lik	ggers Credits:1 t.		
After the c         1         2         3         Course         Outcome         After the co         1         2         3	V Sem completion of this Design database Acquire skills in Develop solution Year / semester VSem ompletion of this co Build a custom w Dewelop Server – Develop the server Design a Single F	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21) course, the students should be able to schema for a given application and apply no using SQL commands for data definition an s for database applications using procedures Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23) ourse, the students should be able to rebsite with HTML, CSS, and Bootstrap and vanced features of JavaScript and learn about - side implementation using Java technologi	ormalization ad data manipula s, cursors and tri <b>No. of Hours L:0 T:0 P:2</b> d little JavaScrip at JDBC	ggers Credits:1		

After the completion of this course, the students should be able to			
1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before		
	the arrival of Gandhi in Indian politics.		
2	Discuss the intellectual origins of the framework of argument that informed the		
	conceptualization of social reforms leading to revolution in India.		
3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party		
	[CSP]under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of		
	direct elections through adult suffrage in the Indian Constitution		
4	Discuss the passage of the Hindu Code Bill of 1956.		

# COURSE OUTCOMES FOR M.TECH-CSE R18 FOR THE YEAR 2018-2020

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
	ful completion of th	nis course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1	I			
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
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On successf 1	ul completion of th	is course, students will be able to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0		• • • • • • • • • • • • • • • • • • • •		<u> </u>
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		<u> </u>
1				
23				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	)	
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
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3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
0				
On successf 1	ul completion of th	is course, students will be able to:		
1				
2				
3				
4				
5				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem		L:3 T:1 P:0	
On success	ful completion of	this course, students are able to:		
1				
2				
3				
4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem		L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1				
2				
3				
4				
5				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem		L:2 T:0 P:0	

#### VAAGDEVI COLLEGE OF ENGINEERING

## (AUTONOMOUS)

#### ELECTRICAL AND ELECTRONICS ENGINEERING

## COURSE OUTCOMES FOR B.TECH-EEE R22

Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				4			
	I Year I	Matrices and Calculus	B22MA01	L/T/P :3/1 /0				
	Sem							
After learni	ing the conten	ts of this subject, the student must	be able to					
1		atrix representation of a set of linea	ar equations and to	o analyse the solut	ion of the			
		stem of equations						
2	-	en values and Eigen vectors						
3		Reduce the quadratic form to canonical form using orthogonal transformations.						
4	-	plications on the mean value theor						
5		improper integrals using Beta and			I			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				4			
	I Year I	Engineering Chemistry	B22CH01	L/T/P :3/1 /0				
	Sem							
After learni	-	ts of this subject, the student must						
1		l acquire the basic knowledge of e	lectrochemical pro	ocedures related to	o corrosion			
	and its contr							
2		s are able to understand the basic p	roperties of water	and its usage in d	omestic			
	and industria							
3		arn the fundamentals and general p	roperties of polym	ners and other eng	ineering			
	materials.							
4		edict potential applications of cher	nistry and practica	l utility in order to	o become			
Course	Year &	ers and entrepreneurs. Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester	Subject Name	Subject Code	No. of Hours	3			
Outcome	I Year I	C Programming and Data	B22CS01	L/T/P :3/0/0				
	Sem	Structures	D22C501	L/1/1 .3/0/0				
By the end		students will be able to						
1	-		opmont					
		Understand the various steps in Program development Explore the concepts of control statements and functions in C Programming Language.						
$\frac{2}{3}$		the concepts of pointers and its app			lage.			
4		esign and implement different type						
5		structures such as stacks, queues in			16			
Course	Year &	-		No. of Hours				
	Semester	Subject Name	Subject Code		Credits: 3			
Outcome	-	Electrical Cincuit Analysis I	D))FFA1	I /T/D -2/0 /0	5			
	I Year I	Electrical Circuit Analysis–I	B22EE01	L/T/P :3/0 /0				

	Sem						
The basic c		ded in this course will help the stud	lent to:				
1	-	the basics of electrical circuits suc		mation and netwo	ork		
1	reduction te			indicition and notive			
2		basic principles and concepts invo	lved in AC circuit	s and analyze pov	ver in		
		barallel AC circuits		5 1			
3		ork theorems to analyze electrical	circuits				
4		alanced and unbalanced three phase		ure voltage, curre	nt and		
		ree phase star and delta connection		U v			
5	Explore var	rious network topologies and analyz	ze the networks w	ith cut-set and tie-	set		
Course	Year &						
Outcome	Semester	U U	U		3		
	I Year I	Computer Aided Engineering	B22ME03	L/T/P :1/0 /4			
	Sem	Graphics					
After learni		its of this subject, the student must	he able to				
	-	puter aided drafting tools to create		alzetah Conica an	ddifform		
1	types of sol	<b>.</b>	2D and 5D objects	s sketch Comes an	a amereni		
2	<b>2</b>	the need of Sectional views of solid	ds and Developme	ent of Surfaces of	solids		
3		nterpret engineering drawings	us and Developine	int of Burraces of	501105		
					111		
4		n of orthographic projection into iso outer aided drafting	ometric view and v	vice Versa manua	lly and by		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits		
		Subject Mame	Subject Code	No. of nours			
Outcome	Semester				1		
	I Year I	Elements of Electrical and	<b>B22EE02</b>	L/T/P :0/0 /2			
	Sem	Electronics Engineering					
After learni	-	nts of this subject, the student must					
1	Verify the l	pasic electrical circuits through diff	erent laws and the	orems			
2	Measure vo	ltage, current and power of a single	e phase transforme	er			
3	Calculate th	ne impedance of series RL, RC and	RLC circuits				
4	Determine	the form factor of a non-sinusoidal	waveform				
5	Analyse the	e transient responses of R, L and C	circuits for DC ex	citation			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				1		
	I Year I	Engineering Chemistry	B22CH02	L/T/P :0/0 /2			
	Sem	Laboratory					
	Sem						
After learni		ç	be able to				
	ng the conter	nts of this subject, the student must	be able to				
1	ng the conter Able to det	nts of this subject, the student must ermine the hardness of water		etry in order to fi	nd out the		
	ng the conter Able to det Able to per	nts of this subject, the student must ermine the hardness of water form methods such as conductomet	ry, and potentiom		nd out the		
1 2	ng the conter Able to det Able to per concentration	nts of this subject, the student must ermine the hardness of water form methods such as conductomet ons or equivalence points of acid, a	ry, and potentiom nd PH of unknow	n solutions	nd out the		
1 2 3	ng the conter Able to det Able to per concentration Students ar	nts of this subject, the student must ermine the hardness of water form methods such as conductometons or equivalence points of acid, a e able to prepare polymers like bak	ry, and potentiom nd PH of unknow elite and nylon-6,0	n solutions	nd out the		
1 2 3 4	ng the conter Able to det Able to per concentration Students ar Estimation	nts of this subject, the student must ermine the hardness of water form methods such as conductomet ons or equivalence points of acid, a e able to prepare polymers like bak s saponification value, and viscosit	ry, and potentiom nd PH of unknow elite and nylon-6,0 y of lubricant oils	n solutions 5.			
1 2 3 4 <b>Course</b>	ng the conter Able to det Able to per concentration Students ar Estimation Year &	nts of this subject, the student must ermine the hardness of water form methods such as conductometons or equivalence points of acid, a e able to prepare polymers like bak	ry, and potentiom nd PH of unknow elite and nylon-6,0	n solutions	Credits:		
1 2 3 4	ng the conter Able to det Able to per concentration Students ar Estimation Year & Semester	nts of this subject, the student must ermine the hardness of water form methods such as conductomet ons or equivalence points of acid, a e able to prepare polymers like bak s saponification value, and viscosit <b>Subject Name</b>	ry, and potentiom nd PH of unknow elite and nylon-6,0 y of lubricant oils <b>Subject Code</b>	n solutions 5. <b>No. of Hours</b>			
1 2 3 4 <b>Course</b>	ng the conter Able to det Able to per concentration Students ar Estimation Year &	nts of this subject, the student must ermine the hardness of water form methods such as conductomet ons or equivalence points of acid, a e able to prepare polymers like bak s saponification value, and viscosit	ry, and potentiom nd PH of unknow elite and nylon-6,0 y of lubricant oils	n solutions 5.	Credits:		

	Year &	Subject Name	Subject Code	No. of Hours	Credits:
4		e electrical engineering knowledge			<del></del>
	drilling, ma	terial removing, measuring, chisel	ing	01	C
3		d apply suitable tools for different t	rades of Engineer	ing processes incl	uding
4		Foundry, house wiring and welding	5 workshop trade	5 mercome pronin	16, IIIIIIg,
2		manufacturing of components usir	*	s including plumi	ng fitting
1	<u> </u>	practice on machine tools and their			
After learnin		ts of this subject, the student must	be able to		<u> </u>
	Sem	Engineering workshop	D22WIEVI		
Jucome	I Year II	Engineering Workshop	B22ME01	L/T/P :0/1 /3	
Outcome	Semester	Subject Maille	Subject Code		2.5
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits
6	Understand fields.	various aspects of Lasers and Opti	cal fiber and their	applications in di	verse
5	**	the features and applications of N		1	
5	application		momotorial-		
4	-	fundamental properties of dielectr	ic, magnetic mater	rials and energy fo	or their
3		role of semiconductor devices in s	-		
	by classific	ation of solids.			
2		and visualize the difference betwe			
1	Understand	physical world from fundamental	point of view by the	he concepts of Qu	antum
After learnin	ng the conter	ts of this subject, the student must	be able to		<u>.</u>
	Sem	*			
	I Year II	Applied Physics	B22PH01	L/T/P: 3/1 /0	1
Outcome	Semester				4
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits
5		e line, surface and volume integral	s and converting fl	hem from one to a	nother
4	Extend the fashion.	basic concepts of differential calcu	ius to vector funct	ions in a simple a	na natural
4	fashion.	havin apparents of differential salar	lug to voctor for at	iona in a simula a	nd notional
3		basic concepts of differential calcu	lus to vector funct	tions in a simple a	nd natural
	world prob	lems.	_	_	
2	Solve highe	er differential equation and apply th	e concept of diffe	rential equation to	o real
1	Identify wh	ether the given differential equation	n of first order is e	exact or not	
After learnin	ng the conter	ts of this subject, the student must	be able to		<u>.</u>
		Calculus			
	Sem	<b>Equations and Vector</b>			
	I Year II	Ordinary Differential	B22MA02	L/T/P :3/1 /0	1
Outcome	Semester	U U	U		4
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits
4	-	and analyze various searching a	nd sorting algorith	hms.	
3	_	stacks, queues using arrays.			
2		ems using strings, functions. Hand	ledatain files.		
1	Develop mo	odular and readable C Programs			

Outcome	Semester				2		
	I Year II Sem	English for Skill Enhancement	B22EN01	L/T/P :2/0 /0			
After learni	ng the conter	nts of this subject, the student must	be able to	<u> </u>			
1	Understand	the importance of vocabulary and s	sentence structures				
2	Choose app communicat	propriate vocabulary and sentence stion.	tructures for their	oral and written			
3	Demonstrat	e their understanding of the rules o	f functional gram	nar.			
4	Develop co	mprehension skills using known an	d unknown passag	ges.			
5	Take an act various	Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various					
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				2		
	I Year II Sem	Electrical Circuit Analysis- II	B22EE05	L/T/P :2/0 /0			
After learn		ts of this subject, the student must	ha ahla ta				
	÷	e network parameters in two port ne					
1 2							
	-	lifferent kinds of two port network			.1.1		
3	excitations	ansient response of series and para					
4	transformati			Ilse etc., using La	place		
5		ourier series and integral to analyze		I			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				1.5		
	I Year II Sem	Applied Physics Laboratory	B22PH02	L/T/P :0/0 /3			
After learni	ng the conter	its of this subject, the student must	be able to				
1	Know the de	etermination of the Planck's consta	nt using Photo ele	ctric effect and id	entify the		
2		ether it is n-type or p-type by Hall e quantum physics in semiconductor		electronics			
3	~ ~	owledge of applications of dielectri	-	liceu olifică.			
4		the variation of magnetic field and		resis curve			
5		owledge of decay of charge and det	•				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				1		
	I Year II	English Language and	B22EN02	L/T/P :0/0 /2	-		
	Sem	Communication Skills					
		Laboratory					
After learni	ng the conter	nts of this subject, the student must	be able to	1	I		
1	-	the nuances of English language th		al experience and	group		
2		heir accent for intelligibility					
3		ir listening skills so that they may a	appreciate its role	in developing LSI	RW skills		

4	Involve in	speaking activities in various contex	xts.					
5	Speak with	clarity and confidence which in tur	n enhance their en	nployability skills				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester		-		2			
	I Year II	Applied Python Programming	B22CS10	L/T/P :0/1 /2				
	Sem	Laboratory						
After learn	ing the conter	nts of this subject, the student must	be able to	L	1			
1	Install Pyth	on in linux and windows, Installing	O Son Raspberry	Pi				
2	Build basic	programs using fundamental progra	amming constructs	S				
3	Write and e	execute python codes for different a	pplications					
4	Capable to	implement to n hard ware boards						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				1			
	I Year II	<b>Electrical Circuit Analysis</b>	B22EE06	L/T/P :0 /0/2				
	Sem	Laboratory						
After learn		nts of this subject, the student must	be able to					
1	Draw locus	diagrams for series RLC circuit						
2		nance condition in R-L-C series and	l parallel circuit ar	nd learn how to dr	aw phasor			
	diagram for							
3		Z, Y and ABCD parameters for a gi	ven two port netw	ork				
4	•	ters in frequency domain						
5	loads	ent of Active Power and Reactive P						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				4			
	II Year I	Numerical Methods and	B22MA07	L/T/P :3/1 /0				
	Sem	Complex variables						
After learn		nts of this subject, the student must						
1		periodic function in terms of sine a						
2		ot of a given polynomial and transc	endental equations	s. Estimate the val	ue for the			
3	-	using interpolation	ndan ODE'a					
		imerical solutions for a given first o			Carralia,'a			
4		e complex function with reference to residue theorems	o their analyticity,	integration using	Cauchy s			
5		nd Laurent's series expansions in co	mplex function					
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester	_			4			
	II Year I	Electrical Machines-I	B22EE07	L/T/P: 3/1 /0	1			
	Sem							
After learn	ing the conter	nts of this subject, the student must	be able to	1				
1	Identify diff	ferent parts of a DC machines & un		ration. with variou	18			
	excitation							
2		us methods of starting, speed control	ol of dc motors		Learn various methods of starting, speed control of dc motors			

4	Understand	the construction, operation and per	formance of single	e phase transforme	er
5		nethods of testing of single phase tr	ansformers and ex	plore the polypha	se
		of transformer.	<u> </u>	-	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	II Year I	Analog Electronic Circuits	B22EC10	L/T/P :3/0 /0	
	Sem				
	5	nts of this subject, the student must			
1		haracteristics, utilization of various	components.		
2		the biasing techniques			
3	J.	analyze various rectifiers, small sig		uits.	
4	-	soidal and non-sinusoidal oscillator			
5	Designs OP	-AMP based circuits with linear int	egrated circuits.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	II Year I	Power Systems-I	B22EE08	L/T/P :3/0 /0	
	Sem				
After learn	ing the conter	nts of this subject, the student must	be able to		
1	Understand	the operation of conventional and r	enewable electrica	al power generatir	g stations.
2	Evaluate the	e power tariff methods and Econom	ics associated with	h power generatio	n.
3	Modelling of	of various parameters of transmission	on lines and classif	ication of overhea	ad line
		nd evaluation of string efficiency.			
4		operations of AIS and GIS			
5		d evaluate various distribution syst		-	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	II Year I	Electro Magnetic Fields	B22EE09	L/T/P :3/0 /0	
	Sem				
After learn	-	nts of this subject, the student must			
1		the basic laws of electromagnetism			
2		the behavior of conductors and diel	lectrics, their bour	dary conditions, l	Maxwell's
		ith respect to electrostatics	1		
3	-	relation between the electric field a			
4 5		ne varying electric and magnetic fie the propagation of EM waves	elas.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Maine	Subject Code	110. 01 110013	1
Outcome	II Year I	Electrical Machines	B22EE10	L/T/P :0 /0/2	-
	Sem	Laboratory-I	D22LLIV		
A ftor loor		nts of this subject, the student must	ha abla ta		
	-	ntrol the Different DC Machines.			
$\frac{1}{2}$			aina different to at	in a mathe	
2		performance of different machines u			
3		e performance of different Transform	-	-	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:

Outcome	Semester				1
	II Year I	Analog Electronic Circuits	B22EC11	L/T/P:0/0/2	
	Sem	Laboratory			
After learn	ing the conte	nts of this subject, the student must	be able to		
1	Know the c	haracteristics, utilization of various	components.		
2		the biasing techniques			
3	Design and	analyze various rectifiers, small sig	nal amplifier circu	uits.	
4	Design sinu	soidal and non-sinusoidal oscillator	·S.		
5	•	AMP based circuits with linear inte			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Ū	U U		1
	II Year I	Electrical Simulation tools	B22EE11	L/T/P:0/0/2	
	Sem	Laboratory			
After learn	ing the conte	nts of this subject, the student must	be able to		
1	5	owledge of software packages to m		electrical and elec	tronics
	systems.		1 0		
2	Model diffe	erent electrical and electronic system	ns and analyze the	results.	
3		mportance of software packages use	ed for simulation i	n laboratory exper	imentation
~	5 5	g the simulation results.			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				0
	II Year I	Gender Sensitization	B22MC07	L/T/P :0 /0/2	
	Sem	Laboratory			
	-	nts of this subject, the student must			
1		ll have developed a better understar	nding of important	issues related to g	gender in
2	contempora Students wi	Il be sensitized to basic dimensions	of the biological	sociological psyc	hological
2		pects of gender. This will be achiev			
	U U	ch, facts, everyday life, literature an	•		
3		ll attain a finer grasp of how gender			
		hem. Students will acquire insights	into the gendered	division of labour	and its
4		politics and economics.	c · 11	11 6116 34	1
4		Il develop a sense of appreciation o			nd women
5		d professionals will be better equipp oviding accounts of studies and mov		•	tprovide
5		and relief to women, the textbook w			-
	-	gender violence.	1		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				4
	II Year II	Solid Mechanics & Hydraulic	B22ME20	L/T/P :3/1 /0	
	Sem	Machines			
After learn	ing the conte	nts of this subject, the student must	be able to		
1		ems dealing with forces, beam and	cable problems an	d understand distr	ibuted
2	force system		CT	1	1
2		on problems and determine moment		-	-
3	Apply know	vledge of mechanics in addressing p	problems in hydrau	ilic machinery and	1 1ts

	principles th	nat will be utilized in Hydropower of	levelopment and f	or other practical	usages.
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	II Year II	Measurements and	B22EE13	L/T/P :3/0/0	
	Sem	Instrumentation			
After learn	ing the conter	nts of this subject, the student must	be able to		
1	Understand	different types of measuring instru	ments, their constr	ruction operation a	ınd
	characteristi	ics			
2		instruments suitable for typical me			
3	•	measurement of voltage, current, H	Power factor, powe	er, energy, R, L,C	and
		easurements.			20 1 1
4		nowledge about transducers and ins			fectively.
5		nowledge of smart and digital mete			Carallan
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester		<b>D</b> 200014		3
	II Year	Electrical Machines–II	B22EE14	L/T/P :3/0 /0	
	II Sem				
	-	nts of this subject, the student must			
1		the concepts of rotating magnetic f			
2		arious methods of testing, speed con			
3		the construction of synchronous ma	achines, analyze p	erformance charac	eteristics
		ous generators.			
4	-	parallel operation, analyze the perf	-	ronous motor.	
5	•	udy the various single-phase induct		1	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				2
	II Year II	Digital Electronics	B22EC22	L/T/P :2/0 /0	
	Sem				
After learn	-	nts of this subject, the student must			
1		the working of logic families and lo			
2	Design logi	c circuits by applying various minir	nization technique	e to combinational	function
3	Design and	implement Combinational and Sequ	uential logic circu	its.	
4	Design and	implementation various `sequential	circuits		
5		the given logical problems using pro-			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	II Year II	Power System-II	B22EE15	L/T/P :3/0 /0	
	Sem				
After learn	ing the conter	nts of this subject, the student must	be able to	·	
1	Design of tr	ansmission lines and investigate the	e concepts of coro	na and its effects	
2	Apply load	compensation techniques to control	reactive power		
3		apply the knowledge of per unit qu	-	systems.	
4	-	the concepts of over voltage protect	-		surges
	and switchin				
5		he fault currents for symmetrical ar	d unbalanced faul	lts	

Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				1
	II Year II Sem	Digital Electronics Laboratory	B22EC23	L/T/P :0/0/2	
After learn	ing the conter	its of this subject, the student must	be able to		
1		the working of logic families and lo			
2		implement Combinational and Sequence		uits.	
3	÷	ferent types of semiconductor men	*		
Course	Year &	Subject Name	Subject	No. of Hours	Credits:
Outcome	Semester		Code		1
	II Year II	Measurements and	B22EE16	L/T/P :0 /0/2	
	Sem	Instrumentation Laboratory			
After learn		ts of this subject, the student must	be able to		
1	-	test any measuring instruments.			
2		curacy of any instrument by perform	ning experiments		
3		e various parameters using differen	÷ .		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Name	Subject Code		1
Outcome	II Year II	Electrical Machines	B22EE17	L/T/P :0 /0/2	-
	Sem		D22EE1/	L/1/P :0/0/2	
A.C. 1		Laboratory-II	1 11 /		
	•	nts of this subject, the student must		1:00	.1 1
1		performance of different types of A			
2	•	suitability of AC machines and Tra		**	IS.
3	-	nachine models based on the applic	-		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				0
	II Year	Logical Reasoning &	B22MC08	L/T/P :3/0 /0	
	II Sem	Quantitative Aptitude			
	-	nts of this subject, the student must			
1		eir logical thinking in terms of gene			
2	-	academic as well as competitive le	vels through whic	h students are able	e to solve
2		ld problems.			
3 4		e number systems decisions to face the critical arithm	atio mablema		
5		mathematical problems.	ietic problems.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Func	Subject Coue	itto: of fiours	4
Jucome	III Year I		B22EE21	L/T/P :3/1 /0	-
	Sem	Power Electronics	D22EE21	L/1/1 .3/1/0	
After learn	ing the conter	its of this subject, the student must	be able to	1	1
1	-	the differences between signal leve		devices.	
2		ntrolled rectifier circuits.	<u>^</u>		
3		e operation of DC-DC choppers			
4	Analyze the	e voltage source inverters.			

5	Describe th	e behavior and applicatio	ns of AC-	AC conve	erters.			
Course	Year &	Subject Name	9	Subject	t Code	No. of H	ours	Credits:
Outcome	Semester							3
	III Year I Sem	Control System	ns	B22E	E22	L/T/P : 3	3/0/0	
After learn		ts of this subject, the stud	dent must	be able to	1			
1		nsfer function and state-sp				time-invar	iant dy	namical
	systems.	1					5	
2	Estimate the	e time domain specification	ons, steady	state erro	or and A	nalyze the p	perform	nance and
3	•	linear time-invariant syst						
4	-	e performance and stabilit	-		-		-	-
5	Design class	sical controllers/compens	ators to in	prove the	e perforn	nance and s	tability	of linear
Course	Year &	Subject Name		Subject	t Code	No. of H	ours	<b>Credits:</b>
Outcome	Semester							4
	III Year I Sem	Signals and Syste	ems	B22F	C06	L/T/P:3	8/1 /0	
After learn	ing the conter	nts of this subject, the stud	dent must	be able to	1			
1	Apply the k	nowledge of various sign	als, and sy	stems.				
2		transform techniques in t			domain.			
3		conditions for transmission of systems.	on of sign	als throug	h systen	ns and cond	itions f	for
4		e concept of Region of Co	onvergenc	e for diffe	rent Tra	nsformation	n techn	iques.
5		ng theorem for baseband a prrelation and PSD function				rious types	of sam	pling and
Course	Year &	Subject Name	Subjec			f Hours	Cr	edits: 4
Outcome	Semester	0	9					
	III Year I	Renewable Energy	B22F	EE23	L/T/P	<b>P: 3/1 /0</b>		
	Sem	Systems						
After learn	ing the conter	nts of this subject, the stud	dent must	be able to	)			
1	Understand	the principles of wind po	wer and so	olar photo	voltaic p	ower gener	ration	
2	Understand	the working principle of	fuel cells a	and differ	ent types	s of fuel cel	ls	
3	Assess the c	cost of generation for con-	ventional a	and renew	able ene	ergy plants		
4	Design suit	able power controller for	wind and	solar app	ications			
5	Analyze the	e issues involved in the in	tegration	of renewa	ble ener	gy sources	to the g	grid
Course	Year &	Subject Name	Subjec	t Code	No. o	f Hours	Cr	edits: 4
Outcome	Semester							
	III Year	High Voltage	B22I	EE24	L/T/I	<b>P: 3/1 /0</b>		
	I Sem	Engineering						
After learn	<u> </u>	nts of this subject, the stud						
1		the various breakdown pr				gaseous ins	sulating	g materials.
2	-	generation of high D. C.		-	-			
3		uitable method to measure	-					
4	Elaborate t	he lightning and switchin	ig over-vo	ltage and	protectio	on against t	hese ov	ver-

	voltages.							
5	Discuss abo	out high voltage testing o	f electrica	l apparatı	is and hi	gh voltage	laborat	ories.
Course	Year &	Subject Name	Subjec	t Code	No. o	f Hours	Cr	redits: 3
Outcome	Semester							
	III Year I	Computer Aided	<b>B22EE2</b>	5	L/T/P	: 3/0/0		
	Sem	<b>Electrical Machine</b>						
After learn	ing the contor	<b>Designs</b> Its of this subject, the stu	dont must	ha abla ta				
						- f - 1 ( -)	1	L.1
1		the concepts electrical, n					cal mac	nines
2		the design and operating					·	
3		the varies factors in the d	-	<u> </u>			inductio	on motors
4 5		he varies factors in the d nd the use of software to						
Course	Year &		Subject	-		f Hours		edits: 3
	Semester	Subject Name	Subject	Coue	110. 01	nours	CI	euns: 5
Outcome					T (E (S	<b>A</b> 10, 10		
	III Year I Sem	Electrical Engineering Materials	B22EE26		L/T/P :	: 3/0 /0		
After learn	ing the conter	ts of this subject, the stu	dent must	be able to				
1	Impart the k	knowledge on electrica	l engine	ering m	aterials	classific	ation	and
	their applica		e	C				
2	Study the	performance character	istics of	various	semico	nducting,	dielec	tric
	and insulation	on materials and the	eir applie	cations	in des	sign of	electr	ical
	and electro							
3		ous magnetic materials a		assificatio	on.			
4		is special purpose of mat						
5		ous electronic componer		~ • •	~ -		_	~
Course	Year &	Subject Name		Subject	t Code	No. of H	lours	Credits:
Outcome	Semester							3
	III Year I	<b>Power Electronics La</b>	boratory	B22N	IB01	L/T/P :	3/0/0	
	Sem							
After learn	ing the conter	nts of this subject, the stu	dent must	be able to	)			
1	Study Chara	cteristics of various Pow	ver Semico	nductor d	evices.			
2		AC and AC/DC Conver						
3		e behavior of various DC		C/AC co	nverters			
4		Simulation tools for analy						
Course	Year &	Subject Nam	<u> </u>	Subject		No. of H	Iours	Credits:
	Semester	Subject Ham	C	Subjec	coue	110.011	iours	4
Dutcome	Bennester		4	B22E	ч <b>г</b> эр	Ι/Ͳ/D.	4/0 /0	
Outcome	III Voon I	Control Systems 1 of						
Outcome	III Year I	Control Systems Lal	ooratory	DZZE	1120	L/T/P :		
	Sem					L/1/P :		
After learn	Sem	nts of this subject, the stu	dent must	be able to	•	L/1/P :		
After learn 1	Sem ing the conter Analyze the	time & Frequency respo	dent must nse of con	be able to trol syster	•	L/1/P :		
After learn 1 2	Sem ing the conter Analyze the Identify the	time & Frequency respo Performance of servo m	dent must inse of con otor and sy	be able to trol system ynchros	•	L/1/P :		
After learn	Sem ing the conter Analyze the Identify the	time & Frequency respo	dent must inse of con otor and sy	be able to trol system ynchros	•			
After learn 1 2	Sem ing the conter Analyze the Identify the Evaluate the	time & Frequency respo Performance of servo m	dent must nse of con otor and s k control s	be able to trol system ynchros ystems	•	L/ I/P :		

Outcome	Semester				0
	III Year I Sem	Intellectual Property Rights	B22MB06	L/T/P :3/0 /0	-
After learn	ing the conter	nts of this subject, the student must	be able to	I	
1	Distinguish	and explain various forms of IPRs.			
2	Identify crit	eria to fit one's own intellectual wo	rk in particular for	rm of IPRs.	
3	Apply statu	tory provisions to protect particular	r form of IPRs.		
4	Appraise ne	w developments in IPR laws at nati	ional and internati	onal level	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year II	Flexible AC Transmission	B22EE29	L/T/P :3/0 /0	
	Sem	Systems			
After learn	ing the conter	nts of this subject, the student must	be able to		
1		various power electronics based FA	ACTS devices for	the control of acti	ve and
		ver in the system			
2	-	irrent source converters with voltag			
3		FACTS devices into Thyristor base stability of voltage regulation usin			tanding the
4		the SVC and STATCOM	ig shuft compensa		
5				uning Transient (	14 a la 11:4- a
5		nsient Stability Enhancement, Pow ng series compensation	er Oscillation Dar	nping, Transient S	stability
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	9	U		3
	III Year II	<b>Power Semiconductor Drives</b>	B22EE30	L/T/P :3/0/0	-
	Sem				
After learn	ing the conter	its of this subject, the student must	be able to	L	
1	Identify the	drawbacks of speed control of the	motor by conventi	onal methods.	
2	Differentiate merits and	e Phase controlled and chopper-con demerits	trolled DC drives	speed-torque char	racteristics
3	Understand	AC motor drive speed-torque and	performance chara	acteristics using di	fferent
		egies, its merits and demerits.			
4		e Slip power recovery schemes			
5	Analyze th	e speed control schemes for synchr	onous motor drive	28	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year	Digital Signal Processing	B22EC30	L/T/P :3/0 /0	
	II Sem				
After learn	ing the conter	nts of this subject, the student must	be able to		
1	Outline the	properties of systems and signals			
	Identify the	various important characteristics of	of different transfo	rm techniques use	ed in
2		l processing.		•	
2 3	digital signa			•	

5	Demonstrate	e different realizations of digital fil	ters		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year	Advanced Control Systems	B22EE31	L/T/P :3/0 /0	
A.C. 1	II Sem		1 11 /		
After learn	-	ts of this subject, the student must			
1		different non linearity's and their d	e e		
2		e methods of Phase-plane trajectory		•	
3		bus theorems for stability analysis of		near systems.	
4	<b>^</b>	nodal control and calculus of varia	tions.		
5		nd solve optimal control problems	Γ	Γ	1
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year	Microprocessors &	B22EC36	L/T/P :3/0 /0	
	II Sem	Microcontrollers			
	-	ts of this subject, the student must			
1		the internal architecture and organi			
2		the interfacing techniques to 8086			
3		the communication standards and i	-	icrocontroller.	
4		the internal architecture of 8051 m			
5	· · ·	embly language programming to d			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year II	Power System Protection	B22EE32	L/T/P :3/0 /0	
	Sem				
	-	its of this subject, the student must			
1	-	omprehend the fundamental require	ments for power s	ystem protection,	the
	consequence	es Id the workings of a basic relay			
2		ketch performance characteristics a	nd prevent faults y	with distance relay	is and
2		protective schemes	na provone ruans	while distance relay	5 und
3	Capable of i	mplementing bus zone protection,	AC machines, and	pilot relay schem	les.
4	·	n controlling both microprocessors		· ·	
5	Possessing	knowledge of the quenching proce	· · · · · · · · · · · · · · · · · · ·		
	breakers		T	T	1
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year	Power System Operation and	B22EE33	L/T/P :3/0 /0	
	II Sem	Control			
After learn	-	its of this subject, the student must			
1		rious parameters at different buses		tudies.	
2	÷	nomic operation of the power syste			
		d frequency control of Single area			

4	Understand	the Stability of the power system a	and Apply differen	t techniques to ma	aintain the
	stability of p	oower system			
5	<u>^</u>	factors involved in load dispatch			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				1
	III Year II Sem	Power System Laboratory	B22EE34	L/T/P :0 /0/2	
A ftor loorn		ts of this subject, the student must	ha abla to		
	-			and protection cal	
1	-	inderstanding the basic transmissio	-	-	lemes.
2		nd the different relay characteristic		sion system.	
3		inderstanding the effects of faults i			
4	-	simulating the YBUS and ZBUS and	, e		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				1
	III Year	Microprocessors &	B22EC37	L/T/P :0 /0/2	
	II Sem	Microcontrollers Laboratory			
After learn	ing the conter	ts of this subject, the student must	be able to	·	
1	Understands	the internal architecture and organ	nization of 8086, 8	051 and ARM	
	processors/c	controllers.			
2	Understands	the interfacing techniques of 808	6 and 8051.		
3	Develop ass	embly language programming to de	esign microproces	sor/ micro control	ler-based
	systems.				
4	Develop pro	grams for interfacing various exter	nal devices.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				1
	III Year	<b>Electronics Design</b>	B22EE35	L/T/P :0/0/2	
	II Sem	Laboratory			
After learn	ing the conter	nts of this subject, the student must	be able to		
1	Design the v	various regulated power supplies fo	r control boards.		
2	Gain knowle	edge on designing various triggerin	g circuits for semi	conductor devices	5.
3	Develop tin	ner circuits for power switching de	vices		
4	-	VM control and gate driver circuits		electronic conver	ter
	applications		*		
5	Develop the	zero-crossing detector			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				2
	III Year	Industry Oriented Mini	B22EE36	L/T/P :0 /0/4	
	II Sem	Project/Internship			
After learn	ing the conter	its of this subject, the student must	be able to	1	
1	-	l be able to practice acquired know		hosen area of tech	nology for
	project deve		C C		0,
					rehensive
2	Identify, dis	cuss and justify the technical aspec	ts of the chosen pl	roject with a comp	
2	and systema	tic approach.		•	Jenensi ve
2 3 4	and systema Reproduce,		ts for engineering	projects	

	report effect	ively project related activities and t	findings.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	-	-		4
	IV Year I	Power Electronic	B22EE37	L/T/P :3/1 /0	-
	Sem	Applications to Renewable			
		Energy Systems			
After learn	-	nts of this subject, the student must			
1	-	demonstrate various renewable ene	ergy technologies	utilized for electri	cal power
2	generation.	table converters (AC-DC, DC-DC,	AC AC for repay	wahla anarow evet	ame
3		e operating principles of different ty			ciiis.
	•				
4 5		control of a PMSM, Doubly fed Ind d analyze various wind and photov			d
5		connected, and hybrid configuratio		ins, including star	iu-
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				4
	IV Year I	Advanced Power Electronics	B22EE38	L/T/P :3/0/0	-
	Sem				
After learn	ing the conter	its of this subject, the student must	be able to		
1		ver circuits for various power semic			
2		e operation of multi-pulse converter			
3	•	the operation of resonant converter			
4		ifferences between VSI and CSI.	5.		
5		edge on the operation of multilevel	inverters		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Func	Subject Coue		3
outcome	IV Year I	HVDC Transmission	B22EE39	L/T/P :3/0 /0	
	Sem				
After learn		nts of this subject, the student must	be able to		
1	-	IV AC and HVDC systems and to		vpes of DC links	
2	-	ious control methodologies and cha		-	
3		ver flow analysis in ac/dc systems		iverters.	
4	-	nderstand the nature of faults happe	ning on both the	AC and DC sides	of the
-	•	nd Formulate protection schemes for	•	The and De sides	
5		narmonics reduction filters for HVI			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	-	-		3
	IV Year I	Electric and Hybrid Vehicles	B22EE40	L/T/P :3/0 /0	
	Sem	-			
After learn	ing the conter	nts of this subject, the student must	be able to	1	
1	<u> </u>	the models to describe hybrid vehic		ormance.	
2		the social and environmental impo	-		es.
3		the various configurations of Elect		,	
4		the different strategies related to en		ems.	
5		the different strategies of energy m			3
5	Understand	the uniterent strategies of energy in	unugement system	is and case studies	

Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	IV Year I Sem	Utilization of Electrical Energy	B22EE41	L/T/P :3/0 /0	
After learn		tts of this subject, the student must	he able to		
		basic principles of electric heating			
2		basic principles of electric welding			
3		he lighting requirements for flood 1		l and industrial ne	ede
4		eat developed in induction furnace a			
5		coach wiring	and evaluate speee	t time eurves for t	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Maine	Subject Coue		3
Outcome	IV Year I	Advanced Electrical Drives	B22EE42	L/T/P :3/0 /0	5
	Sem	Auvanceu Electrical Drives	DEELLTE	L/1/1 .5/0/0	
After learn		nts of this subject, the student must	be able to		
1	-	operation of three phase converter			
2		e VSI and CSI fed induction motor			
3		oncept of vector control of induction			
4		the concept of direct torque control		nduction motor	
5		ledge on vector control of PMSM d	-		ves
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	U	J		3
	IV Year I	Soft Computing Techniques	B22EE43	L/T/P :3/0/0	-
	Sem				
After learn	ing the conter	nts of this subject, the student must	be able to		I
1		sic idea of modern engineering tech			non-linear
		x functions that may come across d	issertation/researc	h work	
2		nd optimization problem			
3		the concept of multi-objective opti	imization problem	s (MOOPs) and is	sues of
4	solving it.	daptive Neuro-Fuzzy Inference Sys	tame		
5		d compare solutions by soft computer		r a given problem	in matlab
-	Simulink			8 F	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	IV Year I	VLSI Design	B22EC60	L/T/P :3/0 /0	
	Sem				
After learn		nts of this subject, the student must			
1	Understand	IC technology and basic electrical	properties of MOS	and BiCMOS.	
2	Design the l	ayout circuits using various design	rules.		
3	-	d design the gate level circuits			
	Gain the kno	owledge to design data path subsys	tems like Adders,	Shifters, ALUs et	c.
4		enteuge to utsign untu putti suesje			
4 5		fferent programmable logic devices			

Outcome	Semester				3
	IV Year I	IOT Applications in	B22EE44	L/T/P :3/0/0	
	Sem	<b>Electrical Engineering</b>			
After learn	ing the conter	ts of this subject, the student must	be able to	I	
1	Select suitab	le sensors for electrical engineerin	g applications.		
2	Understand	about usage of various types of mo	tionless sensors ar	nd motion detector	rs.
3	Utilize MEN	AS in developing electrical enginee	ring applications.		
4	Apply IoT in	n a smart grid.			
5		future working environment with	Energy internet.		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				2
	IV Year I	Management And	B22MB02	L/T/P :2/0 /0	
	Sem	<b>Organizational Behavior</b>			
After learn	ing the conter	ts of this subject, the student must	be able to	•	
1	Gain under	standing of the Concepts of Ma	nagement, its Ev	volution, Function	ns and the
	Theories con	ntributed by various Management 7	Thinkers.		
2	Learn the pr	ocess of planning, goal setting and	d the process of de	ecision making wi	th the help
	of various m		1	C	1
3	Learn the p	rocesses of Organizing and Contro	olling with the he	lp of various Org	anizational
	-			-r2	,
	Structures.				
4		he relevance of Individual and or	oup behaviour in	an organization a	nd the role
4	Appreciate t	he relevance of Individual and gr nd dynamics	oup behaviour in	an organization a	nd the role
	Appreciate t of Culture at	nd dynamics	-		nd the role
5	Appreciate to of Culture and Identify diff	nd dynamics erent Leadership Styles, Skills and	the Theories of M	lotivation	
5 Course	Appreciate to of Culture at Identify diff <b>Year &amp;</b>	nd dynamics	-		Credits:
5	Appreciate to of Culture and Identify diff Year & Semester	nd dynamics erent Leadership Styles, Skills and Subject Name	the Theories of M Subject Code	lotivation No. of Hours	
5 Course	Appreciate to of Culture at Identify diff Year & Semester IV Year I	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable	the Theories of M	lotivation	Credits:
5 Course Outcome	Appreciate t of Culture at Identify diff Year & Semester IV Year I Sem	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab	the Theories of M Subject Code B22EE45	lotivation No. of Hours	Credits:
5 Course Outcome After learni	Appreciate t of Culture at Identify diff Year & Semester IV Year I Sem ing the conter	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must	the Theories of M Subject Code B22EE45 be able to	lotivation No. of Hours L/T/P :0/0/4	Credits:
5 Course Outcome After learni 1	Appreciate to of Culture and Identify diff Year & Semester IV Year I Sem ing the conter This course	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti	the Theories of M Subject Code B22EE45 be able to ime linear control	lotivation No. of Hours L/T/P :0/0/4 system theory.	Credits: 2
5 Course Outcome After learni	Appreciate to of Culture at Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter This course Analyze dig	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform	the Theories of M Subject Code B22EE45 be able to ime linear control	lotivation No. of Hours L/T/P :0/0/4 system theory.	Credits: 2
5 Outcome After learni 1 2	Appreciate to of Culture and Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the contern This course Analyze dig space metho	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab Its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement).	the Theories of M Subject Code B22EE45 be able to ime linear control n techniques (frequ	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a	Credits: 2
5 Course Outcome After learni 1	Appreciate t of Culture at Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to	the Theories of M Subject Code B22EE45 be able to ime linear control n techniques (frequ	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a	Credits: 2
5 Outcome After learni 1 2 3	Appreciate to of Culture at Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the contert This course Analyze dig space metho Analyzing a Analog dyna	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to umics of most real-world systems.	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequencies) interface digital c	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a         omputing devices	Credits: 2 nd state- with the
5 Outcome After learni 1 2 3 Course	Appreciate to of Culture and Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a Analog dyna Year &	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to	the Theories of M Subject Code B22EE45 be able to ime linear control n techniques (frequ	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a	Credits: 2 nd state- with the Credits:
5 Outcome After learni 1 2 3	Appreciate t of Culture at Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a Analog dyna Year & Semester	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to umics of most real-world systems.	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequent interface digital c Subject Code	lotivation No. of Hours L/T/P :0/0/4 system theory. uency response) a omputing devices No. of Hours	Credits: 2 nd state- with the
5 Outcome After learni 1 2 3 Course	Appreciate to of Culture and Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a Analog dyna Year &	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to umics of most real-world systems.	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequencies) interface digital c	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a         omputing devices	Credits: 2 nd state- with the Credits:
5CourseOutcomeAfter learni123CourseOutcome	Appreciate t of Culture at Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a Analog dyna Year & Semester IV Year I Sem	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to amics of most real-world systems. Subject Name Project Stage - I	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequencies) interface digital c Subject Code B22EE46	lotivation No. of Hours L/T/P :0/0/4 system theory. uency response) a omputing devices No. of Hours	Credits: 2 nd state- with the Credits:
5         Course         Outcome         After learni         1         2         3         Course         Outcome	Appreciate t of Culture at Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter This course Analyze dig space metho Analyzing a Analog dyna <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). ind understanding the challenges to amics of most real-world systems. Subject Name Project Stage - I its of this subject, the student must	the Theories of M Subject Code B22EE45 be able to ime linear control interface digital c Subject Code B22EE46 be able to	lotivation No. of Hours L/T/P :0/0/4 system theory. uency response) a omputing devices No. of Hours	Credits: 2 nd state- with the Credits:
5 Outcome After learni 1 2 3 Course Outcome After learni	Appreciate to of Culture and Identify diff Year & Semester IV Year I Sem ing the conter This course Analyze dig space metho Analyzing a Analog dyna Year & Semester IV Year I Sem ing the conter Identify the	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab tts of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to amics of most real-world systems. Subject Name Project Stage - I tts of this subject, the student must problem by applying acquired know	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequencies) interface digital c Subject Code B22EE46 be able to wledge.	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a         omputing devices         No. of Hours         L/T/P :0/0 /6	Credits: 2 nd state- with the Credits:
5 Outcome After learni 1 2 3 Course Outcome After learni 1	Appreciate to of Culture and Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter This course Analyze dig space metho Analyzing a Analog dyna <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter <b>Identify the</b> Ability to pl	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab its of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). ind understanding the challenges to amics of most real-world systems. Subject Name Project Stage - I its of this subject, the student must problem by applying acquired know an and implement an investigative	the Theories of M Subject Code B22EE45 be able to ime linear control in n techniques (frequencies) interface digital c Subject Code B22EE46 be able to wledge. or developmental	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a         omputing devices         No. of Hours         L/T/P :0/0 /6         project.	Credits: 2 nd state- with the Credits:
5 Outcome After learni 1 2 3 Course Outcome After learni 1 2	Appreciate to of Culture and Identify diff <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter This course Analyze dig space metho Analyzing a Analog dyna <b>Year &amp;</b> <b>Semester</b> <b>IV Year I</b> <b>Sem</b> ing the conter <b>Identify the</b> Ability to pl In-depth ski	nd dynamics erent Leadership Styles, Skills and Subject Name Simulation of Renewable Energy Systems Lab tts of this subject, the student must provides a foundation in discrete-ti ital control systems using transform ds (pole-placement). nd understanding the challenges to amics of most real-world systems. Subject Name Project Stage - I tts of this subject, the student must problem by applying acquired know	the Theories of M Subject Code B22EE45 be able to ime linear control interface digital c Subject Code B22EE46 be able to wledge. or developmental ools and technique	Iotivation         No. of Hours         L/T/P :0/0/4         system theory.         uency response) a         omputing devices         No. of Hours         L/T/P :0/0 /6         project.         es	Credits: 2 nd state- with the Credits: 3

	thesis.				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	IV Year II	Power Quality	B22EE47	L/T/P :3/0 /0	
	Sem				
After learn	ing the conten	ts of this subject, the student must	be able to		
1	Basic concep	ots of power quality issues			
2	Voltage and	current during the fault period of a	given power syst	em.	
3	Sags and pha	ase angle jumps in different types of	of faults		
4	Various equi	pment behavior with voltage sags.			
5		rfacing devices between system an	d equipment to mi	tigate the sags and	1
Course	interruptions Year &		Subject Code	No. of Hours	Credits:
		Subject Name	Subject Code	INO. OF HOURS	
Outcome	Semester IV Year II	Calar Damar Dattarian	<b>D22EE</b> 49	L/T/D . 2/0 /0	3
		Solar Power Batteries	B22EE48	L/T/P : 3/0 /0	
A ft an la ann	Sem	to of this subject the student must	ha ahla ta		
	-	ts of this subject, the student must			
1		ting principles of different types of		ries	
2		eries for effective storage of solar I			
3		design and selection criteria of bat	tery system		
4		plication of batteries			
5		wledge on environmental impacts	-		<b>a</b> 14
Course	Year & Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	IV Year II	AI Techniques In Electrical	B22EE49	L/T/P: 3/0 /0	3
	Sem	Engineering	Deelley		
After learn		ts of this subject, the student must	he able to		
1	-	lation knowledge			
2		concepts based on simulated result	s in the domain of	Felectrical Engine	ering
	-	concepts bused on simulated result			
Course	Voor &	Subject Name		-	_
	Year & Semester	Subject Name	Subject Code	No. of Hours	Credits:
Course Outcome	Year & Semester IV Year	Subject Name Embedded Systems		-	_
Outcome	Semester IV Year II Sem	Embedded Systems Applications	Subject Code B22EC61	No. of Hours	Credits:
Outcome	Semester IV Year II Sem ing the conten	Embedded Systems Applications ts of this subject, the student must	Subject Code B22EC61 be able to	No. of Hours L/T/P :3/0 /0	Credits: 3
Outcome	Semester IV Year II Sem ing the conten Understand	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and	Subject Code B22EC61 be able to	No. of Hours L/T/P :3/0 /0	Credits: 3
<b>Outcome</b> After learn	Semester IV Year II Sem ing the conten Understand	Embedded Systems Applications ts of this subject, the student must	Subject Code B22EC61 be able to	No. of Hours L/T/P :3/0 /0	Credits: 3
Outcome After learn 1	Semester IV Year II Sem ing the conten Understand	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and	Subject Code B22EC61 be able to d its components u	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems
Outcome After learn 1 2	Semester IV Year II Sem ing the conten Understand to Write the 80 devices.	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051	Subject Code B22EC61 be able to d its components u mbedded 'C' code	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems
Outcome After learn 1 2 3	Semester IV Year II Sem ing the conten Understand to Understand to Write the 80 devices.	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and E	Subject Code B22EC61 be able to d its components u mbedded 'C' code Systems	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems
Outcome After learn 1 2 3 4	Semester IV Year II Sem ing the conten Understand to Understand to Write the 80 devices.	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and E the required RTOS for Embedded S	Subject Code B22EC61 be able to d its components u mbedded 'C' code Systems	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems arious
Outcome After learn 1 2 3 4 5	Semester IV Year II Sem ing the conten Understand to Write the 80 devices. Understand to Develop sim	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and E the required RTOS for Embedded sple embedded systems for real tim	Subject Code B22EC61 be able to d its components u mbedded 'C' code Systems e operations	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems
Outcome After learn 1 2 3 4 5 Course	Semester IV Year II Sem ing the conten Understand to Understand to Write the 80 devices. Understand to Develop sim Year &	Embedded Systems Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and E the required RTOS for Embedded sple embedded systems for real tim	Subject Code B22EC61 be able to d its components u mbedded 'C' code Systems e operations	No. of Hours L/T/P :3/0 /0 used in embedded	Credits: 3 systems arious Credits:

1	Get the know	ledge to locate the power grid	's eleme	ents tl	hroughou	it the conte	ext of th	e Indian
	grid system.				_			
2	Prepared to r	Prepared to recognize how important automation is to distribution and transmission.						
3	Capable of ut	tilizing evolutionary algorithm	is in sm	art gr	id applic	ations.		
4	Possess an understanding of how WAMs, PDCs, PMUs, and voltage and frequency control work in smart grids.							
5		age power and voltage for mic	ro and	smart	grids.			
Course	Year &	Subject Name			ct Code	No. of 1	Hours	Credits:
Outcome	Semester							3
	IV Year &	Electrical Distribution		<b>B22</b>	EE51	L/T/P:	3/0 /0	
	II Sem	Systems						
After learn	ing the content	s of this subject, the student m	ust be a	able t	0			
1		ous Electrical loads and their c station location	haracte	ristics	s & Desig	gn Distribu	ition fee	ders and
2	Interpret volt	age drop and power loss calcu	lations	for th	ne given l	Distributio	n Syster	n
3	Determine th profile	ne optimal location of a capaci	tor in d	istrib	ution sys	tem and in	nprove v	voltage
4	Analyse the o	lifferent types of PF improver	ment					
5	Analyse the	different types of voltage cont	rol					
Course	Year &	Subject Name	1	ubje	ct Code	No. of 1	Hours	Credits:
Outcome	Semester							3
	IV Year &	Digital Control Systems		<b>B22</b>	EE52	L/T/P	:3/0/0	-
	II Sem							
After learn	ing the content	s of this subject, the student m	ust be a	able t	0			
1	Acquire a str	ong foundation in sampling an	d recon	nstruc	tion Z-tra	ansforms.		
2	-	ledge of Mathematics, Z-plane					ol system	ns.
3		conventional control system w					J	
4	-	l apply Z-plane analysis of dis			-			
5		eedback controllers and observ			muor sys			
Course	Year &	Subject Name		iect (	Code	No. of Ho	mrs	Credits: 3
Outcome	Semester	Subject func	Sub	jeer	couc		, and	ci cuito. c
0	IV Year	Machine Learning	B	22EE	253 I	L/T/P :3/0	/0	
	& II Sem	Applications To Electrical					/0	
		Engineering						
After learn		s of this subject, the student m	ust be a	able t	0			
1		ypes of machine learning.						
2		the fundamentals of electrical	engine	ering	relevant	to ML.		
3	1	ata processing concepts.	1	1.1	11	. 1	1 .	•
4 5		ne learning algorithms to solve			<b>A</b>		cal engi	neering.
-		electrical engineering case stud		-		-	<u> </u>	edits: 9
Course	Year &	Subject Name	Subje		1NO. 01	f Hours	Ur	eults: 9
Outcome	Semester	Droto et Ct II				0/0/22		
	IV Year &	Project Stage-II	B22EE	.54	L/T/P :	0/0/22		
	II Sem							
After learn	ing the content	s of this subject, the student m	ust be a	able t	0			

1	Identify the	Identify the problem by applying acquired knowledge.					
2	Ability to plan and implement an investigative or developmental project.						
3	In-depth skill to use some laboratory, modern tools and techniques						
4	Ability to communicate results, concepts, analyses and ideas in written and oral form &						
	Conduct an	Conduct an extended independent investigation that results in the production of a research					
	thesis						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				2		
	IV Year	Technical Seminar	B22EE55	L/T/P :0/0 /0			
	& II Sem						
After learn	ing the conter	nts of this subject, the student must	be able to	•			
1	Identify and	analyze the real time Electrical En	gineering problem	18			
2	Acquire awa	areness on latest technology and cu	rrent trends in the	field of Electrical			
	Engineering	÷.					
3	Participate i	n discussions for enhancement of k	mowledge				
4	Apply comm professional	nunication skills and Document and ethics	d present technical	l reports following	5		

#### COURSE OUTCOMES FOR M.TECH-CSE R22 FOR THE YEAR 2020-22

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	I Sem	Mathematical Foundations of Computer Science (M22CS01)	L:3 T:0 P:0	
)n successf	ul completion of th	is course, students will be able to:		
1	Ability to understand	and construct precise mathematical proofs.		
2	Ability to use logic a	and set theory to formulate precise statements.		
3	Ability to analyze a	nd solve counting problems on finite and dise	crete structures	
4		and manipulate sequences.		
5	Ability to apply gra	ph theory in solving computing problems.		
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) Advanced Data Structures(M22CS02)	No. of Hours L:3 T:0 P:0	Credits:3
On successf	ul completion of th	is course, students are able to:		<u> </u>
1	Ability to select the	e data structures that efficiently model the ir	nformation in a prob	olem
2		I how the choice of data structures impact the perf		
3	Design programs usi digital search structu	ng a variety of data structures, including hash tabl res	es, search structures a	ind
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) 1. Database Programming with PL/SQL	No. of Hours L:3 T:0 P:0	Credits:3
		(M22CS03)		
		(M22CS03) ourse, the students should be able to		
	ompletion of this c	(M22CS03) ourse, the students should be able to nee of PL/SQL basics		
After the c	ompletion of this c Understand importar	ourse, the students should be able to		
After the c	ompletion of this c Understand importar . Implement functior	ourse, the students should be able to nee of PL/SQL basics		
After the c	ompletion of this c Understand importar . Implement functior	ourse, the students should be able to         nce of PL/SQL basics         as and procedures using PL/SQL         aportance of triggers in database         Subject Name (Subject Code)	No. of Hours	Credits: 3
After the c 1 2 3	ompletion of this c Understand importar . Implement functior Understand the im	ourse, the students should be able to nee of PL/SQL basics as and procedures using PL/SQL portance of triggers in database	No. of Hours L:3 T:0 P:0	Credits: 3
After the c 1 2 3 Course	ompletion of this c Understand importan . Implement function Understand the im Year / semester I Sem	ourse, the students should be able to         nce of PL/SQL basics         as and procedures using PL/SQL         aportance of triggers in database         Subject Name (Subject Code)	L:3 T:0 P:0	Credits: 3 yers of data
After the c 1 2 3 Course Outcome	ompletion of this c Understand importar . Implement function Understand the im Year / semester I Sem Implement deep le	ourse, the students should be able to         ace of PL/SQL basics         as and procedures using PL/SQL         aportance of triggers in database         Subject Name (Subject Code)         2. Deep Learning(M22CS04)         arning algorithms, understand neural network         as convolutional neural networks, recurrent networks	L:3 T:0 P:0 as and traverse the la	yers of data
After the c 1 2 3 Course Outcome 1	ompletion of this c Understand importar . Implement function Understand the im Year / semester I Sem Implement deep le Learn topics such a networks and high	ourse, the students should be able to         ace of PL/SQL basics         as and procedures using PL/SQL         aportance of triggers in database         Subject Name (Subject Code)         2. Deep Learning(M22CS04)         arning algorithms, understand neural network         as convolutional neural networks, recurrent networks	L:3 T:0 P:0 as and traverse the la	yers of data

Course Outcome		Subject Name (Subject Code)3. Python Programming (M22CS05)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	On successful completion of this course, students will be able to:					

2       Expressing the Core Python scripting elements such as variables and flow control structures.         3       Apply Python functions to facilitate code reuse.         4       Extending how to work with lists and sequence data.         5       implement file operations such as read and write         6       implementing and adapting the code robust by handling errors and exceptions properly.         Course       Year       Subject Name (Subject Code)       No. of Hours         1       Understand the various cryptography (M22CS06)       No. of Hours       Credits:3         2       Analyze key length and algorithm types and modes       3       Hustrate different public key algorithms in cryptosystems       Voltability Engineering (M22CS07)       No. of Hours       Credits:3         3       flustrate different public key algorithms in cryptosystems       L:3 T:0 P:0       Credits:3         4       Understand special algorithms for protocols and usage in the real world       No. of Hours       Credits:3         0utcome       I Sem       2. Software Quality Engineering (M22CS07)       No. of Hours       Credits:3         1       Understand software quality and its perspectives       Analyze key therewith and different public key algorithms in cryptosystems       L:3 T:0 P:0       Credits:3         3       Ilustrate software quality engineering activities and its process       Source	1	Defining the fundam	entals of writing Python scripts.			
3       Apply Python functions to facilitate code reuse.         4       Extending how to work with lists and sequence data.         5       Implement file operations such as read and write         6       Implementing and adapting the code robust by handling errors and exceptions properly.         Course       Year       Subject Name (Subject Code)       No. of Hours       Credits:3         0       Issemetri       1. Applied Cryptography (M22CS06)       No. of Hours       Credits:3         2       Analyze key length and algorithm types and modes       3       Illustrate different public key algorithms in cryptosystems       0       Orderstand       Credits:3         4       Understand special algorithms for protocols and usage in the real world       Credits:3       Credits:3         2       Analyze key length and algorithm types and modes       3       Illustrate different public key algorithms in cryptosystems       Vacry semester       Subject Name (Subject Code)       No. of Hours       Credits:3         3       Illustrate software quality and its perspectives       2       Analyze key length and algorithm types and its process       Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         3       Illustrate software quality and its perspectives       3       Analyze defect preventin and defect reductin in software quality assu		_		w control structure		
4       Extending how to work with lists and sequence data.         5       Implement file operations such as read and write         6       Implementing and adapting the code robust by handling errors and exceptions properly.         Course       Year       Subject Name (Subject Code)       No. of Hours       Credits:3         0       No. of Hours       L: 3 T:0 P:0       Credits:3         2       Analyze key length and algorithm types and modes       1       Understand the various cryptographic protocols         2       Analyze key length and algorithm types and modes       3       11       Understand special algorithm types and modes       1.5 T:0 P:0       Credits:3         3       Illustrate different public key algorithms in cryptosystems       4       Understand software Quality Engineering (M22CS07)       No. of Hours       Credits:3         0utcome       I Sem       2. Software Quality Engineering (M22CS07)       No. of Hours       Credits:3         4       Understand software quality and its perspectives       1       Understand software quality and its perspectives       2       Analyze defect prevention and defect reduction in software quality assurance       3       3       Illustrate software quality and its perspectives       2       Credits:3       3         1       Understand software quality engineering activities and its proceses       2	Z	Expressing the Core	Python scripting elements such as variables and no	ow control structures	5.	
5       Implement file operations such as read and write         6       Implementing and adapting the code robust by handling errors and exceptions properly.         Course       Year       Subject Name (Subject Code)       No. of Hours       Credits:3         0utcome       /Semester1       1. Applied Cryptography (M22CS06)       L: 3 T:0 P:0       Credits:3         1       Understand the various cryptographic protocols       2       Analyze key length and algorithm types and modes       3         3       Illustrate different public key algorithm types and modes       3       10       No. of Hours       Credits:3         4       Understand special algorithm types and modes       3       1:3 T:0 P:0       Credits:3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits:3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits:3         1       Understand software quality and its perspectives       1       1:3 T:0 P:0       Credits:3         2       Analyze defect prevention and defect reduction in software quality assurance       3       Illustrate software       2       Subject Name (Subject Code)       No. of Hours       Credits:3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours <t< td=""><td>3</td><td colspan="5">Apply Python functions to facilitate code reuse.</td></t<>	3	Apply Python functions to facilitate code reuse.				
6       Implementing and adapting the code robust by handling errors and exceptions properly.         Course Outcome       Year /SemesterI       Subject Name (Subject Code) 1. Applied Cryptography (M22CS06)       No. of Hours L:3 T:0 P:0       Credits:3         0n successful completion of this course, students are able to:       I       Understand the various cryptographic protocols       Implementing and algorithm types and modes       Implementing and algorithm types and modes         3       Illustrate different public key algorithms for protocols and usage in the real world       No. of Hours L:3 T:0 P:0       Credits:3         4       Understand special algorithms for protocols and usage in the real world       No. of Hours L:3 T:0 P:0       Credits:3         6       Year / semester I Sem       Subject Name (Subject Code) 2. Software Quality Engineering (M22CS07)       No. of Hours L:3 T:0 P:0       Credits:3         1       Understand software quality and its perspectives       Subject Name (Subject Code) 2. Software Quality Engineering activities and its process       Subject Software Quality engineering activities and its process       Credits:3         2       Analyze defect prevention and defect reduction in software quality assurance       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours L:3 T:0 P:0       Credits:3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       Subject Name (Subject Code) 3. Apply kno	4	Extending how to	work with lists and sequence data.			
Course Outcome       Year /SemesterI       Subject Name (Subject Code) 1. Applied Cryptography (M22CS06)       No. of Hours L:3 T:0 P:0       Credits:3         On successful completion of this course, students are able to:       1       Understand the various cryptographic protocols       2         1       Understand special algorithms in cryptosystems       0       No. of Hours       Credits:3         3       Illustrate different public key algorithms in cryptosystems       0       No. of Hours       Credits:3         4       Understand special algorithms for protocols and usage in the real world       Course       Vear / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         0utcome       I sem       Subject Name (Subject Code)       No. of Hours       Credits:3         1       Understand special algorithms for protocols and usage in the real world       Credits:3         1       Understand software quality and its perspectives       2       Analyze defect prevention and defect reduction in software quality assurance       3         3       Illustrate software quality engineering activities and its process       No. of Hours       Credits: 3         0utcome       I sem       Subject Name (Subject Code)       No. of Hours       Credits: 3         1       Understand software quality engineering activities and its process       L: 3 T:0 P:0 <td>5</td> <td>Implement file ope</td> <td>erations such as read and write</td> <td></td> <td></td>	5	Implement file ope	erations such as read and write			
Control       Consistent of the construction o	6	Implementing and	adapting the code robust by handling errors a	nd exceptions pro	operly.	
Outcome       /Semester / Sem       Applied Cryptography (W22C300)         On successful completion of this course, students are able to:	Course	Year	Subject Name (Subject Code)		Credits:3	
On successful completion of this course, students are able to:         1       Understand the various cryptographic protocols         2       Analyze key length and algorithm types and modes         3       Illustrate different public key algorithms in cryptosystems         4       Understand special algorithms for protocols and usage in the real world         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         Outcome       I Sem       2. Software Quality Engineering (M22CS07)       L:3 T:0 P:0       Credits:3         1       Understand software quality and its perspectives       Analyze defect prevention and defect reduction in software quality assurance       3       Illustrate software quality engineering activities and its process         2       Analyze defect prevention and defect reduction in software quality assurance       3. Aritificial Intelligence(M22CS08)       No. of Hours       Credits: 3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits: 3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours       L:3 T:0 P:0         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       2       Understand the concepts of AI search techniques         3       Apply knowledge Representation techniques	Outcome	/SemesterI	1. Applied Cryptography (M22CS06)	L:3 T:0 P:0		
1       Understand the various cryptographic protocols         2       Analyze key length and algorithm types and modes         3       Illustrate different public key algorithms in cryptosystems         4       Understand special algorithms for protocols and usage in the real world         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits:3         Outcome       I sem       Subject Name (Subject Code)       No. of Hours       Credits:3         After the completion of this course, the students should be able to       L:3 T:0 P:0       Credits:3         1       Understand software quality and its perspectives       IL:3 T:0 P:0       Credits:3         2       Analyze defect prevention and defect reduction in software quality assurance       3       Illustrate software quality engineering activities and its process         3       Illustrate software quality engineering activities and its process       L:3 T:0 P:0       Credits: 3         Outcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits: 3         0.       Issem       3. Artificial Intelligence(M22CS08)       No. of Hours       Credits: 3         0.       Inderstand the concepts of AI search techniques       Analyse different structures of representation       Subject Name (Subject Code)       No. of Hours       Cred		Sem				
2       Analyze key length and algorithm types and modes         3       Illustrate different public key algorithms for protocols and usage in the real world         Course       Year / semester       Subject Name (Subject Code) 2. Software Quality Engineering (M22CS07)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       I       Understand software quality and its perspectives         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         3       Illustrate software quality engineering (M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         0utcome       ISem       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       Analyse different structures of representation       Subject Name (Subject Code) 4. Analyse different structures of representation       No. of Hours L:0 T:0 P:4       Credits: 2	On success	ful completion of th	nis course, students are able to:	l .		
2       Analyze key length and algorithm types and modes         3       Illustrate different public key algorithms for protocols and usage in the real world         Course       Year / semester       Subject Name (Subject Code) 2. Software Quality Engineering (M22CS07)       No. of Hours L:3 T:0 P:0       Credits:3         After the completion of this course, the students should be able to       I       Understand software quality and its perspectives         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         2       Analyze kefect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         3       Illustrate software quality engineering (M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         0utcome       ISem       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       Analyse different structures of representation       Subject Name (Subject Code) 4. Analyse different structures of representation       No. of Hours L:0 T:0 P:4       Credits: 2	1	Understand the va	rious cryptographic protocols			
3       Illustrate different public key algorithms in cryptosystems         4       Understand special algorithms for protocols and usage in the real world         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       L:3 T:0 P:0         Outcome       I Sem       Subject Name (Subject Code)       No. of Hours       L:3 T:0 P:0         After the completion of this course, the students should be able to       I       Understand software quality and its perspectives         2       Analyze defect prevention and defect reduction in software quality assurance       Illustrate software quality engineering activities and its process         Course       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits: 3         Outcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits: 3         Outcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits: 3         0utcome       I Sem       Subject Name (Subject Code)       No. of Hours       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying       Assumptions etc       2         2       Understand the concepts of AI search techniques       4       Analyse different structures of representation       5       Evaluate AI search techniques       6<						
4       Understand special algorithms for protocols and usage in the real world         Course Outcome       Year / semester I Sem       Subject Name (Subject Code) 2. Software Quality Engineering (M22CS07)       No. of Hours L: 3 T: 0 P: 0       Credits: 3         After the completion of this course, the students should be able to       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0         After the completion of this course, the students should be able to       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0         3       Illustrate software quality and its perspectives       Analyze defect prevention and defect reduction in software quality assurance       I.: 3 T: 0 P: 0       Credits: 3         3       Illustrate software quality engineering activities and its process       No. of Hours       Credits: 3         Outcome       I Sem       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0         2       Understand the concepts of AI search techniques       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0       I.: 3 T: 0 P: 0         3       Apply knowledge Representation techniques       I.: 4 Analyse different structures of representation       I.: 1 C: 0 T: 0 P: 4       Credits: 2         6 <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>						
Outcome       I Sem       2. Software Quality Engineering (M22CS07)       L:3 T:0 P:0         After the completion of this course, the students should be able to       1       Understand software quality and its perspectives         2       Analyze defect prevention and defect reduction in software quality assurace       3         3       Illustrate software quality engineering activities and its process       No. of Hours       Credits: 3         Outcome       Year / semester       Subject Name (Subject Code)       No. of Hours       Credits: 3         0.1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       3       Apply knowledge Representation techniques         2       Understand the concepts of AI search techniques       4       Analyse different structures of representation         5       Evaluate AI search techniques       5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.       Credits: 2         Outcome       I Sem       Subject Name (Subject Code) Advanced Data Structures Lab (M22CS09)       No. of Hours L:0 T:0 P:4         6       Understand the concepts of Natural Language Processing.problems.       Credits: 2         1       Ability to select the data structures that efficiently model the information in a problem.       1:0 T:0 P:4         2	4	Understand special a	lgorithms for protocols and usage in the real world			
OutcomeI Sem2. Software Quality Engineering (M22CS07)L:3 T:0 P:0After the completion of this course, the students should be able to1Understand software quality and its perspectives2Analyze defect prevention and defect reduction in software quality assurace3illustrate software quality engineering activities and its processCourseYear / semesterSubject Name (Subject Code)No. of HoursCredits: 30utcomeI Sem3. Artificial Intelligence(M22CS08)L:3 T:0 P:0Credits: 31Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etcAnalyse different structures of representation2Understand the concepts of AI search techniquesImage: Subject Code Subject Code Subject Code Subject Code Subject Code Subject Analyse different structures of representation5Evaluate AI search techniquesImage: Subject Name (Subject Code Subject Code Subject Code Subject Code Subject Code Subject Code Subject Name (Subject Code Subject Code Subject Code Subject Subject Name (Subject Code Subject Code Subject Sub	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
After the completion of this course, the students should be able to         1       Understand software quality and its perspectives         2       Analyze defect prevention and defect reduction in software quality assurance         3       Illustrate software quality engineering activities and its process         Course         Year / semester       Subject Name (Subject Code)         3       Analyze defect preventions AI concepts like the AI technique, level of models, there underlying Assumptions etc         2       Understand the concepts of AI search techniques         3       Apply knowledge Representation techniques         4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester         0utcome       Isam         4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester         0utcome       Isam         1       Advanced Data Structures Lab (M22CS09)         1       Ability to select the data structures that efficiently model the information in a problem. <td>Outcome</td> <td>I Sem</td> <td>2. Software Quality Engineering (M22CS07)</td> <td>L:3 T:0 P:0</td> <td></td>	Outcome	I Sem	2. Software Quality Engineering (M22CS07)	L:3 T:0 P:0		
1       Understand software quality and its perspectives         2       Analyze defect prevention and defect reduction in software quality assurance         3       Illustrate software quality engineering activities and its process         No. of Hours Isem         3       Vear / semester Isem         3       Analyze defect prevention and defect reduction in software quality assurance         3       Illustrate software quality engineering activities and its process         Course Outcome       Year / semester I Sem       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       Assumptions etc         2       Understand the concepts of AI search techniques       4         3       Apply knowledge Representation techniques       4         4       Analyse different structures of representation       5         5       Evaluate AI search techniques       4         6       Understand the concepts of Natural Language Processing.problems.       Credits: 2         Outcome       I Sem       Subject Name (Subject Code) Advanced Data Structures Lab (M22CS09)       No. of Hours L:0 T:0 P:4       Credits: 2         1       Ability to select the data structures that efficiently model th	After the o	completion of this o	course, the students should be able to		I	
3       Illustrate software quality engineering activities and its process         Course       Year / semester       Subject Name (Subject Code) 3. Artificial Intelligence(M22CS08)       No. of Hours L:3 T:0 P:0       Credits: 3         1       Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc       Image: Subject Name (Subject Code)       No. of Hours       Credits: 3         2       Understand the concepts of AI search techniques       Image: Subject Name (Subject Code)       Image: Subject Name (Subject Code)       Image: Subject Name (Subject Code)         3       Apply knowledge Representation techniques       Image: Subject Name (Subject Code)       Image: Subject Name (Subject Code)       Image: Subject Name (Subject Code)         6       Understand the concepts of Natural Language Processing.problems.       Image: Subject Name (Subject Code)       No. of Hours       Credits: 2         0utcome       Year/Semester       Subject Name (Subject Code)       No. of Hours       Credits: 2         0       Subject Name (Subject Code)       No. of Hours       Credits: 2         0utcome       Isem       Subject Name (Subject Code)       No. of Hours       Credits: 2         0       Subject Name (Subject Code)       No. of Hours       L:0 T:0 P:4       Credits: 2         1       Ability to assess efficiency trade-offs among different data structure imp	1	-	*			
Course OutcomeYear / semester I SemSubject Name (Subject Code) 3. Artificial Intelligence(M22CS08)No. of Hours L:3 T:0 P:0Credits: 31Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etcVeraf Assumptions etcVeraf Assumptions etc2Understand the concepts of AI search techniquesVeraf Assumptions etcVeraf Assumptions etcVeraf Assumptions etc3Apply knowledge Representation techniquesVeraf Assumptions etcVeraf Assumptions etcVeraf Assumptions etc4Analyse different structures of representationVeraf Assumptions etcVeraf Assumptions etcVeraf Assumptions etc5Evaluate AI search techniquesVeraf Assumptions etcVeraf AssumptionsCredits: 26Understand the concepts of Natural Language Processing.problems.No. of Hours L:0 T:0 P:4Credits: 2Coursee OutcomeYear/Semester I SemSubject Name (Subject Code) Advanced Data Structures Lab (M22CS09)No. of Hours L:0 T:0 P:4Credits: 21Ability to select the data structures that efficiently model the information in a problem.Ability to assess efficiency trade-offs among different data structure implementations or combinations.3Implement and know the application of algorithms for sorting and pattern matching	2	Analyze defect preve	ntion and defect reduction in software quality assur	ance		
OutcomeI Sem3. Artificial Intelligence(M22CS08)L:3 T:0 P:01Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc2Understand the concepts of AI search techniques3Apply knowledge Representation techniques4Analyse different structures of representation5Evaluate AI search techniques6Understand the concepts of Natural Language Processing.problems6Understand the concepts of Natural Language Processing.problemsCourseYear/Semester I Sem1Ability to select the data structures that efficiently model the information in a problem.2Ability to assess efficiency trade-offs among different data structure implementations or combinations.3Implement and know the application of algorithms for sorting and pattern matching	3	Illustrate software	quality engineering activities and its process			
OutcomeI Sem3. Artificial Intelligence(M22CS08)L:3 T:0 P:01Remember various AI concepts like the AI technique, level of models, there underlying Assumptions etc2Understand the concepts of AI search techniques3Apply knowledge Representation techniques4Analyse different structures of representation5Evaluate AI search techniques6Understand the concepts of Natural Language Processing.problems6Understand the concepts of Natural Language Processing.problemsCourseYear/Semester I Sem1Ability to select the data structures that efficiently model the information in a problem.2Ability to assess efficiency trade-offs among different data structure implementations or combinations.3Implement and know the application of algorithms for sorting and pattern matching	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Assumptions etc         2       Understand the concepts of AI search techniques         3       Apply knowledge Representation techniques         4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester I Sem         9       Subject Name (Subject Code) Advanced Data Structures Lab (M22CS09)         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching	Outcome	I Sem		L:3 T:0 P:0		
2       Understand the concepts of AI search techniques         3       Apply knowledge Representation techniques         4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester         0utcome       Subject Name (Subject Code)         Advanced Data Structures Lab (M22CS09)       No. of Hours         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching	1		AI concepts like the AI technique, level of mo	dels, there underly	ying	
3       Apply knowledge Representation techniques         4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course Outcome I Sem         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching	2	· ·	cepts of AI search techniques			
4       Analyse different structures of representation         5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester         I Sem       Subject Name (Subject Code)         Advanced Data Structures Lab (M22CS09)       No. of Hours         L:0 T:0 P:4       Credits: 2         On successful completion of this course, students will be able to:       1         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching			<u>^</u>			
5       Evaluate AI search techniques         6       Understand the concepts of Natural Language Processing.problems.         Course       Year/Semester       Subject Name (Subject Code)       No. of Hours       Credits: 2         0utcome       I Sem       Advanced Data Structures Lab (M22CS09)       I:0 T:0 P:4       Credits: 2         1       Ability to select the data structures that efficiently model the information in a problem.       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching						
6       Understand the concepts of Natural Language Processing.problems.         Course Outcome       Year/Semester       Subject Name (Subject Code) Advanced Data Structures Lab (M22CS09)       No. of Hours L:0 T:0 P:4       Credits: 2         On successful completion of this course, students will be able to:       Ability to select the data structures that efficiently model the information in a problem.       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching			*			
Course Outcome       Year/Semester I Sem       Subject Name (Subject Code) Advanced Data Structures Lab (M22CS09)       No. of Hours L:0 T:0 P:4       Credits: 2         On successful completion of this course, students will be able to:       1       Ability to select the data structures that efficiently model the information in a problem.       2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching			*	18		
Outcome       I Sem       Subject (Value (Subject Code))       I (0.0110015)         Advanced Data Structures Lab (M22CS09)       L:0 T:0 P:4         On successful completion of this course, students will be able to:       1         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching	-				Credits: 2	
On successful completion of this course, students will be able to:         1       Ability to select the data structures that efficiently model the information in a problem.         2       Ability to assess efficiency trade-offs among different data structure implementations or combinations.         3       Implement and know the application of algorithms for sorting and pattern matching	_					
1Ability to select the data structures that efficiently model the information in a problem.2Ability to assess efficiency trade-offs among different data structure implementations or combinations.3Implement and know the application of algorithms for sorting and pattern matching	Outcome	1 Sem		L:0 1:0 P:4		
1Ability to select the data structures that efficiently model the information in a problem.2Ability to assess efficiency trade-offs among different data structure implementations or combinations.3Implement and know the application of algorithms for sorting and pattern matching	On successf	ful completion of th	is course, students will be able to:			
3 Implement and know the application of algorithms for sorting and pattern matching	1					
	2	Ability to assess effic	eiency trade-offs among different data structure imp	lementations or cor	nbinations.	
4 Design programs using a variety of data structures, including hash tables, binary and general tree	3	Implement and kno	ow the application of algorithms for sorting an	d pattern matchir	ıg	
	4	Design programs u	sing a variety of data structures, including has	h tables, binary ar	nd general tree	

	structures, search	trees, tries, heaps, graphs, and B-trees.		
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) Database Programming with PL/SQL Lab (M22CS10)	No. of Hours L:0 T:0 P:4	Credits:2
On success	ful completion of tl	his course, students are able to:		
1	Understand import	tance of PL/SQL basics		
2	Implement functions	and procedures using PL/SQL		
3	Understand the impo	rtance of triggers in database		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Deep Learning Lab(M22CS11)	L:0 T:0 P:4	
After the	completion of this o	course, the students should be able to		
1	Upon the Successful	Completion of the Course, the Students would be a	ble to:	
2	Learn The Fundamer	ntal Principles Of Deep Learning.		
3	Identify The Deep	Learning Algorithms For Various Types of Learn	ning Tasks in vario	us domains
4	Implement Deep Lea	rning Algorithms And Solve Real-world problems.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Python Programming Lab (M22CS12)	L:0 T:0 P:4	
1	Expressing the Cor	re Python scripting elements such as variables a	and flow control st	ructures.
2	Apply Python func	tions to facilitate code reuse		
3	Extending how to	work with lists and sequence data.		
4	Implement file ope and exceptions pro	erations such as read and write and Adapting th perly.	ne code robust by	handling error

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Research Methodology & IPR(M22MC01)	No. of Hours L:2 T:0 P:0	Credits: 2	
On successf	ful completion of t	his course, students will be able to:			
1	Understand research	problem formulation.			
2	Analyze research rel	ated information			
3	Follow research ethics				
4		oday's world is controlled by Computer, Inforn vill be ruled by ideas, concept, and creativity.	nation Technology	r, but	
5	Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.				
6	investment in R &	PR protection provides an incentive to invento D, which leads to creation of new and better p prowth and social benefits.			

Course	Year /Semester	Subject Name (Subject Code)	No. of Hours L:2 T:0 P:0	Credits:0
Outcome	I Sem	Audit Course- I (M22AC01)	L:2 1:0 F:0	
On successf	ful completion of t	his course, students are able to:		
1				
2				
3				
4			Γ	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	Advanced Algorithms (M22CS13)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Analyze the complex	kity/performance of different algorithms.		
2	Determine the appro	priate data structure for solving a particular set of pr	oblems.	
3	Categorize the diff	erent problems in various classes according to	their complexity.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	II Sem	Advanced Computer Architecture (M22CS14)	L:3 T:0 P:0	
1	Computational mo	dels and Computer Architectures		
2	Concepts of paralle	el computer models		
3	Scalable Architectur	es, Pipelining, Superscalar processors		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	II Sem	1. Enterprise Cloud Concepts (M22CS15)	L:3 T:0 P:0	
In successf	ul completion of th	nis course, students will be able to:		
		nce of cloud architecture		
	-	mental concepts of cloud security		
3	Analyze various cl	oud computing mechanisms		
4	Understanding the	architecture and working of cloud computing.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	2. Advanced Computer Networks (M22CS16)	L:3 T:0 P:0	
On successf	ful completion of t	his course, students are able to:		
	-	his course, students are able to: nolistic approach to computer networking		
1	Understanding of I		applications	
1	Understanding of I Ability to understa	nolistic approach to computer networking	••	
1	Understanding of I Ability to understa	nolistic approach to computer networking nd the computer network protocols and their a	••	Credits:3
1 2 3	Understanding of I Ability to understa Ability to design si	nolistic approach to computer networking nd the computer network protocols and their a mulation concepts related to packet forwarding	g in networks.	Credits:3
1 2 3 Course Outcome	Understanding of I Ability to understa Ability to design si Year / semester I Sem	nolistic approach to computer networking nd the computer network protocols and their a mulation concepts related to packet forwarding Subject Name (Subject Code)	g in networks. No. of Hours	Credits:3

2	Demonstrate a cor	nprehensive understanding of different tools u	used at edge analy	rtics
3	Formulate, Design	and Implement the solutions for real world ed	ge analytics .	
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) 1. Bio informatics (M22CS18)	No. of Hours L:3 T:0 P:0	Credits: 3
1		L entral Dogma & XML (Bio XML) for Bioinformati		
2		erl) for Bioinformatics		
3	Illustrate Database	es technology, architecture and its interfaces		
4	Understand Seque	nce Alignment Algorithms, Phylogenetic Analys	sis	
Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) 2. Block Chain Technology(M22CS19)	No. of Hours L:3 T:0 P:0	Credits: 3
On successf	ful completion of th	his course, students will be able to:	1	
1		e field of block chain technologies.		
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) 3. Robotic Process Automation (M22CS20)	No. of Hours L:3 T:0 P:0	Credits:3
		his course, students are able to:		
1	Describe RPA, whe	ere it can be applied and how it's implemented.		
2	Identify and under	stand Web Control Room and Client Introducti	ion	
3	Understand how to	o handle various devices and the workload		
4	Understand Bot cr	eators, Web recorders and task editors		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Advanced Algorithms Lab (M22CS21)	No. of Hours L:0 T:0 P:4	Credits:2
		course, the students should be able to	1.0 1.01.7	
1		ble to analyze the performance of algorithms		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	Enterprise Cloud Concepts Lab(M22CS22)	L:0 T:0 P:4	
1	Understand importar	nce of cloud architecture	·	
2	Illustrating the funda	amental concepts of cloud security		
3	Analyze various clc	oud computing mechanisms		
4	Understanding the ar	rchitecture and working of cloud computing.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	Advanced Computer Networks Lab (M22CS23)	L:0 T:0 P:4	
1	Ability of acquiring	the practical exposure to existing protocols		

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	Edge Analytics Lab (M22CS24)	L:0 T:0 P:4	
1	Identify the benefits			I
2	Develop the micro se	ervices in iofog		
3	Develop user defin	ed services in the edge		
4	Create use cases in IC	OT with edge computing		
5	Develop services in I	MEC		
6	Implement use cases	in MEC		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I I Sem	Mini Project with Seminar (M22CS25)	L:0 T:0 P:4	
1			·	
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4				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0
Outcome	I I Sem	Audit Course- II (M22AC02)	L:2 T:0 P:0	
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#### **III-SEMESTER**

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	1. Digital Forensics(M22CS26)	L:3 T:0 P:0	
	-	nis course, students will be able to:		
1	Understand releva	nt legislation and codes of ethics.		
2	Computer forensic	s and digital detective and various processes, p	olicies and proce	dures.
3	E-discovery, guidel	ines and standards, E-evidence, tools and envi	ronment.	
4	Email and web fore	ensics and network forensics.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	2. High Performance Computing (M22CS27)	L:3 T:0 P:0	
)n success	ful completion of th	his course, students are able to:		
1	Understanding the	concepts in grid computing		
2	Ability to set up clu	uster and run parallel applications		
3	Ability to understa	and the cluster projects and cluster OS		
4	Understanding the	concepts of pervasive computing & quantum of	computing	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	3. Quantum Computing (M22CS28)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Understand basics	of quantum computing		
2	Understand physic	al implementation of Qubit		
3	Understand Quant	um algorithms and their implementation		
4	Understand The Im	npact of Quantum Computing on Cryptography		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 6
Outcome	III Sem	Dissertation Work Review - II (M22CS29)	L:0 T:0	
			P:12	
)n successf	L ful completion of th	is course, students will be able to:		I
1				
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6				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 6
Outcome	III Sem	Dissertation Work Review - III (M22CS30)	L:0 T:0	

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6				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 6
Outcome	IV Sem	Dissertation Work Review – III	L:0 T:0	
		(M22CS30)	<b>P:12</b>	
After the				
	completion of this	course, the students should be able to		
1	completion of this	course, the students should be able to		
1 2	completion of this (	course, the students should be able to		
1 2 3	completion of this of the second s	course, the students should be able to		
1 2	completion of this of the second s	course, the students should be able to		
1 2 3	completion of this of the second s	course, the students should be able to		
1 2 3 4	completion of this of the second seco	course, the students should be able to		
1 2 3 4 5	completion of this of the second seco		No. of Hours	Credits: 14
1 2 3 4 5 6 <b>Course</b>		course, the students should be able to           Subject Name (Subject Code)           Dissertation Viva-Voce (M22CS31)	No. of Hours L:0 T:0 P:28	Credits: 14
$ \begin{array}{r} 1\\ 2\\ 3\\ 4\\ 5\\ 6\\ \end{array} $	Year /Semester	Subject Name (Subject Code)		Credits: 14
1 2 3 4 5 6 <b>Course</b> Outcome	Year /Semester	Subject Name (Subject Code)		Credits: 14
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> 1	Year /Semester	Subject Name (Subject Code)		Credits: 14
1 2 3 4 5 6 <b>Course</b> <b>Outcome</b> 1 2	Year /Semester	Subject Name (Subject Code)		Credits: 14

#### **IV-SEMESTER**

Course Outcome		Subject Name (Subject Code) Dissertation Phase-II (M20CS30)	No. of Hours L:0 T:0 P:32	Credits: 16		
On successful completion of this course, students will be able to:						

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Bollikunta,KhilaWarangal(Mandal),WarangalUrban-506005(T.S),www.vaagdevi.edu.in DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

### <u>Course Outcomes for B.Tech–ECE (R22) for the academic year 2022-2023</u> <u>onwards</u>

	1			~ ~ ~
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
Outcome	I Year/ I Sem	Matrices And Calculus(B22MA01)	Hours L:3 T:1P:0	
After the con	npletion of this course	e, the students should be able to	L.J 1.11.0	
1		resentation of a set of linear equations and t	to analyze the solution	on of the system
	equations.	······	, second s	j
2	Find the Eigen value	ues and Eigen vectors. Reduce the quadr	ratic form to canoni	cal form using
	orthogonal transform	ations.		_
3	· · ·	s on the mean value theorems.		
4		er integrals using Beta and Gamma function		
5		ues of functions of two variables with/ with	out constraints. Evalu	ate the
	multiple integrals and	d apply the concept to find areas, volumes		G III A
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
Outcome	I Year/ I Sem	Applied Physics (B22PH01)	Hours L:3 T:1P:0	
After the con		e, the students should be able to		
1		world from fundamental point of view by		
	and visualize the dif of solids.	ference between conductor, semiconductor,	and an insulator l	by classification
2	Identify the role of se	emiconductor devices in science and engine	ering Applications.	
3		nental properties of dielectric, magnetic	c materials and er	ergy for their
	applications.			
4		es and applications of Nanomaterials.		
5	Understand various a	spects of Lasers and Optical fibre and their		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	C Programming for Engineers (B22CS08)	Hours L:3 T:0P:0	
After the con	npletion of this course	e, the students should be able to		
1	Draw flowcharts for	solving arithmetic and logical problems		
2	Explore the concept	s of control statements in C Programming		
3	Develop modular re	usable code by understanding the concepts of	of functions.	
4		epts of pointers and files.		
5		rching and sorting algorithms.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2.5
		Engineering Workshop(B22ME01)	Hours	
Outcome	I Year/ I Sem		L:0 T:1P:3	
After the con		e, the students should be able to		
1		n machine tools and their operations.		
2		turing of components using workshop trade	s including pluming	fitting,
2		nouse wiring and welding.		1 '11'
3	Identity and apply su	itable tools for different trades of Engineeri	ng processes includii	ng drilling,
1	material removing, n		matica	
4		l engineering knowledge for house wiring p	No. of	Credits:2
Course	Year/Semester	Subject Name (Subject Code)	Hours	Creuits:2
Outcome	I Year/ I Sem	English for Skill Enhancement (B22EN01)	L:2 T:0P:0	
After the con	nnletion of this course	e, the students should be able to		<u> </u>
1		rtance of vocabulary and sentence structures	8	
2		•		nunication
-	Choose appropriate vocabulary and sentence structures for their oral andwritten communication.			



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3	Demonstrate their un	nderstanding of the rules of functional gramm	nar.	
4	Develop comprehen	sion skills using known and unknown passag	ges.	
5		n drafting paragraphs, letters, essays, abstra		in various
	contexts			
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	I Year/ I Sem	Elements of Electronics and	Hours	
Outcome	1 Teat/1 Sem	Communication Engineering	L:0 T:0P:2	
A fton the com	mlation of this course	(B22EC01)		
After the con		e, the students should be able to		
1		t components used for electronics application		
2		arameters using various measuring instrumer		
3		signal used for analog and digital communic		
4	Know the software's	s to be used in Electronics and communication		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1.5
Outcome	I Year/ I Sem	Applied Physics	Hours L:0 T:0P:3	
		Laboratory(B22PH02)	L:0 1:0P:5	
After the eer	nlation of this cours	e, the students should be able to		l
A ICI III COII		ttion of the Planck's constant using Photo el	ectric effect and time	e constant of RC
Ĩ	circuit experiment.	anon of the Franck's constant using 1 noto ch		
2		physics in semiconductor devices and optoe	electronics.	
3		about frequency of AC power supply.		
4	¥	ation of magnetic field and behaviour of hyst	teresis curve.	
5		time Constant of RC Circuit		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
	I Year/ I Sem	English Language and	Hours	
Outcome	1 Year/ 1 Sem	Communication Skills Laboratory	L:0 T:0P:2	
		(B22EN02)		
After the con	npletion of this cours	e, the students should be able to		
1	Understand the nuar	nces of English language through audio- visu	al experience and	groupactivities.
2	Neutralize their acc	ent for intelligibility.		
3		ing skills so that they may appreciate its	role in developing	LSRW skills of
	-	ve their pronunciation.		
4	Involve in speaking	activities in various contexts.		
5	Speak with clarity an	nd confidence which in turn enhance their en	nployability skills.	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	I Year/ I Sem	C Programming for Engineers	Hours	
Guitoille		Laboratory (B22CS09)	L:0 T:0P:2	
1	Write algorithms an	nd to draw flowcharts for solving problem	ns and translate the	algorithms/flow
	charts to programs (			
2	Use functions to dev	velop modular reusable code.		
3	Use arrays, pointers,	, strings and structures to formulate algorithm	ns and programs.	
4	Understand Searchin	ng and sorting algorithms		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome	I Year/ I Sem	Environmental Science (B22CH03)	Hours	
			L:3 T:0P:0	
	*	e, the students should be able to	/ 1 / / 1 1	1 1 '
1		e, the Engineering graduate will understand /		
	development	al principles and environmental regulations	which in turn helps i	n sustainable
~	<b>^</b>		No. of	Credits:4
Course	Year/Semester	Subject Name (Subject Code)	Hours	CI CUIL3.4
Outcome	I Year/ II Sem	Ordinary Differential Equations and	L:3 T:1P:0	
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		Vector Calculus(B22MA02)		
After the com	pletion of this course	e, the students should be able to		
1	Identify whether the	given differential equation of first order is e	xact or not	
2	Solve higher differe problems.	ential equation and apply the concept of	differential equation	n to real world
3	Extend the basic con	cepts of differential calculus to vector funct	ions in a simple and	natural fashion.
4		cepts of differential calculus to vector funct	•	
5	Evaluate the line, sur	face and volume integrals and converting th	em from one to anot	her
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
Outcome	I Year/ II Sem	Engineering Chemistry(B22CH01)	Hours L:3 T:1P:0	
After the comp	pletion of this course	e, the students should be able to	•	•
1	Students will acquire control.	e the basic knowledge of electrochemical p	rocedures related to	corrosionand its
2	The students are ab industrial purposes.	le to understand the basic properties of v	vater and its usage	in domestic and
3	They can learn the materials.	e fundamentals and general properties o	f polymers and oth	her engineering
4	They can predict po engineers and entrep	tential applications of chemistry and practi reneurs.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ II Sem	Computer Aided Engineering Graphics (B22ME03)	Hours L:1 T:0P:4	
After the com		e, the students should be able to		•
1	Apply computer aide solids	d drafting tools to create 2D and 3D objects	sketch conics and di	ifferent types of
2	Appreciate the need	of Sectional views of solids and Developme	nt of surfaces of soli	ds
3	Read and interpret er			
4	Conversion of orthog computer aided draft	graphic projection into isometric view and vi	ice versa manually a	nd by using
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	Basic Electrical Engineering(B22EE03)	Hours L:2 T:0P:0	
After the com	pletion of this course	e, the students should be able to		
1		rems, mesh and nodal analysis, series and pa	rallel networks, Elec	trical power
2		AC circuits, reactance, Impedance, Susce		•
3		inciple of DC motors, Transformers		
4		ruction and performance characteristics of I	Electrical Machines	
5		ts of Low Voltage Electrical Installations		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	Electronic Devices and Circuits(B22EC02)	Hours L:2 T:0P:0	
After the com		e, the students should be able to		
1	Acquire the knowled	ge of PN diode and its characteristics.		
2	Design the rectifiers	with and without filters for specified DC vo	ltage.	
3	Illustrate the voltage transistor	- current characteristics of Junction Trans	istor and different co	onfigurations of
4		bout the construction, theory and characteri	stics of FET and MC	OSFET
5		ge about the role of special purpose devices		
Course	Year/Semester	Subject Name (Subject Code) Applied Python Programming	No. of Hours	Credits:2
Outcome	I Year/ II Sem	Laboratory(B22CS10)	L:0 T:1P:2	



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After the com	pletion of this course	e, the students should be able to		
1	Install Python in Lin	ux and windows, Installing OS on Raspberry	y Pi	
2	Build basic programs	s using fundamental programming construct	S	
3		thon codes for different applications		
4		nt on hard ware boards		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
		Engineering Chemistry	Hours	
Outcome	I Year/ II Sem	Laboratory(B22CH02)	L:0 T:0P:2	
After the com	pletion of this course	e, the students should be able to	1	
1		e hardness of water		
2	Able to perform met	hods such as conductometry, and potention	netry in order to find	l out the
		uvalence points of acid, and P <sup>H</sup> of unknown		
3	Students are able to	prepare polymers like Bakelite and nylon-6,	6.	
4	Estimations saponifie	cation value and viscosity of lubricant oils		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	I Year/ II Sem	Basic Electrical Engineering	Hours	
Outcome	I Tear/ II Sem	Laboratory(B22EE04)	L:0 T:0P:2	
After the com	pletion of this course	e, the students should be able to		÷
1	Verify the basic ele	ectrical circuits through different laws an	d theorems	
2	Analyze the transie	ent responses of R, L and C circuits for D	OC excitation	
3	Create resonance c	ondition in series R-L-C circuit		
4	Analyze the perfor	mance of DC shunt motor, single phase t	transformer and th	ree Phase
	Induction Motor			
Course	Year/Semester	Subject Name (Subject Code) )	No. of	Credits:1
		Electronic Devices and Circuits	Hours	
Outcome	I Year/ II Sem	Laboratory(B22EC03)	L:0 T:0P:2	
After the com	pletion of this course	e, the students should be able to	1	
1		ge of various semiconductor devices and the	eir use in real life.	
2		asing and keep them in active region of the d		circuits
3		ge about the role of special purpose devices		
4	Design simple electr			
	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
Course			Hours	
Outcome	II Year/ I Sem	Numerical Methods and Complex	L:3 T:1P:0	
After the com	 plation of this course	Variables (B22MA07)		
1		e, the students should be able to		
2	1 21	function in terms of sine and cosine		
	Ū Ū	en polynomial and transcendental equations		
3		r the given data using interpolation		
4		olutions for a given first order ODE's		~
5	•	x function with reference to their analytic	ity, integration usir	ng Cauchy's
	integral and residue			
6	Taylor's and Laure	nt's series expansions in complex functi	on	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
			Hours	
Outcome	II Year/ I Sem	Analog Circuits(B22EC04)	L:3 T:0P:0	
After the com	pletion of this course	e, the students should be able to	·	·
1		s with various biasing techniques.		
2	- · ·	implifiers using BJT and FET		
3		nplifiers and understand the concepts of Hig	h Frequency Analys	is of BIT
4		of negative feedback to improve the chara		
5		f Barkhausen criterion to design various osc		
5	Sumze the concept of	i Burnhuusen enterion to design various ose		



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Course	Year/Semester II Year/ I Sem	Subject Name (Subject Code) ) Network analysis and	No. of Hours	Credits:3
Outcome	II Year/ I Sem	Synthesis(B22EE12)	L:3 T:0P:0	
After the comp	oletion of this course	, the students should be able to	·	·
1	Gain the knowledge	on basic RLC circuits behavior.		
2	Analyze the Steady s	tate and transient analysis of RLC Circuits.		
3	· · ·	wo port network parameters.		
4		aspect of various filters and attenuators		
Course	Year/Semester	Subject Name (Subject Code) )	No. of	Credits:3
Outcome	II Year/ I Sem	Digital Logic Design(B22EC05)	Hours L:3 T:0P:0	
After the comp	pletion of this course	e, the students should be able to		
1	theorems for Combin	dge on numerical information in differen national function minimization		C
2	logic families for the	by applying minimization techniques and a ir AC and DC parameter's		
3	Design and analyze v sequential circuits	various combination logic circuits and under	stand the fundamen	tal's of
4		sequential circuits for various cyclic function	ns	
5	Acquire the knowle	dge on concepts of FSM and ASM charts		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
Outcome	II Year/ I Sem	Signals and Systems(B22EC06)	Hours L:3 T:1P:0	
After the comp		e, the students should be able to		
1		e of various signals, and systems. n techniques in time and frequency domain.		
2 3		ons for transmission of signals through sys		a formhyraigal
5	realization of system	÷ •	stems and condition	s iorphysical
1		of Region of Convergence for different Tran	natormation tashnig	100
4 5		rem for baseband and band pass signals		
5		lation and PSD functions for various app		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	II Year/ I Sem	Analog Circuits Laboratory(B22EC07)	Hours L:0 T:0P:2	
After the comp	pletion of this course	e, the students should be able to		
1	Design amplifiers wi	th required Q point and analyze amplifier ch	naracteristics	
2	Examine the effect m	ultistage amplification on frequency respon	se	
3	Investigate various fee	edback topologies and their frequency respo	nses.	
4	Design various oscill	ator circuits.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	II Year/ I Sem	Digital logic Design Laboratory(B22EC08)	Hours L:0 T:0P:2	
After the comp	pletion of this course	e, the students should be able to		
1	Acquire the knowled	ge on numerical information in different for	rms and Boolean alg	ebratheorems.
2	Define Postulates of	Boolean algebra and to minimize combinati	onal functions, and	designthe
	combinational circuit	is.		
3	Design and analyze s	equential circuits for various cyclic function	18.	
4		milies and analyze them for the purpose of A		ers
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	II Year/ I Sem	Basic Simulation Laboratory(B22EC09)	Hours L:0 T:0P:2	
After the comp	oletion of this course	e, the students should be able to		
1		d perform various operations on Signals/Sec	quences both in time	andFrequency
		· · · ·	•	1 )



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	domain			
2	Analyze and Charac	terize Continuous and Discrete Time Syster	ns both in Time and	Frequency
	domain along with th	ne concept of Sampling		- ·
3	Generate different R	andom Signals and capable to analyze their	Characteristics	
4		of Deterministic and Random Signals for No	oise removal Applica	tions andon
	other Real Time Sign	nals		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome	II Year/ I Sem	Logical Reasoning & Quantitative	Hours	
		Aptitude (B22MC08)	L:3 T:0P:0	
After the com		e, the students should be able to		
1		thinking in terms of general and mathemati		
2		c as well as competitive levels through whic	h students are able to	solve the real
	world problems.			
3	Analyze the number			
4	^	s to face the critical arithmetic problems.		
5	Analyze the mathem	<b>^</b>		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ II Sem	Probability Theory and Stochastic	Hours	
		Processes(B22EC13)	L:3 T:0P:0	
		e, the students should be able to		
1		epts of Probability, random variables, densit	ty and distribution fu	nctions
2	Perform operations of	on single and multiple Random variables.		
3	Determine the tempo	oral characteristics of Random Signals.		
4	Understand the conc	epts of spectral characteristics of Random p	rocesses and Charact	erize LTI
		ationary random process by using ACFs and		
5	Understand the conc	epts of Noise and Information theory in Con	mmunication system	S
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ II Sem	Electromagnetic Fields and	Hours	
		Transmission Lines(B22EC14)	L:3 T:0P:0	
After the com	pletion of this course	e, the students should be able to		
1	Acquire the knowled	ge of Basic Laws, Concept sand proofs rela	ted to Electrostatic F	ields
2	Acquire the knowled	ge of Basic Laws related to Magneto static	Fields	
3	Characterize the stat	ic and time-varying fields; establish the cor	responding sets of N	faxwell's
	Equations and Bound	lary Conditions.		
4		quations and classify conductors, dielectrics	and evaluate the UP	W
		veral practical media of interest.		
5	Analyze the Design	aspect of transmission line parameters an		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ II Sem	Analog and Digital	Hours	
		Communications(B22EC15)	L:3 T:0P:0	
After the com	pletion of this course	e, the students should be able to		
1	Design and analyze v	various Amplitude Modulation and Demodu	lation techniques.	
2	Interpret different an	gle modulation and demodulation systems.		
3		nce of various transmitters and receivers.		
4	, <u>,</u>	e modulation and demodulation techniques.		
5	Develop skills in ana	lyzing digital modulation schemes		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ II Sem	Linear and Digital IC	Hours	
		Applications(B22EC16)	L:3 T:0P:0	
After the com	pletion of this course	e, the students should be able to		
1	A thorough understa	nding of operational amplifiers with linear in	ntegrated circuits.	
2	-	e of functional diagrams and design applicat	*	565.
3	· · · · ·	ge and design the Data converters.		
	1 require the knowled	5- mil design nie Data converters.		



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4	Choose the proper digital integrated circuits by knowing their characteristics.			
5	<u> </u>	e about 74xx and CMOS 40xx series integrat		ential logic
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
	II Year/ II Sem	Electronic Circuit	Hours	
Outcome		Analysis(B22EC17)	L:3 T:0P:0	
After the comp	pletion of this course	e, the students should be able to		
1	Design the power an	plifiers		
2	Design the tuned am	plifiers and analyze is frequency response		
3	Design Multivibrator	rs for various applications.		
4	Analyze different sw	eep generator circuits.		
5		of synchronization, frequency division and sa	ampling gates	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	II Year/ II Sem	Analog and Digital Communications Laboratory(B22EC18)	L:0 T:0P:2	
After the comp	oletion of this course	e, the students should be able to		
1		nt various Analog modulation and demodula	tion Techniques and	l observe the
	<b>e</b> 1	lomain characteristics	1	
2	Design and impleme	ent various Pulse modulation and demodulat	ion Techniques and	observe the
	time and frequency d	lomain characteristics		
3		s of Sampling with various Sampling rates ar		
4	<b>e</b> 1	nt various Digital modulation and demodula	ation Techniques and	d observe the
		modulated Signals practically		Caralitari 1
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	II Year/ II Sem	Linear and Digital IC Applications Laboratory(B22EC19)	L:0 T:0P:2	
After the comp		e, the students should be able to		
1		ntation of various analog circuits using 741 I		
2		ntation of various Multivibrators using 555 t	imer.	
3		nt various circuits using digital ICs.		
4		nt ADC, DAC and voltage regulators.		Credits:1
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Creans:1
Outcome	II Year/ II Sem	Electronic Circuit Analysis Laboratory(B22EC20)	L:0 T:0P:2	
After the com	letion of this course	e, the students should be able to		
1		fiers and find its efficiency		
2	- · · ·	iers and find its Q-factor		
3			nooccity of linearity	*7
4	Design various multi Design sampling gat	vibrators and sweep circuits. Understand the	necessity of intearti	L <u>y</u>
	0 1 00			Credits:0
Course	Year/Semester	Subject Name (Subject Code) Gender Sensitization	No. of Hours	
Outcome	II Year/ II Sem	Lab(B22MC07)	L:0 T:0P:2	
1		developed a better understanding of imp	ortant issues relate	ed to gender in
	contemporary India.		1	1 1 1 1 1 1
2		sitized to basic dimensions of the biologic		
	facts, everyday life, 1	ler. This will be achieved through discussion literature and film	i of materials derive	u from research,
3		a finer grasp of how gender discrimination	n works in our soci	ety and how to
5		nts will acquire insight into the gendered of		
	politics and economi		artificit of futor all	
4		p a sense of appreciation of women in all wa	lks of life. Men and	women students
		Il be better equipped to work and live in harr		
5		ccounts of studies and movements as well as		orovide
	protection and relief	to women, the textbook will empower stude	nts to understand and	d respond to



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	gender violence.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	III Year/ I Sem	MICROCONTROLLERS(B22EC24)	L:3 T:1P:0	
1	Known the internal an	rchitecture, organization and assembly langua	ge programming of 8	3086processors.
2	Known the internal as	rchitecture, organization and assembly langua	ige programming of8	051/controllers
3	Learn the interfacing t	techniques to 8086 and 8051 based systems.		
4	Known the internal a	rchitecture of ARM processors		
5	Learn the basic concept	pts of advanced ARM-processors		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:
Outcome	III Year/ I Sem	IoT Architectures and Protocols (B22EC25)	L:3 T:0P:0	
1	Explore the Evolution	of IoT, its Growth and Applications.		
2	Know the components	s of IoT and Compare the various architectures	of IoT.	
3	Establish the knowled	ge on various IoT protocols like Data link, Ne	twork etc.,	
4	Establish the knowled	ge on various IoT protocols like like Transport	t, Session etc.,	
5	Establish the knowled	ge on various IoT protocols like Service layer	s, security etc.,	•
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	III Year/ I Sem	Control Systems(B22EC26)	L:3 T:1P:0	
1	Understand the concept modeling.	pt of feedback and analyze the control system	components by their ]	Mathematical
2	Estimate the time dom	nain specification s and steady state error.		
3	Apply various time do	omain techniques to assess the system perform	ance.	
4	Formulate different ty for different types of c	pes of analysis in frequency domain to explain controllers	the nature of stabilit	y of the system
5		bility and observability using state space repre-	sentation and applicat	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Year/ I Sem	Business Economics & Financial Analysis(B22MB01)	L:3 T:0P:0	
1	Understand the variou	s Forms of Business and the impact of econon	nic variables on the B	usiness.
2		d, Supply, Production, Cost, Market Structure,		
3		function is carried out to achieve least cost com		now to analyze
4		financial position by analyzing the Financial S	Statements of a Comp	any
5		inancial statements using ratio analysis		•
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Year/ I Sem	Professional Elective-I	L:3 T:0P:0	
Outcome	III Teal/ I Selli	Computer Organization & Operating Systems (B22EC42)	L.3 1.01.0	
1	Demonstrate and unde impact on processor d	erstanding of the functional units of digital contents of the state	mputer, instruction se	ets and their
2		l operations to control different units in a com	outer.	
3	Illustrate the concepts	*		
4		systems in a computer.		
5		ent concepts in operating systems and familiar	ze the directory struc	ture
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Year/ I Sem	Professional Elective-I	L:3 T:0P:0	
Jucome	in real/1 Sem	Data Communications and Computer Networks(B22EC43)	1.5 1.01.0	
1	Know the Categories	and functions of various Data communication	Networks	1



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2	Design and analyze va	rious error detection techniques.		
3	Demonstrate the mech	anism of routing the data in network layer		
4		of various Flow control and Congestion control	rol Mechanisms	
5	Know the Functioning	of various Application layer Protocols	T	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Year/ I Sem	Professional Elective-I	L:3 T:0P:0	
		Electronic Measurements and		
1		Instrumentation(B22EC44)		
1	-	rameters with different meters and understar	nd the basic definition	n ofmeasuring
	parameters.			1.1
2	• •	ignal generators, signal analyzers for generati	ng and analyzing vari	ousreal-time
2	signals.		2-14-	
3 4		scope to measure various signals in practical f of various transducers required in measurement		
5	1 I	ical parameters by appropriately selecting the		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
		Microcontrollers Laboratory (B22EC27)		
Outcome	III Year/ I Sem		L:0 T:0P:2	
1	Write assembly lang	uage programs and implement on 8086.		
2		uage programs and implement on 8051		
3		ices with 8051 micro controllers		
4	•	on Cortex-M3 development boards using GN		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	III Year/ I Sem	IoT Architectures and Protocols Laboratory (B22EC28)	L:0 T:0P:2	
1	Utilize the different se	nsors like room temperature, DHT, Humidity	etc.,	
2	Interface the sensors a	nd processor for transmission of data.		
3		d process it on Arduino/NodeMCU/Raspberry		
4		f various protocols like I2c, UART communication		0 14 1
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	III Year/ I	Advanced English Communication Skills Laboratory(B22EN03)	L:0 T:0P:2	
	Sem	Laboratory(B22EIN03)		
1	Participate in group dis	cussion to present their viewpoints briefly and e	ffectively.	
2	1 0 1	ng and felicity in written expression in Resume /	5	eports
		• • •		
3	1	with appropriate body language in interviews.		
4	Enhance their team bui	lding skills and capabilities for effective decision	n making	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	III Year/ I Sem	Intellectual Property Rights(B22MB06)	L:3 T:0P:0	
1	The students get the	knowledge about intellectual property, tra	demarks and copy ri	ohts They also
		regulations related to copy rights. The		
		rent areas of intellectual property, trade and		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Year/ II	Antennas and Wave	L:3 T:0P:0	
Guttonit	Sem	Propagation(B22EC29)	210 210210	
1	Explain the mechani establish their mathem	sm of radiation, definitions of different a natical relations	ntenna characteristic	parameters and
2		actor and characteristics of Linear Arrays,	Binomial array and	sketch their
3	*	nas based on frequency, configure the geome	try and establish the r	adiation patterns
		nd to acquire the knowledge of their analysis,		



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4	Analyze a Microstrip, rectangular patch antenna and a parabolic reflector antenna, identify the requirements and relevant feed structure, carry out the design and establish their patterns				
5		wave propagation mechanisms, determine the estimate the parameters involved	the characteristic fea	_	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III Year/ II	Digital Signal Processing (B22EC30)	L:3 T:0P:0		
	Sem				
1	Outline the properties	of systems and signals	I		
2	Identify the various in processing.	nportant characteristics of different transform	techniques used in dig	gital signal	
3	Design IIR filters base	ed on the specifications given			
4	Design FIR filters for				
5	Demonstrate different	realizations of digital filters	Γ		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III Year/ II	CMOS VLSI Design(B22EC31)	L:3 T:0P:0		
	Sem				
1	Understand IC techno	logy and basic electrical properties of MOS ar	d BiCMOS.		
2		ircuits using various design rules.			
3	Develop and design the	<u> </u>			
4		o design data path subsystems like Adders, Shi	ifters, ALUs etc.		
5		grammable logic devices and CMOS testing		Credits:3	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Creats.5	
Outcome	III Year/ II	Professional Elective – II	L:3 T:0P:0		
	Sem	Digital Image Processing (B22EC45)			
1	Explore the fundame	ntal relations between pixels and utility of	2-D transforms in i	mageprocessing.	
2	Inspect image enhance	ement in both the spatial and frequency domai	n.		
3	Evaluate various imag	ge restoration techniques.			
4	Explain various image	e segmentation techniques and morphological	operations		
5	-	mage compression techniques.	Γ		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III Year/ II	Professional Elective – II	L:3 T:0P:0		
	Sem	Mobile Communications and Networks			
1		(B22EC46)			
2		of cellular and mobile communication system. nel and Non-Co-Channel interferences.			
3	*	ome the different fading effects?			
4		erage for signal and traffic, diversity, technique	es frequency manage	ment Channel	
	assignment and types		is, nequency manage		
5	• • • • •	erence between cellular and Adhoc Networks	and design goals of 1	MACLaver	
5	protocol	the settient contain and rende retworks	and design gours of 1		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III Year/ II	Professional Elective – II	L:3 T:0P:0		
outcome	Sem	Embedded System Design (B22EC47)			
1					
1		on procedure of Processors in the embedded de			
2 3		components required to develop a embedded s	ystems		
4	Design Procedure for		toma		
5		Real time Operating Systems in Embedded Systems on between task synchronization and latency is			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1	
Course	i cal/Schiester	Subject Mame (Subject Code)	110, 01 110u15		



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Outcome	III Year/ II	Digital Signal Processing	L:0 T:0P:2	
	Sem	Laboratory(B22EC32)		
1	Analyze signals using	the discrete Fourier transform (DFT).		
2	Understand FFT algor	ithm for efficient computation of DFT.		
3	Design IIR & FIR filt			
4	Design multi rate sign	al processing of signals through systems		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	III Year/ II	CMOS VLSI Design Laboratory	L:0 T:0P:2	
	Sem	(B22EC33)		
1		h High end Simulation tools like Mentor Grap	hics Tanner EDA etc	
2		s at different levels using programming concep		· •
3	Implement any type of			
4		e FPGA and CPLD using implementation tool		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
	III Year/ II	Advanced Communication Laboratory	L:0 T:0P:2	
Outcome		(B22EC34)	L:01:0P:2	
	Sem			
1	Understand the featur	es of Spectrum Analyzer.		
2	Analyze to select cod	ing techniques for efficient transmission & rec	eption.	
3		ulate various modulation and demodulation tec	chniques.	
4	Simulate the Multiple	exing technique	T	1
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	III Year/ II	Environmental Science (B22CH03)	L:3 T:0P:0	
	Sem			
1		e, the Engineering graduate will understand/ principles and environmental regulations		s in sustainable
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	IV Year/ I Sem	Microwave and Optical Communications (B22EC38)	L:3 T:1P:0	
1	Compare the Power ge	eneration of Microwave Tubes and derive the per	formance characteristi	cs.
2	Illustrate the concepts	s, principles of microwave solid-state devices.		
3	Distinguish between t	he different types of waveguide, ferrite compon-	ents and select proper	components for
	engineering application	ons		
4		eters in microwave component design.		
5	Demonstrate the mec	hanism of light propagation through Optical Fi	bres	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Year/ I Sem	Professional Elective – III Radar Systems (B22EC48)	L:3 T:0P:0	
1	Illustrate the important	ce of Radar Fundamentals and analysis of Radar	equation.	
2		ing of CW and FM-CW Radars.		
3		ng principle of MTI with Pulse Doppler Radar		
4		dar Tracking Methods.		
5		adar signals in Noise and Radar receivers	[	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Year/ I Sem	Professional Elective – III	L:3 T:0P:0	
		CMOS Analog IC Design		
1	TT. 1	(B22EC49)		
2		oncepts of MOS devices and their models.		
Δ	Design basic building	blocks of CMOS Analog ICs.		



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3	Design various amplif	iers like differential, current and operational ar	nplifiers		
4	Carryout the design of	single and two stage operational amplifiers.			
5	Understand the charac	teristics of comparator's and their design.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
		Professional Elective – III			
Outcome	IV Year/ I Sem	Artificial Neural Networks(B22EC50)	L:3 T:0P:0		
1	Explore the basic eleme	ents of Artificial Neural networks and learning	process.		
2	Develop different sing	le layer / multilayer perceptron learning algor	ithms.		
3	Demonstrate the conce	epts of back propagation.			
4		of self organizing maps.			
5	Construct the Hopfield				
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
	IV Year/ I Sem	Professional Elective – IV	L:3 T:0P:0		
Outcome	IV Year/ I Sem	Network Security and Cryptography (B22EC51)	L:5 1:0P:0		
1	Describe network secu	rity fundamental concepts and principles			
2		essages using block ciphers and network secu	rity technology and pr	otocols	
3		graphic algorithms, and understand the concepts			
4		and and the concepts of the second se			
5		ferent types of threats, malware, spyware, viru	ses, vulnerabilitie		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Year/ I Sem	Professional Elective – IV	L:3 T:0P:0		
Outcome	IV Ital/I Still	Satellite Communications (B22EC52)	L.5 1.01.0		
1	Explore the basic con	ncepts and frequency allocations for satellite	e communication, or	bitalmechanics	
	and launch vehicles.				
2	Explain the satellite su	b systems and satellite Antennas.			
3	-	iple access techniques and design Satellite Lir	nk for specified C/N.		
4	Illustrate the earth stat	ion technology and Tracking system.			
5		LEO and GEO Stationary Satellite Systems, sa	tellite navigation		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
		Professional Elective – IV			
Outcome	IV Year/ I Sem	Biomedical Instrumentation(B22EC53)	L:3 T:0P:0		
1	Explore bio-systems a	nd medical systems from an engineering persp	ective.		
2		s to acquire record and primarily understand p		of thehuman	
	•	ntial, ECG, EEG, BP and blood flow measure			
3		about Neurological Instrumentation.			
4	Acquires knowledge		· ·		
4		of various medical instruments and critical co	Articulate the working of various medical instruments and critical care equipment.		
	Articulate the working			various medical	
5	Articulate the working Explain the imaging te	g of various medical instruments and critical ca chniques including CT,PET, SPECT and MRI		variousmedical	
5	Articulate the working Explain the imaging ter conditions.	chniques including CT,PET, SPECT and MRI	used in diagnosis of v	variousmedical	
5 Course	Articulate the working         Explain the imaging terconditions.         Year/Semester	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code)	used in diagnosis of v		
5 Course Outcome	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem	chniques including CT,PET, SPECT and MRI <b>Subject Name (Subject Code)</b> Professional Practice, Law & Ethics (B22MB10)	used in diagnosis of v		
5 Course Outcome 1	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code) Professional Practice, Law & Ethics (B22MB10) ance of professional practice	used in diagnosis of v		
5 Course Outcome	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import	chniques including CT,PET, SPECT and MRI <b>Subject Name (Subject Code)</b> Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee	used in diagnosis of v No. of Hours L:2 T:0P:0	Credits:2	
5 Course Outcome 1	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code) Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee Subject Name (Subject Code)	used in diagnosis of v		
5 Course Outcome 1 2 Course Outcome	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import         Learn the rights and re	chniques including CT,PET, SPECT and MRI <b>Subject Name (Subject Code)</b> Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee	used in diagnosis of v No. of Hours L:2 T:0P:0	Credits:2	
5 Course Outcome 1 2 Course Outcome 1	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import         Learn the rights and re         Year/Semester         IV Year/I Sem	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code) Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee Subject Name (Subject Code) Microwave and Optical Communications	used in diagnosis of v No. of Hours L:2 T:0P:0 No. of Hours	Credits:2	
5 Course Outcome 1 2 Course Outcome	Articulate the working         Explain the imaging terconditions.         Year/Semester         IV Year/ I Sem         Understand the import         Learn the rights and re         Year/Semester         IV Year/ I Sem         Demonstrate a microward	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code) Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee Subject Name (Subject Code) Microwave and Optical Communications Laboratory(B22EC39)	used in diagnosis of v No. of Hours L:2 T:0P:0 No. of Hours	Credits:2	
5 Course Outcome 1 2 Course Outcome 1	Articulate the working         Explain the imaging teconditions.         Year/Semester         IV Year/I Sem         Understand the import         Learn the rights and re         Year/Semester         IV Year/I Sem         Demonstrate a microwar         Measure parameters like	chniques including CT,PET, SPECT and MRI Subject Name (Subject Code) Professional Practice, Law & Ethics (B22MB10) ance of professional practice sponsibilities as an employee Subject Name (Subject Code) Microwave and Optical Communications Laboratory(B22EC39) we bench for measuring microwave parameters	used in diagnosis of v No. of Hours L:2 T:0P:0 No. of Hours	Credits:2	



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Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Year/ II	Professional Elective – V	L:3 T:0P:0		
	Sem	Artificial Intelligence(B22EC54)			
1	Understand the basics	of the theory and about intelligent agents.			
2		istic searches, aware of knowledge based syste	ems and expert system	IS.	
3	Apply AI techniques t	Apply AI techniques to real-world problems to develop intelligent systems.			
4		bility to apply knowledge learning techniques to develop intelligent systems.			
5	Select appropriately fi	om a range of techniques when implementing	intelligent systems	~ ~ ~	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Year/ II	<b>Professional Elective – V</b> 5G and beyond Communications	L:3 T:0P:0		
	Sem	(B22EC55)			
1	Describe the concept	of massive MIMO communications	I		
2	Illustrate mobile wire	ess technology generations and define SMNA	Т		
3	Analyze wireless com	munication channel and channel models for ra	dio wave propagation	1	
4	Understand device to	device (D2D) communication and standardiza	tion		
5		anagement, mobility management and security			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Year/ II	Professional Elective – V	L:3 T:0P:0		
outcome	Sem	Machine learning(B22EC56)			
1		4			
2		the concepts of Neural Networks earning Networks in modeling real world syste	me		
3		ient algorithm for Deep Models			
4		ization strategies for large scale applications			
5		ical models & strategies in machine learning			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Year/ II	Professional Elective – VI	L:3 T:0P:0		
	Sem	Multimedia Database Management			
	Som	Systems(B22EC57)			
1	Gain knowledge of fu	Indamentals of DBMS, database design and no	rmal forms.		
2	Ŭ	el techniques for relational data.			
3		QL for retrieval and management of data.			
4	Be acquainted with the	e basics of transaction processing and concurre	ency control.		
5	Familiarity with datab	ase storage structures and access techniques			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IVYear/ II	<b>Professional Elective – VI</b> System on Chip Architecture	L:3 T:0P:0		
	Sem	(B22EC58)			
1	Expected to understan	d SOC Architectural features.	1	I	
2	· ·	edge on processor selection criteria and limitati	ons		
3	To acquires the knowl	edge of memory architectures on SOC.			
4		erconnection strategies and their customization	n on SOC.		
5		configurations of SOC	No ett.	Credits:3	
Course	Year/Semester	Subject Name (Subject Code) Professional Elective – VI	No. of Hours	Ci cuito.5	
Outcome	IV Year/ II	Wireless sensor Networks(B22EC59)	L:3 T:0P:0		
	Sem				
1	Analyze and compare	various architectures of Wireless Sensor Netw	orks.		
2	Understand Design iss	sues and challenges in wireless sensor network	s		



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3	Understand various routing protocols and MAC protocols.
4	Analyze and compare various data gathering and data dissemination methods.
5	Design, Simulate and Compare the performance of various routing and MAC protocol



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### <u>Course Outcomes for M.Tech–VLSI SYSTEM DESIGN (R22)</u> <u>for the academic year 2022-2023 onwards</u>

			No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code) DIGITAL SYSTEM DESIGN	Hours	Creuits:5
Outcome	I Year/ I Sem	WITH FPGAs (M22VL01)	L:3	
			<b>T:0P:0</b>	
After the com	•	, the students should be able to		
1	-	ign approaches using FPGAs.		
2	· · ·	understanding of Fault models.	• •, • ,•	
3		t pattern generation techniques for f	ault detection.	
4 5	To design fault dia	gnosis in sequential circuits.		
	<b>X</b> 7 (C) (		No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code) CMOS ANALOG IC DESIGN	Hours	Ci cuits.5
Outcome	I Year/ I Sem	(M22VL02)	L:3	
			<b>T:0P:0</b>	
	•	, the students should be able to		
1		ng blocks of CMOS analog ICs.		
2	Carry out the desig references.	n of single and two stage operationa	al amplifiers an	d voltage
3	Determine the devi	ce dimensions of each MOSFETs in	nvolved.	
4	Design various amp	olifiers like differential, current and	operational an	plifiers
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	(Professional Elective I)	Hours	
0		PATTERN RECOGNITION	L:3 T:0P:0	
		AND MACHINE LEARNING (M22VL03)	1.01.0	
After the com	pletion of this course	, the students should be able to		
1		of pattern classes and functionality		
2	Construct the vario	us linear models.		
3	Use the different k	ernel methods.		
4		and Mixed models		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	(Professional Elective I)	Hours	
Outcome	I I cal/ I Sch	CMOS MIXED SIGNAL	L:3	
A fton the com	mlation of this course	DESIGN (M22VL04)	<b>T:0P:0</b>	
Alter the com		, the students should be able to		
2		analog circuits to achieve performar	ice specificatio	ns.
2		based switched capacitor circuits.	• • • • •	
_	0 0	verters and know how to use these		lications
4	<u> </u>	nal circuits with understanding desig		Creaditar 2
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Year/ I Sem	(Professional Elective I) MEMORY TECHNOLOGIES	L:3	
		(M22VL05)	<b>T:0P:0</b>	
After the com	pletion of this course	, the students should be able to		
1	Select architecture	and design semiconductor memory	circuits and su	bsystems.
2		ult models, modes and mechanisms		



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	and theirtesting pro	ocedures.		
3	Know, how of the	state-of-the-art memory chip design		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	Professional Elective II)	Hours	
outcome		COMMUNICATION BUSES	L:3 T:0P:0	
		AND INTERFACES (M22VL06)	1:01:0	
After the com	pletion of this course	, the students should be able to		
1		serial bus suitable for a particular ap	plication	
2		configuration, reading and writing d	1	hus
3	*	peripherals that can be interfaced to		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
		Professional Elective II)	Hours	
Outcome	I Year/ I Sem	ARM MICRO	L:3	
		CONTROLLERS (M22VL07)	<b>T:0P:0</b>	
After the com		, the students should be able to		
1	1	on criteria of ARM processors by un	derstanding th	e functional
	level trade offissue			
2		levelopment towards the functional		
3	Work with ASM le	vel program using the instruction se	et.	
4	Programming the A	ARM Cortex M.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	Professional Elective II)	Hours	
		EMBEDDED REAL TIME	L:3 T:0P:0	
		OPERATING SYSTEMS	1.01.0	
After the com	nlation of this course	(M22VL08) , the students should be able to		
1	Be able to explain			
2	Able describe how			
3				
4	Explain how the re			7 557 1
4	Be able to work w MicroC /OS	ith real time operating systems like		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ I Sem	DIGITAL SYSTEM DESIGN	Hours L:0	
		WITH FPGAs LAB	T:0P:4	
1		(M22VL09)		
1	the specifications.	ications for a digital system, will be ab	le to design the	system meeting
2		code to implement a particular design	/block.	
3		design, meeting the area and delay con		mate the power
	-	consumption.	1	-
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ I Sem	CMOS ANALOG IC DESIGN	Hours L:0	
		LAB	L:0 T:0P:4	
A 64 are 41-	alotion of the	(M22VL10)	T. 11. T	
After the com		, the students should be able to		
2	Design analog Circ	e Cadence, Mentor Graphics and oth	her open source	0
2	software tools like	1 I I I I I I I I I I I I I I I I I I I	ner open sourc	C
Correct			No. of	Credits:2
Course	Year/Semester	Subject Name (Subject Code)	Hours	~~~~~
		RESEARCH	-	



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Outcome	I Year/ I Sem	METHODOLOGY AND IPR (M22VL11)	L:2 T:0P:0		
After the comp	oletion of this course,	the students should be able to			
1	Understand research	h problem formulation.			
2	Analyze research re	elated information			
3	Follow research eth	iics			
4	Understand that too	lay's world is controlled by Comp	uter, Informatio	on Technology,	
	but tomorrowworld	ut tomorrowworld will be ruled by ideas, concept, and creativity.			
5	individuals & nation	t when IPR would take such in on, it is needless to emphasis the ty Right to be promoted amo cular.	e need of info	ormation about	
6	Understand that II research work and i	PR protection provides an incen nvestment in R & D, which leads n brings about, economic growth a	to creation of	new and better	
C	•		No. of	Credits:3	
Course	Year/Semester	Subject Name (Subject Code) VLSI ADVANCED	Hours		
Outcome	I Year/ II Sem	PHYSICAL DESIGN (M22VL12)	L:3 T:0P:0		
After the comp	oletion of this course,	the students should be able to			
1	Design power mesh them.	n for given specifications, analyze I	R drop and EM	I issues and fix	
2	Implement the low	power intent of the design using cu	rrent industry	standard UPF.	
3		design meets the power intent in U			
4		erification both at LVS & DRC leve		sues	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3	
Outcome	I Year/ II Sem	SYSTEM VERILOG TEST BENCHES USING UVM (M22VL13)	Hours L:3 T:0P:0		
After the comp	pletion of this course,	, the students should be able to	1	I	
1		ch programs using system Verilog.			
2	· ·	mulus and SVAs using system Ver			
3	<b>1</b>	st bench with all its features	- 0		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3	
Outcome	I Year/ II Sem	Professional Elective III) IOT ARCHITECTURES AND SYSTEM DESIGN (M22VL14)	Hours L:3 T:0P:0		
After the comp	pletion of this course,	, the students should be able to	J	I	
1		s and actuator depending on the ap	plications		
2	Interface the IoT ar	nd M2M with value chains	•		
3		amming for Arduino, Raspberry Pi	devices		
4		ystems such as Agricultural IoT, V		c.,	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3	
Outcome	I Year/ II Sem	Professional Elective III) SOC DESIGN	Hours L:3 T:0P:0		
	lation of this course	(M22VL15) , the students should be able to	1:01:0		
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2	Design SoC based	system for engineering applications		
3	-	SoC on electronic design philosoph	•	lectronics
	thereby inclinetow	ards entrepreneurship & skill develo	<u>+</u>	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ II Sem	Professional Elective III) DESIGN	Hours L:3	
		FOR TESTABILITY (M22VL16)	T:0P:0	
After the com	letion of this course	, the students should be able to		
1		n knowledge and test evaluation		
2	· · ·	ty rules and techniques.		
3	U U	hitectures for different digital circui	its	
4		edge of design of built-in-self test		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
		Professional Elective IV)	Hours	
Outcome	I Year/ II Sem	DEVICE MODELLING	L:3	
		(M22VL17)	<b>T:0P:0</b>	
After the comp		, the students should be able to		1 0.1
1	Develop a function device that is to be	al relationship among the terminal e	electrical varial	bies of the
2				
3		ior of all components successfully		
4		tion and analyze the VLSI circuits		
		various applications	No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code) Professional Elective IV) RF IC	Hours	Creans.5
Outcome	I Year/ II Sem	DESIGN	L:3	
		(M22VL18)	<b>T:0P:0</b>	
After the comp	oletion of this course	, the students should be able to		
1	Analyze the behavi	or of high frequency components.		
2		ering parameters of various RF com	nponents and a	nalyze the
	various filterparam			
3	· · ·	ent modelling and biasing networks.		
4		RF filters, amplifiers, oscillators and		
Course	Year/Semester	Subject Name (Subject Code) )	No. of Hours	Credits:3
Outcome	I Year/ II Sem	(Professional Elective IV) HARDWARE AND	L:3	
		SOFTWARE CO-DESIGN	T:0P:0	
		(M22VL19)		
After the comp	oletion of this course	, the students should be able to		
1	Acquire the knowle	edge on various models of Co-desig	n.	
2	Explore the interrel	ationship between Hardware and so	oftware in a em	bedded system
3	Acquire the knowle	edge of firmware development proce	ess and tools du	uring Co-
	design.			
4	Implement validation	on methods and adaptability		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	VLSI ADVANCED	Hours L:0	
		PHYSICAL DESIGN LAB (M22VL20)	T:0P:4	
After the com	oletion of this course	, the students should be able to		
1		and post-layout analysis of various	us digital and	analog CMOS
	circuits.	1	G	0
2	Gain hands on Var	rious EDA tools like Cadence / Me	entor Graphics	/ Synopsys or
			- ·r••	J - F - J ~ J ~



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	any other equivaler	nt.		
3	Understand the imp	portance of Layout design rules and	their impact in	n achieving the
	desired specification		1	e
4	Understand the imp	portance of various analyses require	d in integrated	circuit design
	process			
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	SYSTEM VERILOG TEST	Hours	
Outcome		BENCHES USING UVM LAB	L:0	
		(M22VL21)	<b>T:0P:4</b>	
After the comp		, the students should be able to		
1	Ŭ	l verification using System Verilog.		
2		ologies for performing digital circui	t logic verifica	tion.
3	Gain hands on EDA	A playground Simulator	1	
Course	Year/Semester	Subject Name (Subject Code) )	No. of	Credits:3
Outcome	II Year/ I Sem	(Professional Elective V)	Hours	
		ADVANCED COMPUTER	L:3 T:0P:0	
		ARCHITECTURE (M22VL23)	1:01:0	
After the com	letion of this course	, the students should be able to		
1		ruction set, memory addressing of (	Computer	
2			computer	
3		n pipelining and parallelism		
3	Familiarize the pra	ctical issues in inter network		G 14 2
Course	Year/Semester	Subject Name (Subject Code) )	No. of	Credits:3
Outcome	II Year/ I Sem	(Professional Elective V) NANO	Hours L:3	
		MATERIALS AND NANOTECHNOLOGY	T:0P:0	
		(M22VL24)	1.01.0	
After the comp	oletion of this course	, the students should be able to		
1		gineering solutions for current pro	blems and con	npeting
	technologies forfut			1 0
2		nary projects applicable to wide are	eas by clearing	and fixing the
	boundaries in system			
3		owledge of the operation of fabri	cation and cha	racterization
		precisely designed systems	cation and ch	ardeter ization
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
		(Professional Elective V)	Hours	
Outcome	II Year/ I Sem	HARDWARE SECURITY	L:3	
		(M22VL25)	T:0P:0	
After the comp	oletion of this course	, the students should be able to		
1	Design a more secu	re systems by knowing countermea	sures of variou	s hardware
	attacks			
2	Experiment the imp	pressive efficiency of hardware atta	cks	
3		on time or power consumption to re		
4		stems which lead to privilege escala		omise
Course	Year/Semester	<b>Č</b>	No. of	Credits:3
Course		Subject Name (Subject Code) (Open Elective) BUSINESS	Hours	
Outcome	II Year/ I Sem	ANALYTICS	L:3	
		(M22C01)	<b>T:0P:0</b>	
After the com	oletion of this course	, the students should be able to	·	•
meet me comp				
1		ledge of data analytics. bility of think critically in making do		



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	deep analytics.			
3	Demonstrate the ab	ility to use technical skills in predic	ative and prese	criptive
	modeling to support	tbusiness decision-making.		
4	Demonstrate the ab	Demonstrate the ability to translate data into clear, actionable insights		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ I Sem	(Open Elective) OPERATIONS	Hours	
Outcome		RESEARCH	L:3 T:0P:0	
A 64 4]	1.4°	(M22ME03)	1:0P:0	
After the comp		, the students should be able to		
1	variables.	programming to solve problems of	discreet and c	ontinuous
2	Apply the concept	of non-linear programming		
3	Carry out sensitivit	y analysis		
4	*	rld problem and simulate it		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
	i cui/Schiester	(Audit Course) SANSKRIT	Hours	
Outcome		FOR TECHNÍCAL		
		KNOWLEDGE	L:2	
		(M22AC03)	<b>T:0P:0</b>	
After the comp	letion of this course	, the students should be able to		
1	Understanding basi	c Sanskrit language		
2		erature about science & technology	can be underst	tood
3		guage will help to develop logic in s		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course) VALUE	Hours	
Outcome		EDUCATION		
		(M22AC04)	L:2	
			<b>T:0P:0</b>	
After the comp	letion of this course	, the students should be able to		
1	Knowledge of self-	development		
2	Learn the importan	ce of Human values		
3	Developing the over	erall personality		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course)	Hours	
Outcome		CONSTITUTION OF INDIA		
		(M22AC05)	L:2	
			T:0P:0	
After the comp	letion of this course	, the students should be able to		
1		n of the demand for civil rights in	India for the b	oulk of Indians
		Gandhi in Indian politics.		
2		ctual origins of the framework of	argument that	t informed the
		of social reforms leading to revolution	U U	
3	1	nstances surrounding the foundation		gress Socialist
		the leadership of Jawaharlal Nehr		•
	•	ect elections through adult suffrage		
4		e of the Hindu Code Bill of 1956.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
	i car/Semester	(Audit Course) PEDAGOGY		
Outcome		STUDIES	Hours	
		(M22AC06)	L:2	
L		· /	I	l



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			<b>T:0P:0</b>	
After the comp	letion of this course,	, the students should be able to		
1	What pedagogical p	practices are being used by teachers oping countries?	s in formal and	informal
2		ce on the effectiveness of these ped a what population of learners?	agogical practi	ces, in what
3		ucation (curriculum and practicum) ials best support effective pedagogy		curriculum
4	-	practices are being used by teachers		informal
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course) STRESS	Hours	
		MANAGEMENT BY YOGA (M22AC07)	L:2	
		(112211007)	<b>T:0P:0</b>	
After the comp	letion of this course,	, the students should be able to		
1		ledge of data analytics.		
2		ility of think critically in making de	ecisions based	on data and
	deep analytics.			
3		ility to use technical skills in predic	ative and prese	criptive
4		tbusiness decision-making.		
4		ility to translate data into clear, act	<u> </u>	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course) PERSONALITY	Hours	
		DEVELOPMENT THROUGH	L:2	
		LIFE ENLIGHTENMENT SKILLS (M22AC08)	T:0P:0	
After the comp	letion of this course	, the students should be able to		
1		Bhagwad-Geeta will help the stud	dent in develo	ning his
	•	ieve the highest goal in life		Jing ins
2	· · · · ·	s studied Geeta will lead the nation	and mankind to	p peace and
3		akam will help in developing versation	ile personality	of students
4	Study of Shrimad-	Bhagwad-Geeta will help the stud ieve the highest goal in life		



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### <u>Course Outcomes for M.Tech – Power Electronics (43) for</u> <u>the year 2015-16</u>

Course Outcome	Year/Semester I/I Sem	Subject Name (Subject Code) Machine Modelling and Analysis(A943101)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
After the completion	n of this course, the student					
1	Identify the methods and assumptions in modeling of machines.					
2	Recognize the different frames for modeling of AC machines.					
3	Illustrate the voltage and torque equations in state space form for different machines					
4	Develop the mathematical models of various DC machines and derive the transfer function of the DC motor.					
5	Study various transformations adopted in 3 phase machines and explore its starting methods					
6	Analyze the devel	oped models in various reference fra	mes through simu	lation study		
7	Assess the machine dynamics in various operating conditions					
8		uits analysis with d-q model of mach				
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Modern Control Theory (A943102)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
	n of this course, the student					
1	Learn various terms of basic and modern control system for the real time analysis and design of control systems.					
2	Learn the basic m	athematical preliminaries for modeli	ng a control syste	m		
3		ables analysis for any real time syste				
4	Linearize the non-linear system model using various techniques					
5	Apply the concept of optimal control to any system.					
6		for its stability, controllability and c	bservability.			
7				stems.		
8	Implement basic principles and techniques in designing linear control systems. Formulate and solve deterministic optimal control problems in terms of performance indices.					
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) Power Electronic Devices and Circuits (A943103)	L: 4 T: 0 P: 0 Total: 4	Credits: 4		
After the completio	n of this course, the student		•	•		
1	Understand the characteristics and principle of operation of modern power electronics devices.					
2	Compare the features of various power electronic devices					
3	Comprehend the concepts of different power converters and their application					
4	Explore various driver circuits and its heat management system					
5	<b>X</b>	f source and load inductance on the		n		
6		gn the switched mode regulator for va				
7				rr noution		
8	Explore various power factor improvement controllers Use power electronic simulation packages for analysing and designing power converters					
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4		



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Outcome	I/I Sem	Special Machines (A943104)	Total: 4			
After the completio	n of this course, the student		1 .1 1 0	. 1 0		
1	Learn the constructional features, principle of operation and methods of control of stepper motor.					
2	Realize the need for stepper motors and the various applications in industries.					
	Explore various hybrid stepping motor					
2		of the operational characteristics and	the applications	of Switched		
3	Reluctance Motor.					
	Know the various types of PMBLDC motors, rotor position sensors, methods of					
4	control and their applications					
5	Get a clear idea of the features, control and the applications of PMSM					
	Explore the concept of linear induction motor and develop a double sided LIM from					
6	rotory induction motor					
7		ctional details of permanent magnet as	xial flux machine	es (PMAF)		
8		ations of various special machines in				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4		
Outcome	I/I Sem	HVDC Transmission (A943105)	0 Total: 4			
	n of this course, the student	s should be able to	0 100000 1			
1		ower handling capabilities of HVDC	lines			
2	Explore various configurations and conversion principles of static power					
_	converters					
3	Learn the rectifier and inverter operations, commutation process at converter					
-	stations.					
4	Apply AC/DC filt	ters for harmonic elimination in HVD	C link			
5	Explore various c	ontrols adapted in HVDC converters				
6		nstability problems in HV AC and DC	C system			
7		er voltage problems in multi-terminal				
8		ous converter faults and protection cir				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4		
Outcome	I/I Sem	Programmable Logic Controllers	0 Total: 4			
		and their Applications (A943106)				
	n of this course, the student					
1	Gain Comprehensive knowledge of using advanced controllers in measurement and					
	control instrumentation.					
2	Illustrate about data acquisition - process of collecting information from field					
	instruments.					
3	Analyze Programmable Logic Controller (PLC), IO Modules and internal features.					
4	Comprehend Programming in Ladder Logic, addressing of I/O.					
5	Apply PID and its Tuning.					
6		gic programming for simple process				
7		nd test programs developed for digital	<u> </u>			
8	Reproduce block	diagram representation on industrial a		g PLC		
	<b>X</b> 7 / / / / / / /	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4		
Course	Year / semester			Cicuits.		
Course Outcome	Year / semester I/I Sem	Microcontrollers and Applications (A943107)	0 Total: 4			



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1	Relate the basic ar	chitecture and addressing modes of a	microcontroller.			
2		guish types of computers & microcontrollers and explain the principles of top				
_	down design to microcontroller software development					
3	Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit					
-		assembly language code for high-level				
	IF-THENELSE and DO-WHILE					
4	Analyze a typical I/O interface and to discuss timing issues					
5	Develop Real time Applications of Microcontrollers & Demonstrate RTOS for					
	Microcontrollers.					
6	Translate Hardware applications using Microcontrollers.					
7	Gain working knowledge of ports and interrupts					
8	Introduce the need and use of interrupt structure, timers in respective applications					
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4		
Outcome	I/I Sem	Embedded Systems (A943108)	0 Total: 4			
After the completio	n of this course, the student					
1		sics of an embedded system				
2		sues in embedded software developme	**			
3	Learn the method	of designing an embedded system for	any type of appl	lications		
4	Understand the operating systems concepts, types and choosing RTOS					
5	Design, implemen	t and test an embedded system				
6	Understand types	of memory and interacting to external	world			
7		irmware design approaches				
8	Use ICE and softw	vare tools to address the issues in embe	edded systems			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4		
Outcome	I/I Sem	Digital Control Systems (A943109)	0 Total: 4			
		s should be able to				
	n of this course, the student		1 •			
1	Deduce the contro	l system to block diagram for various				
1 2	Deduce the contro Acquire a strong f	l system to block diagram for various oundation in sampling and reconstruct	tion Z-transform			
1	Deduce the contro Acquire a strong f Apply knowledge	l system to block diagram for various	tion Z-transform			
1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems.	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c	tion Z-transform			
1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms.	tion Z-transform liscrete time con			
$ \begin{array}{r} 1\\ 2\\ 3\\ \hline 4\\ 5\\ \hline \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co	tion Z-transform liscrete time con ntrol system.			
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       6       \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont	tion Z-transform liscrete time con ntrol system.			
$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       7 \\       7       \end{array} $	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers	tion Z-transform liscrete time con ntrol system. trol systems			
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol		
1 2 3 4 5 6 7 8 <b>Course</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus, bode and Subject Name (Subject Code)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:	trol		
1 2 3 4 5 6 7 8	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots	trol		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b>	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P:	trol		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110)	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4	trol		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b>	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system <b>Year / semester</b> <b>I/I Sem</b> n of this course, the student Study the need of	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to	tion Z-transform liscrete time con ntrol system. trol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems	trol		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues	trol Credits: 4		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique	tion Z-transform liscrete time con ntrol system. rol systems Nyquist plots L: 4 T: 0 P: 0 Total: 4 problems ues constrained case	trol Credits: 4		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> After the completio 1 2 3	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s		
1 2 3 4 5 6 7 8 <b>Course</b> <b>Outcome</b> 1 2 3 4	Deduce the contro Acquire a strong f Apply knowledge systems. Know sampling an Replace the conve Evaluate to Apply Apply state feedba Analyse the system Year / semester I/I Sem n of this course, the student Study the need of Learn the convent Learn to formulate Explore various m	l system to block diagram for various oundation in sampling and reconstruct of mathematics, Z-plane analysis to c nd reconstruction, Z -transforms. ntional control system with Digital co Z-plane analysis of discrete time cont ack controllers and observers n stability using root locus , bode and Subject Name (Subject Code) Optimization Techniques (A943110) s should be able to optimisation in electrical engineering ional or classical optimisation technique e the problem with constrained and un- odern intelligent optimisation technique iques to real world problems such as t	tion Z-transform liscrete time con ntrol system. trol systems L: 4 T: 0 P: 0 Total: 4 problems ues constrained case ues	trol Credits: 4 s		



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7	Apply methods of	sensitivity analysis and validate post	processing resul	ts
8		al time optimization problems.	1 0	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem	Digital control systems (A943111)	0 Total: 4	
	on of this course, the student	s should be able to	0 200000	
1	Deduce the control	l system to block diagram for various	analysis	
2		oundation in sampling and reconstruc		IS.
3		of mathematics, Z-plane analysis to		
	systems.			
4	Know sampling an	nd reconstruction, Z -transforms.		
5	Replace the conve	ntional control system with Digital co	ontrol system.	
6	Evaluate to Apply	Z-plane analysis of discrete time con	trol systems	
7		ack controllers and observers	•	
8		n stability using root locus, bode and	l Nyquist plots	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem	Renewable energy systems	0 Total: 4	
		(A943112)		
After the completion	n of this course, the student		lastrical anargy	
2	-	enewable energy sources to produce el		actions
		eristics of PV cell- photo voltaic modu		
3 4		f wind energy conversion systems and		
4	_	Vave energy conversion machines - O	cean Thermal Er	lergy
~	conversion schem		1 1 6 1	11
5		hybrid energy systems such as geothe		ells
6		of various renewable energy sources of		
7		nergy and to avoid the environmental	pollution	
8		mental effects of energy conversion		
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P: 0 Total: 4	Credits: 4
	on of this course, the student		0 10tal. 4	
1		ower handling capabilities of HVDC	lines	
2	Explore various			static power
	converters	······································	rk	F
3	Learn the rectifi	er and inverter operations, commu	itation process	at converter
	stations.			
4	Apply AC/DC file	ters for harmonic elimination in HVD	C link	
5	Explore various c	ontrols adapted in HVDC converters		
6	Identify various in	nstability problems in HV AC and DC	C system	
7	Study various ove	er voltage problems in multi-terminal	DC system	
8		ous converter faults and protection cir		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Analysis of Power Electronic Converters (A943114)	Total: 4	
After the completio	on of this course, the student			
1		characteristics and principle of or	peration of mo	dern power
_	semiconductor de			1
	semiconductor de			



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	a 1 1 1	6 1:00	1.1	
2		oncepts of different power converter	* *	
3	-	ortance of AC voltage controllers an	d cyclo-converte	rs for various
	industrial applicat			
4		n switched mode power electronic c	onverters for vari	ous
	industrial applicat			
5		th modulated inverters which are us		ed drives
6		e device for a particular converter to	<u> </u>	
7	-	conic simulation packages for ana	lyzing and desi	gning power
	converters.			
8		te power converter topologies and	design the powe	er stage and
		ers for various applications		
Course	Year / semester	Subject Name (Subject Code) Embedded Systems (A943115)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	-	Total: 4	
	n of this course, the student			
1		sics of an embedded system		·
2	<u>.</u>	sues in embedded software develop	11	
3		of designing an embedded system for		lications
4	-	erating systems concepts, types and	choosing RIOS	
5	<b>U</b> 1	t and test an embedded system	1 11	
6		of memory and interacting to extern	al world	
7		irmware design approaches		
8		vare tools to address the issues in em		
Course	Year / semester	Subject Name (Subject Code) Power Converters Simulation Lab	L: 0 T: 0 P: 4	Credits:4
Outcome	I/I Sem	(A943116)	Total:4	
After the completio	n of this course, the student			
1	Able to simulate f	ull converter circuits for various type	es of loading	
2	Acquire programm	ning knowledge to study the systems	s dynamics in stat	e space
	model			
3	Able to assess the	frequency response of the system		
4	Analyse the system	n stability and PID controller application	ation for steady st	ate system
	operation.			
Course	operation. Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4
Course Outcome		Seminar-I (A943117)	L: 0 T: 0 P: 4 Total:4	Credits:4
	Year / semester	Seminar-I (A943117) Subject Name (Subject Code)	Total:4	Credits:4 T: 0 P: 0 C:
Outcome Course Outcome	Year / semester I/I Sem Year/Semester I/II Sem	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943	Total:4	
Outcome Course Outcome After the completio	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to	Total:4           3201)         L: 4           4	
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics device	Total:4         3201)       L: 4         4         ess.	
Outcome Course Outcome After the completio 1 2	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to is advanced power electronics deviced lvanced modulation techniques and	Total:43201)L: 44es.its applications	T: 0 P: 0 C:
Outcome Course Outcome After the completio 1	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced lyanced modulation techniques and ration of multi-level inverters with	Total:43201)L: 44es.its applications	T: 0 P: 0 C:
Outcome Course Outcome After the completio 1 2 3	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A942) s should be able to is advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with S.	Total:43201)L: 44es.its applicationsswitching strate	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to as advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with s. lesign of resonant converters and sw	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5 6	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the open power application Comprehend the d Gain knowledge o Develop and analy	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A94: s should be able to as advanced power electronics deviced dvanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu vze various converter topologies.	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high
Outcome Course Outcome After the completio 1 2 3 4 5	Year / semester I/I Sem Year/Semester I/II Sem n of this course, the student Understand variou Explore various ac Describe the oper power application Comprehend the d Gain knowledge o Develop and analy Design AC or DC	Seminar-I (A943117) Subject Name (Subject Code) Power Electronic Converters (A943 s should be able to a advanced power electronics deviced la advanced modulation techniques and ration of multi-level inverters with s. esign of resonant converters and sw n various topologies converter circu	Total:43201)L: 44es.its applicationsswitching strateitched mode pow	T: 0 P: 0 C: gies for high



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Course	Year / semester	Subject Name (Subject Code) Power Electronic Control of DC Drives	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	(A943202)	4
After the completion	on of this course, the student		
1	Learn basic prelin	ninary requirements for operating DC drives	
2	_	ectifier fed DC drives	
3	Study the continue	ous and discontinuous modes of operation of s	single phase semi
	and full converter	for DC drives	
4	Study the continue	ous and discontinuous modes of operation of t	hree phase semi and
	full converter for		-
5	Perform steady sta	ate analysis of three phase converter controlled	DC motor drive
6		urrent and speed controllers	
7	Perform steady sta	ate analysis of chopper controlled DC motor dr	rive
8		mics of speed controlled DC motor drives	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Electronic Control of AC Drives	4
		(A943203)	
After the completio	on of this course, the student		11 0
1	_	orque characteristics variable voltage and varia	ble frequency
2	operation	<u> </u>	11 1 1
2	• •	on of induction motor in constant torque and fie	eld weakening
2	regions		
3		ator side controls employed for induction drive	2S
4		l flux control in current fed inverter drive	
5		ency of the drive by applying optimization co	
6		es of vector control methods in rotor of induct	
7		s speed control schemes in synchronous motor	
8	~	eristics and control of variable reluctance moto	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Quality (A943204)	4
After the completio	on of this course, the student		•
1		t terms and concepts of electric power quality	in power systems.
2	-	opplications of non-linear load.	1
3	· · ·	y the difference between system failures, outag	ge and interruptions
4		ort and long interruptions	
5		calculate the magnitude the single and three p	hases Voltage sag in
	the system		
6		gate the power quality problems	
7		oplication of FACTS device on DG side.	
8		t characteristics of electric power quality in po	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0
Outcome	I/II Sem	Advanced Digital Signal Processing	C:3
After the completion	on of this course, the student	(A943205)	
1		tal knowledge of analysing and processing of	digital systems
2		ship between continuous time and discrete tim	
<i>L</i>	systems	sing between continuous time and discrete time	o signais and
	systems		



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5 6 Course	Understand dynan Year / semester I/II Sem	nic modeling of electrical machines Subject Name (Subject Code) Instrumentation & Control (A943210)	L: 3 T: 0 P: 0 C:
	Understand dynan		
5		· · · · · · · · · · · · · · · · · · ·	
_	Understand behav	ior of electrical machines under steady state an	d transient state.
	characteristics.	-	
4		basic mathematical analysis of electrical	
3	0	e's equation solution of Electro dynamical equa	ations.
2		modeling of all electrical machines	
1		e theory of all types of machines	
	n of this course, the student	-	~
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
6	- U	ted inductors and self capacitance for high freq	mency applications
5		mers for fly-back converters in CCM	
4		y stored in coupled inductors of transformers	
3		effects that exists the round conductor carrying	AC currents
2		rties of magnetic core materials	
1		entals of magnetic devices	
After the completie	n of this course, the student	(A943208)	
Outcome	I/II Sem	High-Frequency Magnetic Components	3
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
6	Explore the conce	pt of UPFC and its application.	
5	Learn various seri	es compensators such as TCSC, TSSC	
4	Learn various shu	nt compensation using SVC and STATCOM	
3	Study the impact of	of FACTS devices in the power flow in the AC	system
2	Learn various con	verters employed for FACTS controllers	
1		s and types of FACTS controllers	
After the completio	n of this course, the student		
Outcome	I/II Sem	(A943207)	3
Course	Year / semester	Subject Name (Subject Code) Flexible AC Transmission Systems	L: 3 T: 0 P: 0 C:
6		rious protection aspects for the converters.	
5		ect of Electromagnetic interference (EMI).	
4		nent practical circuits for UPS, SMPS.	
3	Explore various co		
2		esign considerations.	
1		oncepts of power electronics for designing conv	verters.
After the completio	n of this course, the student		
Outcome	I/II Sem	(A943206)	3
Course	Year / semester	Subject Name (Subject Code) Switched Mode Power Supplies (SMPS)	L: 3 T: 0 P: 0 C:
6	_	th FFT algorithms, multi-rate signal processing	-
5		vorld signal processing applications	
4		ligital filters form analysis to synthesis	
	interrelationships.		
	1	entals of time, frequency and Z-Plane analysis	



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After the completio	n of this course, the student	s should be able to	
1		ethods of power generation	
2		portance of instrumentation in power genera	tion
3		easuring and supervising systems involved in	
5		boiler and turbine units	n thormal power plant
4		is controls employed in boiler	
5		prature and pressure controls in turbine	
6	· · ·		
		power plant instrumentation Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Course	Year / semester	Intelligent Control (A943211)	
Outcome	I/II Sem n of this course, the student		3
1		ture of Intelligent control	
2		tificial neural network and its mathematical n	nodel
$\frac{2}{3}$		neural network with various configurations.	liouei
4		orithm for various optimisation problems	
5		l different system with fuzzy logic controller	<b>T</b> 11
6		ower system problem and apply GA, NN and	
Course	Year / semester	Subject Name (Subject Code) Smart grid technologies (A943212)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem		3
After the completio	n of this course, the student		
1	conditions.	re of an electricity market in either regulated	or deregulated marke
2	Understand the a distribution	advantages of DC distribution and develo	ping technologies ir
3	Discriminate the system.	trade-off between economics and reliability	of an electric power
4	Differentiate varie	ous investment options (e.g. generation cap d-side resources, etc) in electricity markets.	pacities, transmission
5		opment of smart and intelligent domestic sys	tems
6		e of an electricity market in either regulated	
-	conditions.		
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) AI Techniques in Electrical Engineering (A943213)	L: 3 T: 0 P: 0 C: 3
After the completio	n of this course, the student		
1	Ŭ	on soft computing techniques such as artificia	I neural networks,
	Fuzzy logic and ge	· · ·	
2		s of feed forward neural networks and feedba	
3	-	f fuzziness involved in various systems and correctly logic control and to design the fuzzy rules	omprehensive
4		knowledge on genetic algorithm including	three genetic
5	<u> </u>	ower system problems which can utilize these	AI techniques
		bility using AI techniques	
6	ASSESS SYSTEM Star		
6 Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:



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1	To identify the gen building	neration system model and recursive relation	for capacitive model
2	0	valent transitional rates, cumulative probabili	ty and cumulative
3	Evaluate cumulat	ive probability and cumulative frequency of and merging generation and load	non-identical
4	Distinguish variou generation reserve	s approaches to evaluate operating reserves	and bulk power
5	Analyse the reliab	ility indices on radial and weakly meshed dis	stribution networks
6		f short circuits in substation and switching sta	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Energy Auditing, Conservation & Management (A943215)	L: 3 T: 0 P: 0 C: 3
After the completion	on of this course, the student		
1		y of conservation of energy	
2		thods of energy management	
3	Illustrate the facto	rs to increase the efficiency of electrical equi	ipment
4	Detect the benefits	s of carrying out energy audits.	
5	Analyze the powe	r factor and to design a good illumination sys	stem
6	Determine pay bac	ck periods for energy saving equipment.	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power Converters and Drives Lab (A943216)	L: 0 T: 0 P: 4 C: 2
After the completion	on of this course, the student		
1	Learn basic speed	measurement and implement closed loop co	ntrol in PMDC motor
2	Experience the im conventional contri	proved control of thyristor drive for PMDC rol	motor over
3	Learn to generate	PWM signals using DSP	
4		er controls for solar PV systems	
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Seminar-II (A943217)	L: 0 T: 0 P: 4 C:2
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code) Comprehensive Viva-Voce (A943301)	L: 0 T: 0 P: 0 C:4



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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### <u>Course outcomes for M.Tech – Power System Automation and</u> <u>Control (45) for the year 2015-16</u>

Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Power System Analysis (A953101)	3
	n of this course, the student	s should be able to	5
1		ds and assumptions in modeling of machines.	
2		ferent frames for modeling of AC machines.	
3		ge and torque equations in state space form for c	lifferent machines
4		hematical models of various machines like, ir	
	-	hines using modeling equations.	
5		oped models in various reference frames	
6		e dynamics in various operating conditions	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Power System Protection (A953102)	3
After the completio	n of this course, the student	s should be able to	
1	Understand the ba	sic function of a circuit breaker, all kinds of circ	uit breakers and
	relays		
2		and circuit breakers under fault condition	
3	Learn construction	hal details of static relays and importance of dual	ity of comparators
	in them.		
4		n of static relay applied for over current protecti	
5	Able to apply stati	ic relay for transformer and transmission line pre-	otection
6	Basic principle of	operation and application of microprocessor bas	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Modern Control Theory (A953103)	4
After the completio	n of this course, the student		1
1		basic and modern control system for the rea	I time analysis and
	design of control		
2		variables analysis for any real time system.	
3		t of optimal control to any system.	
4		a system for its stability, controllability and obse	· ·
5		principles and techniques in designing linear con	-
6		lve deterministic optimal control problems in te	rms of performance
	indices.	Cubicat Name (Cubicat Code)	
Course	Year / semester	Subject Name (Subject Code) EHV AC Transmission (A953104)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem		4
After the completio	n of this course, the student		Francomission
2	•	ent aspects of Extra High Voltage A.C and D.C.	
2		AC transmission system components, protectio	ii and insulation
2	level for over volt	0	nainaanina
3		stical procedures for line designs, scientific and e	engineering
A	Principles in powe		
4	Power Frequency	Voltage control and over-voltages in EHV lines	



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5	Study the concept	of Corona in E.H.V. lines and impact of RI in E	HV lines
6		cables and study their charcteristics	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0
Outcome	I/I Sem	High Voltage Engineering (A953105)	C:3
	on of this course, the student		0.0
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Digital Signal Processing	3
outcome		(A953106)	
After the completic	on of this course, the student		•
1		nderstanding of using advanced controllers in me	easurement and
	control instrument		
2	Illustrate about da	ata acquisition - process of collecting informatio	n from field
	instruments.		
3	Analyze Program	mable Logic Controller (PLC), IO Modules and	internal features.
4	Comprehend Prog	gramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its	s Tuning.	
6	Development of la	adder logic programming for simple process	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Power Quality (A953107)	4
After the completic	on of this course, the student		
1	To relate the basic	e architecture and addressing modes of a microco	ontroller.
2	Distinguish types	of computers & microcontrollers and explain the	e principles of top
	down design to m	icrocontroller software development	
3	demonstrate assen	nbly language programs for the 8-bit, 16-bit and	l 32-bit
	Microcontroller, assembly language code for high-level language structures such as		
	IF-THENELSE ar	nd DO-WHILE	
4			
4 5	analyze a typical I	/O interface and to discuss timing issues	te RTOS for
	analyze a typical I		te RTOS for
	analyze a typical I Develop Real time Microcontrollers.	VO interface and to discuss timing issues e Applications of Microcontrollers & Demonstra	te RTOS for
5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	/O interface and to discuss timing issues	
5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b>	O interface and to discuss timing issues Applications of Microcontrollers & Demonstra re applications using Microcontrollers.	L: 3 T: 0 P: 0 C:
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>	
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcomplexity</li> </ul>	L: 3 T: 0 P: 0 C: 3
5 6 Course Outcome After the completio 1	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to mi	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>es should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 6 Course Outcome After the completion 1 2	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit
5 Course Outcome After the completion 1 2 3 4	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem of this course, the student To relate the basic Distinguish types down design to mid demonstrate assen Microcontroller, a IF-THENELSE an analyze a typical I	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3	analyze a typical I Develop Real time Microcontrollers. Translate Hardwar Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to midemonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>is should be able to</li> <li>e architecture and addressing modes of a microcolor of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>nbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3 4 5	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assen Microcontroller, a IF-THENELSE ar analyze a typical I Develop Real time Microcontrollers.	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as
5 6 Course Outcome After the completion 1 2 3 4 5 6	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative</li> <li>re applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcontroller software development</li> <li>moly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for
5 6 Course Outcome After the completion 1 2 3 4 5 6 Course	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester I/I Sem of this course, the student To relate the basic Distinguish types down design to m demonstrate assem Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa Year / semester	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>architecture and addressing modes of a microcontroller software development</li> <li>and applications for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for L: 3 T: 0 P: 0 C:
5 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	analyze a typical I Develop Real time Microcontrollers. Translate Hardwa <b>Year / semester</b> I/I Sem on of this course, the student To relate the basic Distinguish types down design to mi demonstrate assen Microcontroller, a IF-THENELSE at analyze a typical I Develop Real time Microcontrollers. Translate Hardwa	<ul> <li>/O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications using Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Microcontrollers and applications (A953108)</li> <li>as should be able to</li> <li>c architecture and addressing modes of a microcol of computers &amp; microcontrollers and explain the icrocontroller software development</li> <li>mbly language programs for the 8-bit, 16-bit and assembly language code for high-level language and DO-WHILE</li> <li>//O interface and to discuss timing issues</li> <li>e Applications of Microcontrollers &amp; Demonstrative applications of Microcontrollers.</li> <li>Subject Name (Subject Code)</li> <li>Distribution Automation (A953109)</li> </ul>	L: 3 T: 0 P: 0 C: 3 ontroller. e principles of top 1 32-bit structures such as tte RTOS for



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<u> </u>		hybrid energy systems such as geothermal and f of various renewable energy sources on environr	
5	Know the need of	hybrid energy systems such as geothermal and f	uel cells
	conversion scheme		
4		ave energy conversion machines - Ocean Thern	
3		f wind energy conversion systems and bio-mass	
2		pristics of PV cell- photo voltaic modules and its	
1		enewable energy sources to produce electrical en	ergy
Outcome	I/I Sem on of this course, the student		3
Course	Year / semester	Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:
6		Z-plane analysis of discrete time control system Subject Name (Subject Code)	
5		ntional control system with Digital control syste	
4		nd reconstruction, Z -transforms.	
3		e of mathematics, Z-plane analysis to discrete tin	ie control systems.
2		oundation in sampling and reconstruction Z-tran	
$\frac{1}{2}$		l system to block diagram for various analysis	oforma
	on of this course, the student		
Outcome	I/I Sem	Digital control systems (A953111)	3
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
6		tations in these techniques	
	travelling salesma		
5		iques to real world problems such as transportation	on problem,
4	-	odern intelligent optimisation techniques	
3	Learn to formulate the problem with constrained and unconstrained cases		
2		ional or classical optimisation techniques	
1		optimisation in electrical engineering problems	
After the completion	on of this course, the student		
Outcome	I/I Sem	Optimization Techniques (A953110)	4
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
6		schemes of distribution automation and substati	
5	Learn the architecture of PLC and its application in power system automation		
4		nce of EMS in power system operation.	
	Learn to implement	nt power system automation and protection using	g SCADA.
3	Classify various p		



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After the completio	on of this course, the student	s should be able to	
1	Understand the	characteristics and principle of operation	of modern power
	semiconductor de	vices.	_
2	Comprehend the c	concepts of different power converters and their a	pplications
3		an switched mode regulators for various industria	
4		rious converter topologies	11
5	Ŭ	te device for a particular converter topology.	
6		ronic simulation packages for analyzing and	designing power
0	converters.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Embedded Systems (A953115)	3
	on of this course, the student	s should be able to	0
1		sics of an embedded system	
2		of designing an embedded system for any type o	f applications
3		perating systems concepts, types and choosing RT	11
4		it and test an embedded system	
5		of memory and interacting to external world	
6	• •	irmware design approaches	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:
	I/I Sem	Power Systems Lab-I (A953116)	
Outcome	n of this course, the student	-	2
1		ate the symmetrical and unsymmetrical fault in the	e generator
2		ti effect in the transmission line and implement f	-
2		t operation by constructing the circuits	ecuci protection
3			voltage condition
4		on various static relays for over current and over	
		rential protection of transformer for external and Subject Name (Subject Code)	
Course	Year/Semester	Power System Dynamics (A953201)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem		3
1		f system dynamics and able to analyse steady sta	te stability and
T	transient stability	r system dynamics and dole to analyse steady sta	at stating and
2	2	chronous machine to analyse steady state operat	ion analyse its
2	dynamics of opera		ion analyse us
3		on system analyse the dynamics of the synchron	oue machina
3	connected to infin		ous machine
1			
4		l signal stability of the system using Routh's Hu	witz criterion
5		PSS in control signals	•.1 •
6	Dynamic compense without PSS.	sator analysis of single machine infinite bus syste	em with and
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Flexible AC Transmission Systems (FACTS)	4
		(A953202)	
	on of this course, the student		
1		s and types of FACTS controllers	
2	Learn various con	verters employed for FACTS controllers	
3		of FACTS devices in the power flow in the AC s	



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4	Learn various shu	nt compensation using SVC and STATCOM	
5		es compensators such as TCSC, TSSC	
6		pt of UPFC and its application.	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power System Operation and Deregulation	4
		(A953203)	-
	n of this course, the student		1 . 1 1
1		wledge on restructuring of power industry and r	
2	1 0	on fundamental concepts of congestion manage	ement
3		ious ancillary service providers	
4		nternational Transmission pricing paradigms	
5		k of Indian power sector and its initiatives	
6	The reforms in Inc	lian power sector	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Gas Insulated Systems(GIS) (A953204)	4
	n of this course, the student	s should be able to Subject Name (Subject Code)	L: 4 T: 0 P: 0
Course	Year / semester	Programmable Logic Controllers and their	
Outcome	I/II Sem	Applications (A953205)	C:4
After the completio	n of this course, the student		
1	Gain Comprehens	ive knowledge of using advanced controllers in	measurement and
	control instrument	ation.	
2	Illustrate about da	ata acquisition - process of collecting informatio	on from field
	instruments.		
3	Analyze Programm	nable Logic Controller (PLC), IO Modules and	internal features.
4	Comprehend Prog	ramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its	s Tuning.	
6	Develop ladder log	gic programming for simple process	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	High frequency magnetic components	3
<u> </u>		(A953206)	
After the completio	n of this course, the student	entals of magnetic devices	
2		rties of magnetic core materials	
3		effects that exists the round conductor carrying	AC currents
4		y stored in coupled inductors of transformers	AC currents
5	-	mers for fly-back converters in CCM	
	-	•	ionay applications
<u>6</u>	Year / semester	ted inductors and self capacitance for high frequencies (Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Course		Reactive Power Compensation and	
Outcome	I/II Sem	Management (A953207)	4
After the completio	n of this course, the student		
1	Identify the necess	sity of reactive power compensation	
2	Describe load com		
3	Select various type	es of reactive power compensation in transmissi	on systems
4	Characterize distri	bution side and utility side reactive power.	



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6	Detect reactive po	wer compensation techniques & their practical in	mportance
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Power System Reliability (A953208)	L: 3 T: 0 P: 0 C: 3
After the completio	n of this course, the student		
1	To identify the get	neration system model and recursive relation for	capacitive model
	building		
2	calculate the equiv	valent transitional rates, cumulative probability a	nd cumulative
	frequency		
3	Evaluate cumulat	ive probability and cumulative frequency of non	-identical
	generating units an	nd merging generation and load	
4	Distinguish variou	is approaches to evaluate operating reserves and	bulk power
	generation reserve		-
5	Analyse the reliab	ility indices on radial and weakly meshed distrib	oution networks
6		f short circuits in substation and switching station	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Voltage Stability (A953209)	3
	n of this course, the student	s should be able to	U
1		sity of reactive power compensation	
2	Describe load con		
3		es of reactive power compensation in transmission	on systems
4		bution side and utility side reactive power.	511 0 9 000 1110
5		related to power system stability and control.	
6		wer compensation techniques & their practical i	mnortance
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Instrumentation & Control (A953210)	
After the completio	n of this course, the student		
	с ·		
1		ethods of power generation	
1 2	Understand the im	portance of instrumentation in power generation	
1	Understand the im Explore various m	portance of instrumentation in power generation easuring and supervising systems involved in th	
1 2 3	Understand the im Explore various m processes such as	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units	
1 2 3 4	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler	
1 2 3	Understand the im Explore various m processes such as Understand variou	portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units	
1 2 3 4	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation	
1 2 3 4 5	Understand the im Explore various m processes such as Understand variou Explore the tempe	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	ermal power plant
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$     \begin{array}{r}       1 \\       2 \\       3 \\       4 \\       5 \\       6 \\       Course \\       Outcome \\       After the completioo \\       1 \\       2 \\       3 \\       4 \\       5 \\       5   \end{array} $	Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architec Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	portance of instrumentation in power generation easuring and supervising systems involved in th boiler and turbine units is controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) s should be able to ture of Intelligent control tificial neural network and its mathematical mod neural network with various configurations. Drithm for various optimisation problems I different system with fuzzy logic controller ower system problem and apply GA, NN and Fu	ermal power plant L: 3 T: 0 P: 0 C: 3 el



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6 Course	Year / semester	Subject Name (Subject Code) Power Systems Lab-II (A953216)	L: 0 T: 0 P: 4 C:		
6	Determine Dav Da				
	Determine pay back periods for energy saving equipment.				
5	Analyze the power factor and to design a good illumination system				
4	Detect the benefits of carrying out energy audits.				
3	Illustrate the factors to increase the efficiency of electrical equipment				
2	Generalize the methods of energy management				
1		ty of conservation of energy			
After the completio	n of this course, the student				
Outcome	I/II Sem	Management (A953215)	3		
Course	Year / semester	Energy Auditing, Conservation &	L: 3 T: 0 P: 0 C:		
6	Study the effect of short circuits in substation and switching stations.         Vear / semester       Subject Name (Subject Code)         I · 3 T· 0 P· 0 C·				
	Analyse the reliability indices on radial and weakly meshed distribution networks				
5	generation reserve				
4					
4	Distinguish various approaches to evaluate operating reserves and bulk power				
3	generating units and merging generation and load				
3	Evaluate cumulative probability and cumulative frequency of non-identical				
Ĺ	frequency				
2	calculate the equivalent transitional rates, cumulative probability and cumulative				
	building				
Alter the completion	on of this course, the students should be able to To identify the generation system model and recursive relation for capacitive mo				
Outcome	I/II Sem		3		
Course	Year / semester	Reliability Engineering (A953214)	L: 3 T: 0 P: 0 C: 3		
	Assess system stability using AI techniques         Vear / semester       Subject Name (Subject Code)         L: 3 T: 0 P: 0 C:				
<u> </u>	Explore various power system problems which can utilize these AI techniques				
5					
4	Acquire complete knowledge on genetic algorithm including three genetic operators				
3	knowledge of fuzzy logic control and to design the fuzzy rules				
	Get the concept of fuzziness involved in various systems and comprehensive				
2	Learn the concepts of feed forward neural networks and feedback neural networks.				
1	Fuzzy logic and genetic Algorithms.				
	Gain knowledge on soft computing techniques such as artificial neural networks,				
After the completio	n of this course, the student		<u> </u>		
Outcome	I/II Sem	(A953213)	3		
Course	Year / semester	AI Techniques in Electrical Engineering	L: 3 T: 0 P: 0 C:		
	conditions.         Vear / semester       Subject Name (Subject Code)         L: 3 T: 0 P: 0 C:				
6	Recite the structure of an electricity market in either regulated or deregulated market				
5	Analyze the development of smart and intelligent domestic systems.				
	renewable, demand-side resources, etc) in electricity markets.				
4	Differentiate various investment options (e.g. generation capacities, transmission,				
	system.				
3	Discriminate the trade-off between economics and reliability of an electric power				
	distribution				
	Understand the advantages of DC distribution and developing technologies in				
2	Understand the	advantages of DC distribution and develop	100 10000000000000000000000000000000000		



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Outcome	I/II Sem		2		
After the completion of this course, the students should be able to					
1	Study the characteristics of microprocessor based relays				
2	Able to protect the feeder from faulty condition using over current relay operation				
3	Study the Characteristics of IDMT Electromagnetic Over Current Relay				
4	Study the phase failure and phase reversal protection with static negative sequence relay				
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Seminar-II (A953217)	L: 0 T: 0 P: 4 C:2		