

VAAGDEVI COLLEGE OF ENGINEERING

Autonomous

Approved by AICTE & Affiliatied to JNTUH, Hyderabad Bollikunta, Warangal - 506 005 (Telangana State)

PO's of Department of Civil Engineering

The following program outcomes are expected to be found in the graduate students on their completion of the 4-year program.

- PO-1: Engineering Knowledge: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- PO-2: Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO-3: Design / Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
- PO-4: Conduct Investigations of Complex Problems: Use research-based knowledge and research
 methods including design of experiments, analysis and interpretation of data, and synthesis of the
 information to provide valid conclusions.
- PO-5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern
 engineering and IT tools including prediction and modeling to complex engineering activities with an
 understanding of the limitations.
- PO-6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO-7: Environment and Sustainability: Understand the impact of the professional engineering solutions
 in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable
 development.
- PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms
 of the engineering practice.
- PO-9: Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO-10: Communication: Communicate effectively on complex engineering activities with the
 engineering community and with the society at large, such as, being able to comprehend and write
 effective reports and design documentation, make effective presentations, and give and receive clear
 instructions.

Phone: 0870-2865182, 183 (O); Fax: 0870-2865185, email: info@vaagdevi.edu.in, www.vaagdevi.edu.in



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- PO-11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- PO-12: Life-Long Learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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PO's of Department Of Electrical Electronics Engineering

The following program outcomes are expected to be found in the graduate students on their completion of the 4-year program.

- PO-1: Engineering Knowledge: An ability to apply knowledge of mathematics, computing, science, electrical and electronics engineering.
- PO-2: Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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PO's of Department Of Mechanical Engineering

The following program outcomes are expected to be found in the graduate students on their completion of the 4-year program.

- PO-1: Engineering Knowledge: An ability to apply knowledge of mathematics, computing, science, electrical and electronics engineering.
- PO-2: Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO-3: Design / Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
- PO-4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO-5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
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PO's of Department Of Electronics and Communication Engineering

The following program outcomes are expected to be found in the graduate students on their completion of the 4-year program.

- PO-1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO-2: Problem analysis: Identify, formulate, review research literature, and analyze complex
 engineering problems reaching substantiated conclusions using first principles of mathematics,
 natural sciences, and engineering sciences.
- PO-3: Design/development of solutions: Design solutions for complex engineering problems and
 design system components or processes that meet the specified needs with appropriate
 consideration for the public health and safety, and the cultural, societal, and environmental
 considerations.
- PO-4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO-5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- PO-6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO-9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.



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- PO-10: Communication: Communicate effectively on complex engineering activities with the
 engineering community and with society at large, such as, being able to comprehend and write
 effective reports and design documentation, make effective presentations, and give and receive
 clear instructions.
- PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
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PO's of Department Of Computer Science And Engineering

- Engineering Knowledge: An ability to apply knowledge of mathematics, computing, science, electrical and electronics engineering.
- Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
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PO's of Department Of Computer Science And Engineering (AI &ML)

- Engineering Knowledge: An ability to apply knowledge of mathematics, computing, science, electrical and electronics engineering.
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PO's of Department Of Computer Science And Engineering (Data Science)

- Engineering Knowledge: An ability to apply knowledge of mathematics, computing, science, electrical and electronics engineering.
- Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
- Design / Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
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PO's of Department Of MBA

- Apply knowledge of management theories and practices to solve business problems.
- Foster analytical and critical thinking abilities for data-based decision making.
- Ability to develop value based leadership ability
- Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.
- Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
- Communicate effectively with all stakeholders of his role as a manager.
- Identify business opportunities, design and implement innovations in work place.
- Function effectively as an individual and as member or leader in diverse teams and in multidisciplinary settings.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Comma	VoordCorregatore	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Course	Year/Semester	Advanced Power System Analysis (A953101)			
Outcome	I/I Sem on of this course, the student	• • • • • • • • • • • • • • • • • • • •	3		
1		ods and assumptions in modeling of machines.			
2		Ferent frames for modeling of AC machines.			
3			liffament machines		
4		ge and torque equations in state space form for o			
4	Develop the mathematical models of various machines like, induction motor and				
		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) Advanced Power System Protection	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	(A953102)	3		
After the completio	on of this course, the student				
1		sic function of a circuit breaker, all kinds of circ	uit breakers and		
	relays				
2	·	and circuit breakers under fault condition			
3		nal details of static relays and importance of dual	lity of comparators		
	in them.				
4		n of static relay applied for over current protecti	on		
5		ic relay for transformer and transmission line pro-			
6	117	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		
	on of this course, the student	s should be able to	7		
1		basic and modern control system for the rea	l time analysis and		
	design of control	•	Ĭ		
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	rvabilitv.		
5		principles and techniques in designing linear con	·		
6		lve deterministic optimal control problems in te			
	indices.	opumu convor processis in co	This of portornames		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/I Sem	EHV AC Transmission (A953104)	4		
	on of this course, the student	s should be able to	7		
1		ent aspects of Extra High Voltage A.C and D.C	Γransmission		
2	•	AC transmission system components, protection			
	level for over volt	• • • • • • • • • • • • • • • • • • • •			
3		stical procedures for line designs, scientific and e	engineering		
		1	U O		
		er systems.			
4	Principles in power	er systems. 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 EHV lines		
6	Design the EHV c	ables 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
After the completion	n of this course, the student		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Digital Signal Processing	3
A6	Caller	(A953106)	
1	on of this course, the student	nderstanding of using advanced controllers in me	accurament and
1	control instrument		casurement and
2			n from field
2		ata acquisition - process of collecting information	ii ii oiii iieid
2	instruments.	mahla I ania Cantuallan (DI C). IO Madulas and i	into and of footstands
3		mable Logic Controller (PLC), IO Modules and i	internal features.
4		ramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its	· ·	
6	-	adder logic programming for simple process	.
Course	Year / semester	Subject Name (Subject Code) Power Quality (A953107)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	• • •	4
	n of this course, the student		t
$\frac{1}{2}$		architecture and addressing modes of a microco	
2		of computers & microcontrollers and explain the	e principles of top
2		icrocontroller software development	120.1%
3		ably language programs for the 8-bit, 16-bit and	
		assembly language code for high-level language	structures such as
4	IF-THENELSE ar		
4		O interface and to discuss timing issues	, DEOG C
5		e Applications of Microcontrollers & Demonstra	te RTOS for
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	
6		re applications using Microcontrollers. Subject Name (Subject Code)	T 4 T 4 D 4 G
Course	Year / semester	Microcontrollers and applications (A953108)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	2.2	3
	n of this course, the student		ntroller
$\frac{1}{2}$		architecture and addressing modes of a microco of computers & microcontrollers and explain the	
2		icrocontroller software development	e principles of top
3		ably language programs for the 8-bit, 16-bit and	1 22 hit
3		• • • • •	
		assembly language code for high-level language	structures such as
4	IF-THENELSE ar		
4		O interface and to discuss timing issues	, DTOC C
5	-	e Applications of Microcontrollers & Demonstra	ie KIOS Ior
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	
6		re applications using Microcontrollers.	I 4E 4B 4C
Course	Year / semester	Subject Name (Subject Code) Distribution Automation (A953109)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem		3
After the completio	n of this course, the student	s should be able to structure of power system automation and its ev	olution
1	Learn the need 01	structure of power system automation and its ev	OlutiOII.

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2	Classify various p	ower system automation schemes	
3	Learn to implement	nt power system automation and protection using	g SCADA.
4		nce of EMS in power system operation.	<i>y</i>
5		ture of PLC and its application in power system	automation
6		schemes of distribution automation and substati	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Optimization Techniques (A953110)	4
After the completio	n of this course, the student		
1		optimisation in electrical engineering problems	
2		ional or classical optimisation techniques	
3		e the problem with constrained and unconstrained	d cases
4		nodern intelligent optimisation techniques	
5		iques to real world problems such as transportati	on problem,
	travelling salesma	n problem	
6	•	tations in these techniques	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Digital control systems (A953111)	3
4	n of this course, the student		
1		l system to block diagram for various analysis	C
2		oundation in sampling and reconstruction Z-tran	
3		of mathematics, Z-plane analysis to discrete tin	ne control systems.
4		nd reconstruction, Z -transforms.	
5	-	ntional control system with Digital control syste	
6	11.	Z-plane analysis of discrete time control system	
Course	Year / semester	Subject Name (Subject Code) Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem n of this course, the student		3
1		enewable energy sources to produce electrical en	erav
2		eristics of PV cell- photo voltaic modules and its	
3		f wind energy conversion systems and bio-mass	
4		Vave energy conversion machines - Ocean Thern	
'	conversion schem		nai Energy
5		hybrid energy systems such as geothermal and f	iiel cells
6		of various renewable energy sources on environment	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	HVDC Transmission (A953113)	3
	n of this course, the student	s should be able to	
1	Study the basic po	ower handling capabilities of HVDC lines	
2	Explore various c	onfigurations and conversion principles of stat	ic power converters
3	Learn the rectifier	and inverter operations, commutation process a	t converter stations.
4	Apply AC/DC file	ters for harmonic elimination in HVDC link	
5	Explore various c	ontrols adapted in HVDC converters	
6	Identify various in	nstability problems in HV AC and DC system	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Analysis of power Electronic converters	3
		(A953114)	

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1 Understand the characteristics and principle of operation	ion of modern power
semiconductor devices.	
2 Comprehend the concepts of different power converters and the	heir applications
3 Analyze and design switched mode regulators for various indu	ustrial applications
4 Knowledge on various converter topologies	
5 Choose appropriate device for a particular converter topology	· .
6 Use power electronic simulation packages for analyzing	
converters.	
Course Year / semester Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome I/I Sem Embedded Systems (A953115)	3
After the completion of this course, the students should be able to	
1 Understand the basics of an embedded system	
2 Learn the method of designing an embedded system for any ty	ype of applications
3 Understand the operating systems concepts, types and choosing	ng RTOS
4 Design, implement and test an embedded system	
5 Understand types of memory and interacting to external world	d
6 Learn embedded firmware design approaches	
Course Year / semester Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:
Outcome I/I Sem Power Systems Lab-I (A953116)	2
After the completion of this course, the students should be able to	
1 Able to demonstrate the symmetrical and unsymmetrical fault	in the generator.
2 Realise the Ferranti effect in the transmission line and implem	nent feeder protection
under over current operation by constructing the circuits	
3 Study the operation various static relays for over current and o	over voltage condition
4 Visualise the differential protection of transformer for externa	al and internal faults
Course Year/Semester Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome I/II Sem Power System Dynamics (A953201)	3
After the completion of this course, the students should be able to	·
1 Learn the basics of system dynamics and able to analyse stead	ly state stability and
transient stability	
Able to model synchronous machine to analyse steady state of	peration analyse its
dynamics of operation.	
Model the excitation system analyse the dynamics of the sync	chronous machine
connected to infinite bus.	
4 Examine the small signal stability of the system using Routh's	s Hurwitz criterion
5 Know the need of PSS in control signals	
6 Dynamic compensator analysis of single machine infinite bus without PSS.	system with and
Course Year / semester Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome I/II Sem Flexible AC Transmission Systems (FACT	$(S) \begin{vmatrix} 2.41.01.00. \\ 4 \end{vmatrix}$
(A953202)	
After the completion of this course, the students should be able to	
1 Know the concepts and types of FACTS controllers	
2 Learn various converters employed for FACTS controllers	
3 Study the impact of FACTS devices in the power flow in the	AC system

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4	Learn various shu	nt compensation using SVC and STATCOM	
5	Learn various serie	es compensators such as TCSC, TSSC	
6	Explore the conce	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)	
After the completion	n of this course, the student		
1		wledge on restructuring of power industry and n	
2		on fundamental concepts of congestion manage	ment
3		rious 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		I
Course	Year / semester	Subject Name (Subject Code) Programmable Logic Controllers and their	L: 4 T: 0 P: 0
Outcome	I/II Sem	Applications (A953205)	C:4
After the completion	n of this course, the student	11 '	
1		ive knowledge of using advanced controllers in	measurement and
	control instrument		
2		ata acquisition - process of collecting information	n from field
	instruments.	and designation process of concerning information	11011111010
3		nable Logic Controller (PLC), IO Modules and i	internal features.
4		ramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its		
6	1 1 0	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
Gutcome	1/11 50111	(A953206)	
After the completion	n of this course, the student		
1		entals of magnetic devices	
2		rties of magnetic core materials	
3		effects that exists the round conductor carrying A	AC currents
4		y stored in coupled inductors of transformers	
5	Design of transfor	mers for fly-back converters in CCM	
6	Design the integra	ted inductors and self capacitance for high frequ	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Reactive Power Compensation and	4
A6		Management (A953207)	
Arter the completion	n of this course, the student		
2	·	sity of reactive power compensation	
	Describe load com	1	an arratama
3	• • • • • • • • • • • • • • • • • • • •	es of reactive power compensation in transmission	on systems
4		bution side and utility side reactive power.	
5	Understand issues	related to power system stability and control.	

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6	Detect reactive po	wer compensation techniques & their practical i	mportance
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Power System Reliability (A953208)	3
After the completio	n of this course, the student		
1		neration system model and recursive relation for	capacitive model
	building		
2	calculate the equiv	valent transitional rates, cumulative probability a	and cumulative
	frequency		
3		ive probability and cumulative frequency of non	i-identical
	generating units an	nd merging generation and load	
4	Distinguish variou	is approaches to evaluate operating reserves and	bulk power
	generation reserve		
5	-	ility indices on radial and weakly meshed distrib	
6	Study the effect of	f short circuits in substation and switching statio	ns.
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		
1	•	sity of reactive power compensation	
2	Describe load com	1	
3		es of reactive power compensation in transmissi	on systems
4		bution side and utility side reactive power.	
5		related to power system stability and control.	
6	Detect reactive power compensation techniques & their practical importance		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210)	
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation sportance of instrumentation in power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler rature and pressure controls in turbine	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear	Subject Name (Subject Code) Instrumentation & Control (A953210) schools be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation	L: 4 T: 0 P: 0 C: 4 nermal power plant
Course Outcome After the completion 1 2 3 4 5 6 Course	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation aportance of instrumentation in power generation acasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211)	L: 4 T: 0 P: 0 C: 4 nermal power plant
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear Year / semester I/II Sem of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1	Year / semester I/II Sem n of this course, the student Survey various me 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 architect	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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	L: 4 T: 0 P: 0 C: dermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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 cificial neural network and its mathematical mode	L: 4 T: 0 P: 0 C: dermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation sportance of instrumentation in power generation seasuring and supervising systems involved in the boiler and turbine units seasontrols employed in boiler rature and pressure controls in turbine spower plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) seshould be able to ture of Intelligent control cificial neural network and its mathematical mode neural network with various configurations.	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 4 5 4 5 4 5 6 4 4 5 6 4 6 6 6 6 6 6 6	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic ard Train and test the	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation aportance of instrumentation in power generation the easuring and supervising systems involved in the boiler and turbine units as 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 cificial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 5 5 5 6 5 6 Course Outcome After the completion 1 5 5 5 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems Intelligent system with fuzzy logic controller	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 6 6 6 6	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	Subject Name (Subject Code) Instrumentation & Control (A953210) should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) Intelligent Control Schould be able to Sture of Intelligent control cificial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems Intelligent System with fuzzy logic controller ower system problem and apply GA, NN and Fu	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Course	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) should be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems I different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem nof this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C: 3

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	conditions.		
2	Understand the	advantages of DC distribution and developing	ng technologies in
	distribution		
3	Discriminate the	trade-off between economics and reliability of	f an electric power
	system.		_
4	Differentiate vari	ous investment options (e.g. generation capac	cities, transmission,
		d-side resources, etc) in electricity markets.	
5		opment of smart and intelligent domestic system	S.
6		re of an electricity market in either regulated or	
	conditions.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3
		(A953213)	
After the completion	on of this course, the student	s should be able to on soft computing techniques such as artificial ne	ural natworks
1	Fuzzy logic and g		urai networks,
2		s of feed forward neural networks and feedback	neural networks
		fuzziness involved in various systems and comp	
3	-	•	renensive
4		y logic control and to design the fuzzy rules knowledge on genetic algorithm including thre	a ganatia anaratara
5			
6		ower system problems which can utilize these Al	techniques
		bility using AI techniques Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Course Outcome	Year / semester I/II Sem	Reliability Engineering (A953214)	1: 3 1: 0 P: 0 C: 3
	on of this course, the student		3
1		neration system model and recursive relation for	capacitive model
	building	•	1
2	calculate the equiv	valent transitional rates, cumulative probability a	nd cumulative
	frequency	•	
3		ive probability and cumulative frequency of non-	-identical
	generating units a	nd merging generation and load	
4		is approaches to evaluate operating reserves and	bulk power
	generation reserve	 :	
5	Analyse the reliab	ility indices on radial and weakly meshed distrib	ution networks
6	Study the effect of	f short circuits in substation and switching station	ns.
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Energy Auditing, Conservation &	3
After the consulation		Management (A953215)	
1	on of this course, the student	y of conservation of energy	
2	Generalize the ma		
2	Generalize the me		nt -
3	Illustrate the facto	rs to increase the efficiency of electrical equipme	ent
3 4	Illustrate the facto Detect the benefits	rs to increase the efficiency of electrical equipmes of carrying out energy audits.	
3 4 5	Illustrate the factor Detect the benefits Analyze the power	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system	
3 4 5 6	Illustrate the factor Detect the benefits Analyze the power Determine pay back	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system ock periods for energy saving equipment.	1
3 4 5	Illustrate the factor Detect the benefits Analyze the power	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system	

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

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

		I/I SEM		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	I/I Sem.	Business Environment	L:4 T:0 P:0	4
		(M18MB01)		
On successfu		s course, student should be able to:		
1		ot of BE and different techniques of en		ing process.
2		e systems, GATT, WTO, Fiscal and m	onitory policies	
3		ustrial Policy and regulatory structure		
4	Explains socio poli			
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	1	action factors and returns		
4	analyse the differen			
5		pricing strategies and profit policies	T	T = -
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	
0 6	1 14 641	Behaviour (M18MB03)		
		s course, student should be able to:	1.4 4.1 4.1	
1		nce of fundamentals of Management ar		
2		g process and types of plans in dynam		velop the
3		yles in various situations in organizatio		
3		ganization structures with its merits and influence. Accept the significance of		
1		d influence, Asses the significance of l and group behavior in an organization		
5		gers apply different leadership styles a		
3	organization.	gers appry different leadership styles a	na monvation theo	ories iii aii
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	Cicuits.4
Come	I/I Delli.	(M18MB04)	L.7 1.0 1.0	
On successfi	ıl completion of this	s course, student should be able to:	l	
1		ance of Accounting.		
2		g cycle in preparing financial statemen	ts of the company.	
3		issue of shares and debentures for rais		
	I fair the process of	issue of shares and describines for rais	ing capital by the	ompany.

	T			
4		ret financial position of the company u	using ratio analysis	, Vertical
5	and Horizontal ana	flow statements in the company.		
Course out	Year/semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem.	Statistics for Management	L:4 T:0 P:0	Cieuits. 4
Come	1/1 Scill.	(M18MB05)	2.4 1.0 1.0	
On successfu	ul completion of this	s course, student should be able to:	L	-1
1		statistics and statistical techniques in	n management dec	ision making
	_	riate measures of central tendency and	_	
2	Define correlation	and also measure the degree of cor	relation between v	variables and
	estimate the relatio	nship between independent and deper	ndent variables usin	ng regression
	lines.			
3	Distinguish betwee	n parametric and non-parametric test.		
4		othesis and alternative Hypothesis,	hypothesis testing	for making
	decisions using stud			
5	Categorize one-way	y and two-way classification of ANOV	VA and examine go	odness of fit
	by using Chi-square			
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/I sem	Business Communication	L:4 T:0 P:0	
		(M18MB06)		
		s course, student should be able to:		
1		ance of written communication skills a	appropriate for bus	iness
2	situations.	1 4 66 41 1 1 1	:	
2		adent effectively deliver on oral prese		1 '11
3		nts report writing skills and develop th	e positive writing s	SK1IIS.
5	-	s of communication	al and managed to al	
3	communication	nt negative attitudes towards the verb	ai and nonverbai	
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	Credits:3
Come	1/1 SCIII	(M18MB07)	L.0 1.0 1.3	
On successfi	ul completion of this	s course, student should be able to:		
1		about MS-word, creation of document an	d mail merge.	
2		adsheets and data analysis with statistical		
3		Oatabase & data mining.		
4	List out the procedur	e of mail merge and build the presentation	n graphics through p	ower point
	creation			
		I/II Sem		
Course	Year/ semester:	Subject name code:	No. of Hours	Credits:4
out come	I/II Sem.	Marketing Management	L:4 T:0 P:0	
		(M18MB08)		
On successfu	ul completion of this	s course, student should be able to:		
1	Outline the role and	l functions of marketing.		
2	Identify and demon	strate the nature of marketing environ	ment.	
3	Explain the Market	research project/process.		
3	Explain the Market	research project/process.		

4	Make use of PLC for promotion mix.	or framing marketing strategies and ap	praise the importa	ance of
5	1	pricing strategies for profit maximiza	tion	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 4
come	I/II Sem.	Human Resource Management	L:4 T:0 P:0	Ciedits. 4
Come	1/11 Sem.	(M18MB09)	L.4 1.0 1.0	
On successfu	al completion of this	s course, student should be able to:		
1	Define the basic co	ncepts of HRM, Its model.		
2	Demonstrate HRP 1	process and Job Analysis.		
3	Illustrate the techni	ques and tools for training and Develo	pment, performan	ce appraisal.
4	Infer Industrial Relasettlements.	ations System Grievance redressal med	chanism and dispu	ite
5		praise the contemporary issues related	to HR practices i	n Global
Course out	perspective. Year/ semester:	Subject name code:	No. of Hours	Credits:4
	I/II sem	Financial Management	L:4 T:0 P:0	Credits:4
come	1/11 Selli	(18MBA10)	L:4 1:0 F:0	
On successfu	al completion of this	s course, student should be able to:		
1	Identify the importa	ance of profit maximization and wealth	h maximization	
2	Apply different tecl capital	hniques for investment decision proces	ss and measuring	the cost of
3	Analyze the capital	structure theories		
4	Examine the factors	s determining dividend and its valuation	on	
5		nd planning of working capital		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II sem	Business Research Methods	L:4 T:0 P:0	
		(M18MB11)		
		mpletion of this course, student sho	uld be able to:	
1		ethodology and why it is useful.		
2		h problem and research design		
3	<u> </u>	onnaire and methods of data collection	1	
4	Importance of resea			
5	Influence of research		1	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II Sem.	Quantitative Analysis for	L:4 T:0 P:0	
		Business Decisions (M18MB12)		1
On successfu	_	s course, student should be able to:		
1	Define OR and OR			
2	Construct the struct			
3	1 1	se method and Big-M method.		
4		cical model of transportation problem.		
5		ssignment problem.		T ~ ·
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II sem	Cost & Management Accounting (M18MB13)	L:4 T:0 P:0	

On successfu	al completion of this	s course, student should be able to:			
1	Distinguish Financial Accounting, Cost accounting & Management Accounting				
2	Analyze Costing fo	or specific industries.			
3	Apply Break Even	analysis for various business problems	S		
4	Classify and evalua	ite budgets.			
5	Compare and contr	Compare and contrast standard cost ,estimated cost & marginal 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	show how to overcome fear of facing interviews			
2	Improve communication skills and able to convince their view point to the superior,				
<u> </u>	peers and subordinates.				
3	Adopt Time management skills to efficiently manage time in meeting deadlines.				
4	Compare Traits of	positive thinking and high achievers			
5	Improve General kr	nowledge and current information.			

II/I Sem					
Course out	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		course, student should be able to:			
1		tional objectives, policies, vision and	mission and outlin	e the	
	concepts in strategic				
2		trategist in an organization.			
3	Evaluate the perform	mance by using qualitative and quantit	ative benchmarkii	ng technique.	
4	Identify diversifying	g strategies and define why firms dive	rsify?		
5	Propose strategies f	or 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	ıl completion of this	course, student should be able to:			
1	Explains characteris	stics, Qualities, Skill and Functions of	Entrepreneur.		
2	Infers financial Inst	itutions assistance to promote Entrepr	eneurship.		
3	Relates Technologie	cal competitiveness, legal regulatory s	ystems, patents, tr	ademarks	
		perty rights to Entrepreneurship.			
4	Summarizes necess	ity for business ethics and ethical guid	elines in business.	•	
5	Recalls corporate go	overnance and its History and theoreti	cal basis of corpor	ate	
	Governance.				
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		
		(M18MB17A)			
On successfu		course, student should be able to:			
1	Outline the increasi	ng importance of intellectual property	rights		
2	Utilize post registra	ation procedures and trade mark regist	ration process		

3	Explain the copyrig	tht principles and rights			
4	Prioritize the law of patents and patent ownership.				
5	Develop the trade secret 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		
On successfu	al completion of this	s course, student should be able to:		T.	
1		nd Symptoms of stress			
2	Identify various issues 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	Agri-Business Management (M18MB17C)	L:4 T:0 P:0		
On successfi	ıl completion of this	s course, student should be able to:			
1		griculture in economic development			
2		ting of agriculture produce and agenc	ies through which	agriculture	
	produce is marketed				
3	1	ate the defects of agricultural marketing	ng		
4		ural prices and price policy	<u> </u>		
5		responsibilities of marketing function	aries.		
Course out	Year/ semester:	Subject name code: Tourism and	No. of Hours	Credits: 3	
come		•			
COME	II/I sem	Hospitality Management	L:4 T:0 P:0		
Come	11/1 sem	(M18MB17D)	L:4 1:0 P:0		
			L:4 1:0 P:0		
	ıl completion of this	(M18MB17D)	L:4 1:0 P:0		
On successfu	al completion of this List out the differer	(M18MB17D) s course, student should be able to:			
On successfu	al completion of this List out the differer Identify the factors	(M18MB17D) s course, student should be able to: nt concepts of Tourism management			
On successfu	List out the differer Identify the factors Improve the employ	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu			
On successfu 1 2 3	List out the differer Identify the factors Improve the employ Develop the eco sys	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality	astry		
1 2 3 4	List out the differer Identify the factors Improve the employ Develop the eco sys	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities	astry	Credits:	
0n successfu 1 2 3 4 5	List out the differer Identify the factors Improve the employ Develop the eco system Solve the various parts.	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality management	anagement	Credits: 03	
On successful 1 2 3 4 5 Course out come	List out the different Identify the factors Improve the employ Develop the eco system Solve the various part Year/ semester: II/I sem	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m Subject name code: Indian	anagement No. of Hours		
On successful 2 3 4 5 Course out come On successful	List out the different Identify the factors Improve the employ Develop the eco system Solve the various property Semester: II/I semulation of this Define Indian const	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history	anagement No. of Hours		
On successful 1 2 3 4 5 Course out come	List out the different Identify the factors Improve the employ Develop the eco system Solve the various property Semester: II/I semulation of this Define Indian const	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m Subject name code: Indian Constitution (M18MB17E) s course, student should be able to:	anagement No. of Hours		
On successful 2 3 4 5 Course out come On successful	List out the different Identify the factors Improve the employ Develop the eco system Solve the various properties II/I semulated the Indian constant Explain federalism	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history	anagement No. of Hours		
0n successfu 1 2 3 4 5 Course out come On successfu 1 2	List out the different Identify the factors Improve the employ Develop the eco system Solve the various property Solve the variou	(M18MB17D) s course, student should be able to: at concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: titution and constitutional history and centre-state relationship	anagement No. of Hours		
0n successfu 1 2 3 4 5 Course out come On successfu 1 2 3	List out the different Identify the factors Improve the employ Develop the eco system Solve the various part Semester: II/I semulation of this Define Indian constant Explain federalism Make use of state set Determine the imposition of this semulation of the semulation of the semination of the semi	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism industry ment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality management 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	anagement No. of Hours		
On successful 2 3 4 5 Course out come On successful 2 3 4	List out the different Identify the factors Improve the employ Develop the eco system Solve the various part Semester: II/I semulation of this Define Indian constant Explain federalism Make use of state set Determine the important in the state of the state set of the state se	(M18MB17D) s course, student should be able to: In concepts of Tourism management affecting hospitality and tourism industry grand opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality mand Hospitality mand Hospitality mand Hospitality mand Hospitality mand Hospitality mand 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	anagement No. of Hours L:4 T:0 P:0		
On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 5	List out the differer Identify the factors Improve the employ Develop the eco system Solve the various process. II/I sem Il completion of this Define Indian const Explain federalism Make use of state so Determine the important of this Improve the welfare.	(M18MB17D) s course, student should be able to: at concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m 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	anagement No. of Hours L:4 T:0 P:0	03	
On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 Course out come	List out the differer Identify the factors Improve the employ Develop the eco system Solve the various proceed of the Various proceed of the Indian constant Explain federalism Make use of state solve the welfare Vear/semester: II/I sem Il completion of this Improve the welfare Vear/semester: II/I sem Il completion of this II/I sem	(M18MB17D) s course, student should be able to: at concepts of Tourism management affecting hospitality and tourism industry ment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality management Subject name code: Indian Constitution (M18MB17E) s course, student should be able to: attitution 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:	anagement No. of Hours L:4 T:0 P:0	03 Credits:	
On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 Course out come On successfu 1 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1	List out the different Identify the factors Improve the employ Develop the eco system In Item	(M18MB17D) s course, student should be able to: nt concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m 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	anagement No. of Hours L:4 T:0 P:0	03 Credits:	
On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 Course out come	List out the different Identify the factors Improve the employ Develop the eco system Solve the various provents II/I semulated Indian constant Explain federalism Make use of state states Determine the important II/I semulated Improve the welfare Year/semester: II/I semulated II/I semulate	(M18MB17D) s course, student should be able to: at concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m 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	anagement No. of Hours L:4 T:0 P:0	03 Credits:	
On successfu 1 2 3 4 5 Course out come On successfu 1 2 3 4 5 Course out come On successfu 1 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1	List out the differer Identify the factors Improve the employ Develop the eco system Solve the various possible Year/ semester: II/I sem Il completion of this Define Indian const Explain federalism Make use of state so Determine the impost Improve the welfare Year/ semester: II/I sem Il completion of this Spell the aim and of Explain the need and Make use of Astangements.	(M18MB17D) s course, student should be able to: at concepts of Tourism management affecting hospitality and tourism indu yment opportunities in Hospitality stem and ecotourism activities roblems in tourism and Hospitality m 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 No. of Hours L:4 T:0 P:0	03 Credits:	

5	Improve the spiritu	ality at workplace			
Course out	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	ul completion of this	s course, student should be able to:		1	
1		ner behaviour research process and rur	al consumer behav	ior.	
2		vironmental influences on consumer b			
		ultural adaptation of consumer behavi		1.1	
3	_	l personality and self-concept, con		changing	
	attitudes of consumers, consumer learning and information processing.				
4		nce of consumer behaviour models in			
5	Makeup role of co	onsumerism, consumer safety, and co	nsumer information	n at market	
	place.	•			
Course out	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	ul completion of this	s course, student should be able to:	1		
1	Explain the fundam	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		orce productivity and control.			
4		ment distribution channel strategy.			
5		els efficiency and effectiveness in who		_	
Course out	Year/ semester:	Subject name code: Product and	No. of Hours	Credits:	
come	II/I Sem	Brand Management	L:4 T:0 P:0	03	
		(M18MB20M3)			
		impletion of this course, student sho	uld be able to:		
1		products in product management.			
2		f 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	t customers	
5		tant for a product and to a company	N. 6 T.		
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	
On guangast	yl gammlatian of this	Management (M18MB18F1)			
1		s course, student should be able to:	liov recommendation	on including	
1		t alternatives and make investment por f an optimal asset allocation.	ncy recommendation	m including	
2		pes of bonds in the stock markets			
3	•	alysis and valuation			
4		portfolios following the tenets of mode	ern portfolio theory		
5		es of mutual funds schemes	in portiono meory		
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 (M18MB19F2)			
		and Services (WHOWID19F2)			
On successfi	 ul completion of this	s course, student should be able to:			

1 2 3 4 Course out come	Explain issues and Explain the composition Determine internation	models of executive compensation nents of pay structure and its strategy ional compensation system and manag ek ownership plans and broad based op Subject name code: Internship and Seminar (M18MB21)		Credits:	
1 2 3 4	Explain issues and Explain the composition Determine internation pay Plan employee stoo	models of executive compensation nents of pay structure and its strategy ional compensation system and manage ok ownership plans and broad based op	tion plans		
1 2 3 4	Explain issues and Explain the composition Determine internation	models of executive compensation nents of pay structure and its strategy ional compensation system and manag		nternational	
1 2 3	Explain issues and Explain the composition Determine internation	models of executive compensation nents of pay structure and its strategy	ing variations in ir	nternational	
1 2 3	Explain issues and Explain the compo	models of executive compensation nents of pay structure and its strategy			
1 2	Explain issues and	models of executive compensation			
1		·			
1	Define the compensation management and its objectives				
On successfi	_	s course, student should be able to:			
		(M18MB20H3)			
come	II/I Sem	Compensation Management	L:4 T:0 P:0	03	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
5	1 0	bargaining levels and legal framework	XS .		
4		handling procedure			
3		ttlement missionary and its instrument	ts		
2		nion, types and their recognition			
1		rial relation and Indian IR system			
On successf	ul completion of this	s course, student should be able to:	•		
come	II/I Sem	of Industrial Relations (M18MB19H2)	L:4 T:0 P:0	03	
Course out	Year/ semester:	Subject name code: Management		Credits:	
5		ationship between power, politics and o			
4		roblems while inviting change in orga			
3		styles in organizational work settings			
2		effective leader and his/her leadership	styles.		
1	Define leadership r				
On successfi	Lul completion of this	s course, student should be able to:			
Come	II/I Still	(M18MB18H1)	1.4 1.0 1.0	03	
come	II/I Sem	and Change Management	L:4 T:0 P:0	03	
Course out	Year/ semester:	Subject name code: Leadership	No. of Hours	Credits:	
5		inities in International financial marke	ts		
4		nt with exchange rate movements			
3		e of payments and International Mone eign exchange market movements.	tary system		
$\frac{1}{2}$		rent international Business Methods	torr gratam		
		s course, student should be able to:			
0	1 1 . 4	(M18MB20F3)			
come	II/I Sem	Financial Management	L:4 T:0 P:0	03	
Course out	Year/ semester:	Subject name code: International		Credits:	
5		and activities of Investment bankers.		1	
4	Evaluate of lease finance and Hire Purchase.				
3	Distinguish the structure and functioning of money market & capital market.				
2	Outline the Bankin	g and non-Banking Institutions.			
	after 1991, Regulations and promotional Institutions.				
	Define the financial Institutions markets and services, Explain the financial Reforms				

On successfu	l completion of this	s course, student should be able to:			
1	Improve their practical knowledge by working in any organization				
2	Apply their conceptual learning to practical business problems				
3	List out organizatio	nal working teams and dynamics of or	ganization		
4	Develop his compe	tencies for future job requirement			
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	•	
1		und of entrepreneurship and Global en	trepreneurship		
2		cors for starting a new venture	1 1		
3	_	nmental situation and market opportun	itv		
4		ssumptions and identifying the startup	-		
5		oital 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	
Come	II/II bein	Management(M18MB18E2)	2.4 1.0 1.0	0.5	
On successfu	l completion of this	s course, student should be able to:			
1		hallenges of MSMEs.			
2		siness opportunities, and formalities fo	r satting up an anto	rnrica	
3		preneurship and a entrepreneurship	i setting up an ente	aprise	
4					
5		p sources of financial support	·i		
-		vernment in promoting entrepreneursh	_	C 1:4	
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	
On successiu		s course, student should be able to:			
1		trepreneurship, Nature and its intention	1.		
2		women Entrepreneurship.	1' '		
3		ages of women Entrepreneurship in Inc			
4		financial institutions in women Entrep	oreneurial developi	nent	
	programmes.				
5	Develop strategic p	erspective in family business and in In	trapreneurship.		
		II/II Sem			
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	ern. 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.	Choose the appropriate negotiable instrument under the negotiable instrument act.			
3		priate negotiable instrument under t	he negotiable inst	trument act.	
3	Choose the approp	=	he negotiable inst	trument act.	
	Choose the approp	and regulations of GST in India.	he negotiable ins	trument act.	
3 4 5	Choose the appropriate Determine the rules Asses the ethical issues.	and regulations of GST in India.			

come	II/II sem	and Operations Management (M18MB23)	L:4 T:0 P:0	04		
On successfi	Lul completion of this	s course, student should be able to:				
1		n production methods. Compare and c	ontrast production	methods		
2	Illustrate the product and process design.					
3	Choose the appropriate facilities location and Plant layout.					
4		he techniques of sequencing and sched		on control.		
	Asses the concepts		0 1			
5		Apply materials management techniques for inventory controlling.				
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		piological 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	life.			
Course out	Year/ semester:	Subject name code: Disaster	No. of Hours	Credits:		
come	II/II sem	Management (M18MB24B)	L:4 T:0 P:0	03		
	ul completion of this	s course, student should be able to:	1	1		
1		Environmental Hazards & Disasters.				
2	Identify causes of e					
3		lisasters and their impact on the enviro	nment.			
4		tion & Environmental problems				
5		ve measures of Erosion & Sedimentation	on.			
Course out	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	al completion of this	s course, student should be able to:	•	•		
1		ing health care system in India				
2	Avail the facility pr	rovided by the health policies				
3		from different programs introduced by	government			
4	Utilize different hea	althcare schemes and funds offered by	WHO and UNIC	EF		
5	Outline the trends i	n the health insurance sector				
Course out	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	ul 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	ical Measures, Pro	edictive		
	Analytics, Data Mi	ning, and Simulation				
2	Apply knowledge to	o solve simple tasks using data analyti	cs techniques with	computer		
	(MS Excel).					
3	-	ages and disadvantages of simulation,	risk analysis and c	lecision tree		
	analysis					
	1			1		
4		nalytics parameters (descriptive analyter and prescriptive analytics).	ics, diagnostic ana	llytics,		

3	Compare the domes	stic market with international market			
4	Discuss the various factors influencing pricing decisions				
5	Develop the global marketing program and segmentation of product and services				
Course out	Year/ semester: Subject name code: Financial No. of Hours Credits:				
come	II/I Sem	Derivatives (M18MB25F4)	L:4 T:0 P:0	03	
On successfu	ul completion of this	s course, student should be able to:			
1		of derivatives in stock in commodity	market.		
2	Explain players in Derivative market				
3	Differentiate forward and future contract				
4	Analyze Trading w	ith option			
5	Explain strategies in				
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
come	II/II Sem	Strategic Investment & Financing		03	
		Decisions (M18MB26F5)			
On successfi	ul completion of this	s course, student should be able to:		•	
1		decisions under conditions of risk and	uncertainty		
2		nted payback, post payback, return on		ırplus	
	payback			•	
3	Maximize the advar	ntages of leasing and leasing decisions			
4	Develop the various	s strategies for financing decisions			
5	Solve various probl	ems on mergers and acquisitions			
Course out	Year/ semester:	Subject name code: Corporate	No. of Hours	Credits:	
come	II/II Sem	Taxation and Planning	L:4 T:0 P:0	03	
		(M18MB27F6)			
On successfu		s course, student should be able to:			
1	Express Basic conc	epts of direct & Indirect taxes and able	e to compute Resid	dential 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	Γax planning	
	techniques towards	Capital Structure decisions.			
4	Use the tax plannin	g with reference to setting up of a new	business.		
6	Perform tax plannir	ng in respect of mergers and Amalgam			
Course	Year/ semester:	Subject name code: International	No. of Hours	Credits:	
out come	II/II Sem	Human Resource Management	L:4 T:0 P:0	03	
		(M18MB25H4)			
On successfu	ul completion of this	s course, student should be able to:			
1		e and components of IHRM.			
2	Compare IHRM and				
3	1	es and compensation management			
4	• •	etices in selected countries			
5	Classify workers an		,	_	
	T 7 /	Subject name code: Performance	No. of Hours	Credits:	
Course out	Year/ semester:	•			
Course out come	Year/ semester: II/II Sem	Management Systems	L:4 T:0 P:0	03	
come	II/II Sem	•			

6 Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
_	Build the financing for the growing ventures.				
5		projected financial statements for dis	counted cash flow	valuation.	
4		ure worth and basic mechanisms of ve			
3		me works and knowledge in entrepren			
1		es of entrepreneurs for raising finance			
On successfu	_	s course, student should be able to:			
come	II/II Sem	Entrepreneurial Finance (M18MB25E4)	L:4 T:0 P:0	03	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
5		stions in scope of the organization	1	T	
4	-	nowledge on business problems			
		n different functional areas.			
3		ces, system, processes, procedures and	d policies of a		
	presentation and in	1			
2	<u> </u>	port writing through data collection, d	lata analy sis, data c	extraction,	
1	Gain knowledge on	real time working environment.			
On successfu	ıl completion of this	s course, student should be able to:			
come	II/II sem	and viva-voce (M18MB29)	L:0 T:0 P:0	04	
Course out	Year/ semester:	Subject name code: Main project	No. of Hours	Credits:	
2		petencies regarding subjects.			
_	semester.	5	6 mo suojet	= ****	
1		gthen the students conceptual knowled	ge in all the subject	ets of the	
On successfi	ıl completion of this	s course, student should be able to:			
come	II/II sem	Comprehensive Subject Viva- Voce (M18MB28)	L:0 T:0 P:0	02	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:	
Commercial	compensation	Cubicat masses and a	No of II	Cug 124	
5	_	contribution of traditional areas such as	s selection, trainin	g and	
4	_	Priented vs Process oriented measures.	14' ' ' ' '	1	
3		l issues in strategic formulation.			
2		ls in utilization of HR and relocation of	ot work		
_	(SHRD)			- · · · · · · · · · · · · · · · · · · ·	
1		en strategic business planning (SBP)	and strategic HR d	evelonment	
On successfu	ıl completion of this	s course, student should be able to:			
come	II/II Selli	Human Resource Management (M18MB27F6)	L:4 T:0 P:0	03	
Course out	Year/ semester: II/II Sem	Subject name code: Strategic	No. of Hours	Credits: 03	
5	•	ssues involved in performance manage		_	
4	Improve the employee performance through performance related concepts				
	countries	6 4 1 6	1 . 1		
3	Examine the performance management system and appraisal practices in Asian				
	Measure the employee performance towards the predetermine standards				
2	Massaums Alea amerala				

		(M18MB26E5)			
On successfu	al completion of this	s course, student should be able to:			
1		eristics, functions of marketing and its	challenges.		
2		of enterprise growth and forms and ty- gic targets for growth, and evaluate S		to adapt	
3	Compare growth st	rategies and models for choosing best	strategy in market	ing.	
4	Explain segmenting	g, Targeting, positioning and pricing in	entrepreneurial		
	communication stra	<u> </u>			
5	Analyze and able to	choose best entrepreneurial marketing	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	ul completion of this	s course, student should be able to:			
1	Explain the creativity phenomenon including spiritual and social routes of creativity				
2	Adapt entrepreneurial and empowerment creativities.				
3	Apply different creative problem solving techniques.				
4	Apply innovation n	nanagement techniques for new produc	ct development.		
5	Apply different inn	ovation techniques for micro and macro	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	presentation of a set of linear equations and to	analyze the solution	on of the
2	Find the Eigen valu	ies 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	per 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	course, the students should be able to	1	
1		guage effectively in spoken and written form	ms.	
2		given texts and respond appropriately.		
3		infidently in various contexts and different of	cultures.	
4		ficiency in English including reading and l		hension,
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	course, 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 a	nd adsorption to construct the materials by ana	lyzing their compo	ositions.

5	The required principles and concepts of electro chemistry and batteries.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	G 114 2	
Outcome	I/I Sem	ENGINEERING GRAPHICS (B18ME01)	L:1 T:0 P:4	Credits: 3	
After the o	completion of this (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	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1	
Outcome	I/I Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:2		
0 4400 0 1110	2/1 2011	COMMUNICATION SKILLS	200 200 202		
		LAB(B18EN02)			
After the o		course, the students should be able to ng of nuances of English language through aud	io vienel evenesion	as and anoun	
1	activities.	ig of mances of English language through aud	io- visuai experier	ice and group	
2	Speaking with clar	ity and confidence which in turn enhances their	r employability ski	ills.	
Course	Year /semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
Outcome	I/II Sem	DIFFERENTIAL EQUATIONS AND	L:3 T:1 P:0		
After the co	mplation of this a	VECTOR CALCULUS (B18MA02) ourse, the students should be able to			
1		<u> </u>			
2	·	ne given differential equation of first order is ex- rential equation and apply the concept of different		eal world	
_	problems.	cential equation and apply the concept of afficient	ential equation to	cui woria	
3		ple integrals and apply the concept to find area	s, volumes, centre	of mass and	
	gravity for cubes,	sphere and rectangular parallel piped.			
4	Evaluate the line,	surface and volume integrals and converting the	em from one to an	other.	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4	
Outcome	I / II Sem	ENGINEERING PHYSICS (B18PH03)	L:3 T:1 P:0		
After com	pletion of this cou	rse, the student shall be/shall		•	
1		as about transformation concept learns basic			
2	_	s knowledge on basics of rigid body dynam	nics and lasers wh	nich leads to	
2		and improvements.	<u> </u>	1 .	
3	_	of physics relevant to engineering is critical	for converting io	ieas into	
4	technology Characterization	and study of properties of optodevices help	os the students to	nrenare new	
		ious engineering applications.	of the students to	propure new	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4	
Outcome	I / II Sem	ENGINEERING MECHANICS (B18CE01)	L:3 T:1 P:0		
	l l	rse, the student shall be/shall	l	<u> </u>	
Antei Coll	piction of this cou	iso, aic statent shan be shall			

1	Know the fundamental knowledge of Specification of force vector.			
2	Compare Spatial Force systems.			
3	Understand the C	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	Year /Semester I / II Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP & IT 0WORKSHOP (B18ME02)	No. of Hours L:0 T:0 P:3	Credits:1.
After comp		rse, the student shall be/shall		
1	Know the funda Applications.	mental knowledge of various trades and the	eir usage in real ti	ime
2	Compare Founda	y, Welding, Black smithy, Fitting, Machine	e shop and house	wiring.
	electrical engine	pasis for analyzing power tools in construction and mechanical engineering.		rking,
4	Apply basic cond	cepts of computer hardware for assembly ar		
Course Outcome		Subject Name (Subject Code) ENGINEERING PHYSICS LAB (B18PH04)	No. of Hours L:0 T:0 P:3	Credits:1.
After com	pletion of this cou	rse, the student shall be/shall		
	engineering. It all experiments in ea	ourse helps the student how to operate differ lso allows the student to develop experiment and ingineering. In the student about modern equipment is a student about modern equipment.	ital skills to desig	n new
	etc.,	mens the student about modern equipment	inke solar een, op	tical Hore
3		re to these experiments, the student can con	npare the theory a	and correlate
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02)	No. of Hours L:3 T:0 P:0	Credits:3
		rse, the student shall be/shall		
	reduction techniqu	t concepts such as electrical parameters, quanti- ues and apply the network theorems with DC ex	citation in the syst	ems
2	relationship betwe	y state operation of single phase and three phase en voltage and current for delta and star connec	ctions.	
3	Explore the constr	uction, working, control and testing of various	DC and AC Mach	ines
4	Gain knowledge on basic electronic devices such as P-N junction Diode, rectifiers and filter with their V-I characteristics.			
5	Acquire extended knowledge on next generation of electronic devices such transistors, zener diode and SCR devices.			
Course Outcome	Year /Semester II / I Sem	Subject Name (Subject Code) METALLURGY AND MATERIAL SCIENCE (B18ME03)	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 bo	ond formation, grains and grain boundaries in	crystalline metal	s.

2	Apply lever rule i	n 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 & c	ceramics.				
5	Analyze the appli	cations and the properties of cast irons and st	eels.				
Course Outcome		Year /Semester Subject Name (Subject Code) MECHANICS OF SOLIDS (B18ME04) No. of Hours L:3 T:1 P:0					
After com	pletion of this cou	rse, the student shall be/shall		1			
1	Understand the coproperties.	oncepts of stress and strain in mechanics of	f solids and mate	rial			
2	* * *	mental concepts of shear force & bending not beam & overhanging beam with point load anbination.					
3	Apply the fundar Beams.	mental concepts of Bending stresses & shea	r stresses for diff	erent			
4		ent methods to determine the deflection & s on method, Area moment method & Macaul		beams like			
5	11 0	s equation to determine stresses in Thick con and its application to circular shafts.					
Course Outcome		Subject Name (Subject Code) THERMODYNAMICS (B18ME05)	No. of Hours L:3 T:0 P:0	Credits:3			
		rse, the student shall be/shall					
1		pasic thermodynamic principles and their ap	plications				
2	Apply the laws o	of thermodynamics for different thermal sys	tems.				
3	Use mollier diag	ram and steam tables to find the properties	of pure substance	es.			
4	Calculate differe	nt properties of perfect gases, real gases and	d mixtures of per	fect.			
5	Analyse differen	t power cycles.					
Course Outcome	Year /Semester II / I Sem	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 various machine components.						
4	Interpret and make 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.			
After com		rse, the student shall be/shall					
1	Identify grain an	d grain boundary, crystal structure of differ	ent materials.				

2	Study the micros	structure of various materials.		
3	Analyze the correlation between Mechanical and Metallurgical properties.			
4	Perform material	l 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 1	methods 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 lu	ubricants.	
4	Apply different 1	methods to determine the calorific value of	fuels.	
Course Outcome	Year /Semester 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.
After com	pletion of this cou	rse, the student shall be/shall		
1		ify complex electric and electronic circuits	by applying the I	KVL and
2	Identify the opting	mal loading on the system.		
3	Analyze the perf	Formance of DC machines.		
4	Identify and anal	lyze the performance and operation of semi	conducting device	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
	ı nletion of this cou	rse, the student shall be/shall	<u> </u>	
1		concepts and features Indian constitution.		
2		ore values reflected in Preamble of the Con	nstitution.	
3	<u> </u>	nature of the Indian federal system and the		m of
	government.	indicate of the median receipt system and the	parmamentary for	01
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
		rse, the student shall be/shall	1	l
1		ve developed a better understanding of imposition	ortant issues relat	ed to gender
1	in contemporary		ortant issues relat	ed to gender
2		sensitized to basic dimensions of the biolog	gical, sociologica	l,
		d legal aspects of gender. This will be achi-	_	cussion of
		d from research, facts, everyday life, literatu		• .
3		ain a finer grasp of how gender discriminati	on works in our	society
	and how to counter them. Students will acquire insights into the gendered division of labour and its relation to			
4	Students will acc	Students will acquire insights into the gendered division of labour and its relation to politics and economics.		
4			labour and its rea	

Course Outcome If II Sem Subject Name (Subject Code) PROBABILITY & STATISTICS (B18MA05 L:3 T:1 P:0 Credits:4		harmony. Students will develop a sense of appreciation of women in all walks of life.				
Use probability theory and deals with modelling uncertainty and apply discrete and continuous probability, in order to evaluate the probability of real world events. 2				T 0 T 1 D 0	Credits:4	
continuous probability. in order to evaluate the probability of real world events. 2 Develop discrete probability distributions and its applications, and use these techniques to generate data from Binomial and Poisson Distributions. 3 Develop continuous probability distributions and its applications, and use these techniques to generate data from Normal Distribution. 4 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. 5 Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test(chi-square). Course Outcome 11 / II Sem After completion of this course, the student shall be/shall 1 Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. 2 Understand fundamental knowledge of the mechanics of fluid at rest and in motion. 3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome 1 / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) No. of Hours THERMAL ENGINEERING—I (B18ME10) After completion of this course, the student shall be/shall Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis o	After com	pletion of this cou	rse, the student shall be/shall			
logenerate data from Binomial and Poisson Distributions.						
techniques to generate data from Normal Distribution. 4 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. 5 Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test(chi-square). Course Outcome II / II Sem Subject Name (Subject Code) No. of Hours FLUID MECHANICS & HYDRAULIC MACHINERY (BISMEO9) After completion of this course, the student shall be/shall 1 Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. 2 Understand fundamental knowledge of the mechanics of fluid at rest and in motion. 3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Year /Semester Subject Name (Subject Code) No. of Hours II / II Sem THERMAL ENGINEERING-I (BISMEIO) After completion of this course, the student shall be/shall 1 Understand the concept and working of two and four strokes I.C. engines. 2 Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Year /Semester Subject Name (Subject Code) No. of Hours L' 4T:0 P:0 KINEMATICS OF MACHINES (BISMEII) Credits:4 Credits:4 Credits:4 Credits:4				ns, and use these	techniques	
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. 5 Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test(chi-square). Course Outcome Year /Semester II / II Sem Subject Name (Subject Code) FLUID MECHANICS & HYDRAULIC MACHINERY (B18ME09) After completion of this course, the student shall be/shall Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. Understand fundamental knowledge of the mechanics of fluid at rest and in motion. Observe fluid phenomena by developing and using the principles, laws. Analyze fluid interactions with natural and constructed systems. Sassociate fundamental knowledge & performance of different turbines & pumps. Vear /Semester Outcome Year /Semester Understand the concept and working of two and four strokes L.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressors on the basis of their working and requirement and can use suitable one. Course Outcome Year /Semester Outcome Course Outcome Year /Semester Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0		-	1 1	tions, and use the	ese	
hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test(chi-square). Course Outcome II / II Sem Subject Name (Subject Code) II / II Sem FLUID MECHANICS & HYDRAULIC MACHINERY (B18ME09) After completion of this course, the student shall be/shall 1 Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. 2 Understand fundamental knowledge of the mechanics of fluid at rest and in motion. 3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome Year /Semester Subject Name (Subject Code) II / II Sem THERMAL ENGINEERING-I (B18ME10) After completion of this course, the student shall be/shall 1 Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Year /Semester Subject Name (Subject Code) II / II Sem KINEMATICS OF MACHINES (B18ME11) Credits:4 Credits:4 L:4 T:0 P:0 Credits:4 Credits:4 Credits:4		relationship that to estimate the m	may exist between two variables of interest	t, Perform regress	sion analysis	
Outcome II / II Sem FLUID MECHANICS & HYDRAULIC MACHINERY (B18ME09) After completion of this course, the student shall be/shall 1 Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. 2 Understand fundamental knowledge of the mechanics of fluid at rest and in motion. 3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome Year /Semester Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Vear /Semester Subject Name (Subject Code) No. of Hours L:4 T:0 P:0 No. of Hours L:4 T:0 P:0 Credits:4 Credits:4 Credits:4 Credits:4 Credits:4 Credits:4		hypothesis tests concerning population parameters, for single and multiple populations				
After completion of this course, the student shall be/shall 1 Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. 2 Understand fundamental knowledge of the mechanics of fluid at rest and in motion. 3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) THERMAL ENGINEERING—I (B18ME10) THERMAL ENGINEERING—I (B18ME10) THERMAL ENGINEERING—I (B18ME10) Thermal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code) No. of Hours L:4 T:0 P:0 Credits:4 Credits:4 Credits:4 Credits:4		II / II Sem	FLUID MECHANICS & HYDRAULIC		Credits:3	
Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications. Understand fundamental knowledge of the mechanics of fluid at rest and in motion. Observe fluid phenomena by developing and using the principles, laws. Analyze fluid interactions with natural and constructed systems. Sassociate fundamental knowledge & performance of different turbines & pumps. Course Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) No. of Hours L:3 T:1 P:0 After completion of this course, the student shall be/shall Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code) No. of Hours L:4 T:0 P:0 Credits:4 Credits:4 Credits:4	After com	•		1		
3 Observe fluid phenomena by developing and using the principles, laws. 4 Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) THERMAL ENGI	1	Apply mathemat	ics and basic sciences and translates this kn	nowledge to unde	rstand fluid	
Analyze fluid interactions with natural and constructed systems. 5 Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome Year /Semester II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING-I (B18ME10) After completion of this course, the student shall be/shall 1 Understand the concept and working of two and four strokes I.C. engines. 2 Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome Year /Semester Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0 Credits:4	2	Understand fund	amental knowledge of the mechanics of flu	id at rest and in r	notion.	
Associate fundamental knowledge & performance of different turbines & pumps. Course Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING-I (B18ME10) After completion of this course, the student shall be/shall Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	3	Observe fluid ph	enomena by developing and using the princ	ciples, laws.		
Course Outcome II / II Sem Subject Name (Subject Code) THERMAL ENGINEERING—I (B18ME10) L:3 T:1 P:0 After completion of this course, the student shall be/shall 1 Understand the concept and working of two and four strokes I.C. engines. 2 Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	4	Analyze fluid int	eractions with natural and constructed systematical	ems.		
Outcome If / II Sem THERMAL ENGINEERING—I (B18ME10) After completion of this course, the student shall be/shall Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome Year /Semester II / II Sem Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) L:4 T:0 P:0 Credits:4	5	Associate fundar	mental knowledge & performance of different	ent turbines & pu	mps.	
 Understand the concept and working of two and four strokes I.C. engines. Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressor on the basis of their working and requirement and can use suitable one. Year /Semester Subject Name (Subject Code) II / II Sem KINEMATICS OF MACHINES (B18ME11) 					Credits:4	
Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics. Able to calculate the performance of the engine with different parameters. Get knowledge about compressors and their classifications. Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome Year /Semester Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	After com	pletion of this cou	rse, the student shall be/shall			
the parameters which effect the combustion characteristics. 3 Able to calculate the performance of the engine with different parameters. 4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Vear /Semester Subject Name (Subject Code) Utcome II / II Sem KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	1	Understand the c	concept and working of two and four stroke	s I.C. engines.		
4 Get knowledge about compressors and their classifications. 5 Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code)				tion of SI and CI	engines also	
Differentiate various compressor on the basis of their working and requirement and can use suitable one. Course Outcome II / II Sem Subject Name (Subject Code) KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	3	Able to calculate	the performance of the engine with differe	ent parameters.		
use suitable one. Course Vear /Semester Subject Name (Subject Code) Outcome II / II Sem KINEMATICS OF MACHINES (B18ME11) No. of Hours L:4 T:0 P:0	4	Get knowledge a	bout compressors and their classifications.			
Outcome II / II Sem KINEMATICS OF MACHINES (B18ME11) L:4 T:0 P:0	5	Differentiate various compressor on the basis of their working and requirement and can				
After completion of this course, the student shall be/shall					Credits:4	
	After com	pletion of this cou	rse, the student shall be/shall			

1	Identify the basic	mechanisms involved in machines.					
2	Develop familiar	ity with application of kinematics theories	to real-world ma	chines.			
3	Identify the basic relations between distance, time, velocity and acceleration.						
4	Understand analy	tical linkage analysis, determine cam profi	les				
5	Analyze gear trai	ins and gear profiles.					
Course	Year /Semester						
Outcome	II / II Sem	I / II Sem PRODUCTION TECHNOLOGY (B18ME12)					
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 ocesses.	and power require	ements in			
2		g, solidification, pattern allowances, gating	and riser design	of mold			
3		c calculations of forces and power requirem	ents in the metal	forming			
	operations.	1 1					
4		application of welding using the arc welding	ng, gas welding, i	resistance			
	welding, soldering						
5	Survey the defec	ts occurring in forging operation.	-	T			
Course		Subject Name (Subject Code)	No. of Hours L:0 T:0 P:3	Credits:1.			
Outcome		FLUID MECHANICS & HYDRAULIC MACHINERY LAB (B18ME13)	L.0 1.01.3	3			
After com	pletion of this cou	rse, the student shall be/shall					
1		e of fluid mechanics and hydraulic machine inderstanding fluid flow principles and their					
2		re by using components vacuum gauge, pre					
3		of theoretical values with the real paramete	ers.				
4		stand the experimental analysis in turbines		parameters			
		e, head of water, speed of brake drum.		-			
Course		Subject Name (Subject Code)	No. of Hours L:0 T:0 P:3	Credits:1.			
Outcome	II / II Sem	PRODUCTION TECHNOLOGY LAB (B18ME14)	Liu 1:0 P:3	5			
After com	pletion of this cou	rse, the student shall be/shall					
1	Understand basic	knowledge and concepts of various experi	ments.				
2	Perform joining	of materials (similar/dissimilar) using weld	ing.				
3	Analyze the concepts of extrusion and design of die.						
4	Operate injection	molding and blow molding machines.					
Course Outcome	Year /Semester III/ I Sem	Subject Name (Subject Code) MACHINE TOOLS AND METAL CUTTING (B18ME15)	No. of Hours L:3 T:0 P:0	Credits:3			
After com	pletion of this cou	rse, the student shall be/shall					
		echanics to metal machining based on cutting	ng force and pow	er			
			*				

	consumption.					
2	Operate lathe, milling machines, drill press, grinding machines, etc.					
3	Evaluate mach inability of different materials using specific cutting forces and surface finish.					
4	Understand Prince	ciples of design of Jigs and fixtures.				
5	Compare grindin	g, lapping and honing operations.				
Course Outcome	Year /Semester III/ I Sem	Year /Semester Subject Name (Subject Code) DYNAMICS OF MACHINERY (B18ME16) No. of Hours L:4 T:0 P:0				
After com	pletion of this cou	rse, the student shall be/shall				
1	Analyze the forc	es and torques in mechanisms and machine rnors, clutches and bearings.	s in operation. K	now the		
2	Compute the fric	ctional torque in clutches and braking torque	e in brakes.			
3	Design the flywl	neel for different IC engines.				
4	Evaluate the bala	ancing masses in rotary and reciprocating ba	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				
1	Design a particulusing 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	tresses and deflections of bolded joints, key	s, cotters, knuckl	e joints.		
4	Determine the St	tresses and deflections of helical springs.				
5	Design of riveted	d, 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				
1	Apply mathemat R.M.S. methods.	ics to calculations of surface texture assess:	ment by using C.	L.A. and		
2		es of optics, interference, light to optical fla	nts, interferomete	rs,		
2		optical measuring instruments.	of commonants	alaamanaa		
3	transition, interfe	ed physical data that are useful to assembly erence fits	or components,	ciearance,		
4		angular measurement by using various micr	rometers, bevel p	rotractor,		
5		c techniques of surface engineering, surface	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	pasic concept behind the thermal power plan	nt.		
2	Get knowledge a	bout working of boilers with their specifica	ntion.		
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			
1	To study fundam certain basic issu	nental concepts in managerial economics an ues governing the business operations.			
2	To learn the con- methods of dema	cepts of demand, elasticity of demand and cand forecasting.	lemand forecasting	ng and	
3	To learn various	issues involved in production decision anal	lysis.		
4	To gain the know decision making	To gain the knowledge of Break – Even Analysis and its importance in managerial 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			
1	Design a particulusing 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	ible couplings.		
3	Determine the St	tresses 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	d, welded joint and screwed joints.			
6	To gain the know	vledge of new economic environment in po	st – liberalization	scenario.	
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	Subject Name (Subject Code) ENTREPRENEURSHIP DEVELOPMENT (B18MB03)	No. of Hours L:3 T:0 P:0	Credits:3	
After com		rse, the student shall be/shall			
1		ne mindset of the entrepreneurs, identity ver gal framework. and also understand strategi			

Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/ I Sem	ENERGY STORAGE SYSTEMS (B18EE49)	L:3 T:0 P:0		
After com	pletion of this cou	rse, the student shall be/shall			
1	Apply the techno	ology to have energy storage system for any	electrical Loads	•	
2	To save the elect	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.	
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 perf	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.	
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 differer	nt heights by using Vernier height gauge.			
5		ides fundamental knowledge and principles erent marching processes on machine tools.		the	
6	The course draw	s upon knowledge of metal cutting principle shaping, slotting, and grinding machines.		thes,	
7	The course show	s how to evaluate machined work piece sur aracy using metrology equipment.	face finish and		
8	Students will be cutting fluids.	able to differentiate the lubrication and coo	ling effects of va	rious	
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	
After com	pletion of this cou	rse, the student shall be/shall			
1	-	o analyze real time engineering objects and	to present a well	designed	
2	Student can anal	yze bars beams, shafts and array symmetric	solids.		
3		Student is able to understand and analyze the heat flow and know the temperature distribution at various points on the components.			
4	Student can anal	Student can analyze any complicated structure by utilizing the computer software like ANSYS instead of analytical methods.			

5	Estimate Load vector and stresses in 2D problems.					
Course Outcome	Year /Semester III/ II Sem	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,				
	cylinder liner.	arts like connecting rod, crank pins, crank		linder and		
3	Understand Pow	er transmission system by belt drives and c	chain 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		
	nletion of this cou	rse, the student shall be/shall	<u> </u>			
1		pasics of heat transfer with good knowledge	e of conduction,	convection		
2	Identify the free	convection and forced convection requirer	nent for particular	design.		
3	Analyse the conconvection.	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 con	vection.		
5	Design effective with conduction	heat exchanger by considering concepts of and convection.	f radiation heat tra	ansfer along		
Course Outcome	Year /Semester III/ II Sem	Subject Name (Subject Code) ENVIRONMENTAL SCIENCE (B18MC02)	No. of Hours L:3 T:0 P:0	Credits:3		
After com	pletion of this cou	rse, the student shall be/shall				
	Recall previously environment.	y learned ecosystem and find how the biod	iversity changes	went in the		
2	Demonstrate out	lines of types of pollutions and related to d	lay-to-day life.			
3	Organize import	ant seminars on natural resources.				
4	Apply models of	food chains and energy flow models to so	lve the identified	parameters.		
	Classify the type that take part in t	s of pollutants and distinguish the function the environment.	s of sustainable d	evelopment		
		riments with BOD, COD, OD and to estimate tamination and can propose solutions.	ate the micro orga	nnisms		
Course Outcome	Year /Semester III/ II Sem		No. of Hours L:3 T:0 P:0	Credits:3		
After com	pletion of this cou	rse, the student shall be/shall	1	1		
		ional structure for a given context in the orga	anisation carry out	production		
2		tion operations through Work study.				
3		arkets, customers and competition better and	l price the given p	roducts		

4	Ensure quality for a given product or service.						
5	Plan and control the HR function better.						
6	Plan, schedule an	d control projects through PERT and CPM.					
7	Evolve a strategy	for a business or service organisation.					
Course Outcome	Year /Semester III/ II Sem	Tear /Semester DATABASE MANAGEMENT SYSTEMS (OPEN ELECTIVE) (B18CS08) No. of Hours L:4 T:0 P:0					
After com	pletion of this cou	rse, the student shall be/shall	l				
1	A strong foundat applied concepts	ion in core Computer Science and Enginee .					
2	An ability to app problems.	ly knowledge of mathematics, science, and	engineering to re	ealworld			
3	as well as applica		•	ware			
4	An ability to con	nmunicate effectively, both in writing and o	oral.				
5		tion necessary to understand the impact of tions in the scientific, societal and human c		and			
7	A recognition of	f the need for, and an ability to engage in li	fe-long learning.				
8	A knowledge of	contemporary issues.					
Course Outcome		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	<u> </u>				
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 differe	ent classes of nano materials					
3	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	iches 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			
1	Use the control s	ystem; mechatronics design systems and m	neasurement syste	ems.	
2	Work on various	actuating systems.			
3	Convert the sign	als from one form to another form.			
4	Estimate the mic	ro controllers and micro processors.			
5	Develop the sim	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	tandards.		
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.				
	_	power transmission in automobile gearbox a			
5	Understand various transmission systems, steering systems and suspension and breaking systems.				
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	1		
		naintenance in equipment life cycle.			
2	Analyse The prev	ventive and corrective measures in maintenan	ce.		
3	Estimate The inve	entory control in maintenance.			
4	Classify The inco	sting and budget preparation			
5	Compare the relia	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			
1	Highlight the app	propriate use of composite materials in the	industry		
2	Understand the significance of replacing existing metal structures with composite materials whenever beneficial.				
3	=	complexity of design of composite materia			
4	Apply knowledg	e of mechanics of composite materials for	analyzing advanc	ed materials	

	involved in curre	ent trends and research area.		
5		edge of composite materials for designing 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
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand all the	e basic principles of refrigeration.		
	requirement.	refrigeration system and designing various co	mponents accord	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.
		rse, the student shall be/shall		
1	Student is able temperatures. Student is able to	o analyze and conduct the experiments to ke interpret the experimental knowledge in the		
	in, electric iron,	and refrigerator.		
3	condition chamb	o possess the application knowledge of engineers, solar collectors etc.		
4		gn a heat transfer system to cool the given on the desired time	component to rec	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 expression	on.	
3	Enhancing job pr	rospects.		
4	Acquiring effect	ive speaking abilities.		
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) CAD/CAM (B18ME32)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall	ı	l .
1		ous input and output devices used in CAD/o	CAM systems.	
2	Understand 2D a	and 3D transformations problems.		
3	Write the progre	ms for different models by using NC part p	rogramming	

4	Analyze the Group Technology (GT)					
5		Differentiate CAQC (Computer Aided Quality Control) and CIM (Computer Integrated Manufacturing) systems.				
Course Outcome	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				
1		on various parts of machine and IC engine on of machine parts.	. Understand the			
2	To gain knowled	ge of functioning of parts such as connecti	ng rod, eccentric	etc.		
	thermoelectric de	ow heat and electricity are combined in cal- evices, especially resistance temperature de	etector, thermo co			
	flow measurement	lisplacement using LVDT transducer. To g nt using rotameter.	ain knowledge or	1		
5	Classify Open an	nd closed systems Servomechanisms.	,			
Course Outcome		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				
		etion of processes.				
2	Design the comp	onents of Abrasive Jet machining process.				
3	Observe surface	properties after machining without destruc	ting the material.			
4	Select the materi	al with respect to process.				
5	Apply plasma for finishing etc.,	r machining like Magnetic abrasive finishin	ng, Abrasive flow			
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	s in design process.				
2	Understand the o	verview of various machining processes.				
3	Apply the factors	s in design of weldments.				
4	Analyse general	design recommendations of extrusion.				
5	Compare the dev	relopment 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		
After com		rse, the student shall be/shall				
1	Understand the d	lifferent types of operation takes place in the	ne power plant wi	th its		

Outcome IV / I Sem PRODUCTION PLANNING & CONTROL (PROFESSIONAL ELECTIVE-IV) B18ME37) After completion of this course, the student shall be/shall Design and plan an economical production system. Learn about effective utilization of plant resources. Provide alternate production strategies. Guide shop floor people for manufacturing products of required quantity. Define dispatcher and its procedures. Course Outcome Vear /Semester IV / I Sem Subject Name (Subject Code) ROBOTICS (PROFESSIONAL ELECTIVE-IV) (B18ME38) After completion of this course, the student shall be/shall Apply the knowledge of robotics in real time human life applications Analyse the concept of CAD/CAM and automation to the robotics. Compare knowledge of robot applications in manufacturing like, material handling, loading and unloading etc. Experiment the robotics to the spot and continuous arc welding and spray painting. Relate the Robot Application in Manufacturing.		plant layout.			
power plant. 4 Understand the concept of nuclear power generation and find out the better way against radiation hazards. 5 Analyze the plant economics and the environmental considerations for the establishment of plant. Course Outcome Vear /Semester Outcome IV / I Sem PRODUCTION PLANNING & CONTROL (PROFESSIONAL ELECTIVE-IV) (B18ME37) After completion of this course, the student shall be/shall Design and plan an economical production system. Learn about effective utilization of plant resources. 3 Provide alternate production strategies. 4 Guide shop floor people for manufacturing products of required quantity. 5 Define dispatcher and its procedures. Course Outcome Vear /Semester Outcome ROBOTICS (PROFESSIONAL ELECTIVE-IV) (B18ME38) After completion of this course, the student shall be/shall Apply the knowledge of robotics in real time human life applications Analyse the concept of CAD/CAM and automation to the robotics. Course Analyse the concept of CAD/CAM and automation to the robotics. Compare knowledge of robotics in real time human life applications Experiment the robotics to the spot and continuous arc welding and spray painting. Experiment the robotics to the spot and continuous arc welding and spray painting. Course Outcome Vear /Semester Outcome Vear /Semester Outcome Subject Name (Subject Code) COMPUTATIONAL FLUID DYNAMIC S (PROFESSIONAL ELECTIVE-IV) (B18ME39) After completion of this course, the student shall be/shall Describe Governing equations of CFD. Analyze problems with Euler and Navier Stokes Eqns. Evaluate CFD codes.	2	Got knowledge a	bout internal combustion power plants and	their uses.	
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2 Analyze problems with Euler and Navier Stokes Eqns. 3 Evaluate CFD codes. 4 Analyze different models with different algorithms.	After com				
3 Evaluate CFD codes. 4 Analyze different models with different algorithms.	1	Describe Govern	ing equations of CFD.		
4 Analyze different models with different algorithms.	2	Analyze problem	ns with Euler and Navier Stokes Eqns.		
•	3	Evaluate CFD co	odes.		
5 Understand Finite volume formulations for diffusion equation.	4	Analyze differen	t models with different algorithms.		
	5	Understand Finit	e volume formulations for diffusion equati	on.	

Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) AUTOMATION IN MANUFACTURING	No. of Hours L:3 T:0 P:0	Credits:3
Outcome	TV / I Sem	(PROFESSIONAL ELECTIVE-V) (B18ME40)		
After com	pletion of this cou	rrse, the student shall be/shall	1	
1		y of automating any industry and procedur	re to be adopted for	or
		types of automated flow lines, transfer line	es.	
3	Associate all typ	es of material handling systems and adapti	ve control system	S.
	Choose packages engineering.	s available for advanced techniques availab	ble in mechanical	
5	Discuss the Tech	nniques of Rapid Proto typing.		
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) MECHANICAL VIBRATIONS (PROFESSIONAL ELECTIVE-V) (B18ME41)	No. of Hours L:3 T:0 P:0	Credits:3
After com	pletion of this cou	rse, the student shall be/shall		
	Students acquire	the ability to format mathematical models d & undamped subjected to non periodic fo		brations
2	Students will have	ve an ability to obtain the complete solution	n for the motion o	f vibrator.
		able to obtain design parameters and indicavibratory problems.	ate methods of so	lutions
4	Students will be	able to solve the vibrations problems for m	nulti degrees of fro	eedom.
5	Students will be	able to obtain numerical solutions in vibrat	tions problems.	
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) NON CONVENTIONAL ENERGY	No. of Hours L:3 T:0 P:0	Credits:3
Outcome	TV / T Sem	SOURCES (PROFESSIONAL ELECTIVE V) (B18ME42)		
After com	pletion of this cou	rse, the student shall be/shall	•	
1	11 .	ology to capture the energy from the renew omass, geothermal.	able sources like	sun,
	Use different ren	newable energy sources to produce electrical energy.	al power minimize	e the use of
3	Identify the fact	that the conventional energy resources are	depleted.	
4	Understand direc	ct energy conversion.		
5	Learn different r	nethods in solar energy system.		
Course Outcome	Year /Semester IV / I Sem	Subject Name (Subject Code) CAD/CAM LAB (B18ME43)	No. of Hours L:0 T:0 P:3	Credits:1.
		urse, the student shall be/shall	ı	l
			inations	
1	Draw the part or	awings which are utilized in real time appl	ications.	

	software.			
3	Analyze 2D and	3D part drawings using AutoCAD, CREO	software package	es.
4	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.
After com	pletion of this cou	rse, the student shall be/shall		
1	Identify the diffe	erent pressure gauges.		
2	Understand the c	lifferent types of temperature measurement	S.	
3	Analyze the calil	oration 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		
1	An ability to app problem.	ly knowledge of mathematics, science and	engineering to re	al world
2	Ability to model as application so	, understand and develop complex software ftware.	for system softv	vare as well
	engineering solu	tion necessary to understand the impact of ctions in the scientific, societal and human c	ontexts.	and
4	- C	f the need for, and an ability to engage in lit		C 124 4
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		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	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV / II Sem	STATISTICAL OPERATIONS RESEARCH (OPEN ELECTIVE-III) (B18MA07)	L:3 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	Find optimum so	plutions by various techniques of Linear Pro	gramming Probl	em.
2	Analyze the opti	mum expenditure of the products by Transp	ortation Problen	ı
3	Find out the opti	mum allocation and time of the tasks.		
4	Examine the gra	phical solution of a game theory problems.		
5		ete problems using Queuing theoretical apporinciples of Queuing Theory.	roaches and gain	strong

Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV / II Sem	PLANT LAYOUT & MATERIAL	L:3 T:0 P:0	
		HANDLING		
		(PROFESSIONAL ELECTIVE – VI) (B18ME47)		
After com		rse, the student shall be/shall	l	
		ge of various types of material handling sys	stems.	
2	Understand appli	ications of different types of plant layouts.		
3	Get the knowled	ge of applications of ergonomics in materia	ıl handling.	
4	Get the knowled	ge of designing of cost effective material ha	andling systems.	
5	Understand meri	ts of different types of plant layouts.		
Course		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		rse, the student shall be/shall		
		pasic procedures and concepts of programm	ning, set up and o	peration of a
	CNC Machining		<i>U</i> , 1	L
2	Identify and und	erstand the basic programming codes.		
		and tool paths from the specifications on a	blueprint for sin	ple parts
		n programming software.	1	
	¥	ne the functions of the CNC machine contr		
5	Analyze the CNO	C machining center for manufacturing simp		T
Course	Year /Semester	•	No. of Hours	Credits:3
Outcome	IV / II Sem	JET PROPULSION & ROCKET	L:3 T:0 P:0	
		ENGINEERING (PROFESSIONAL ELECTIVE – VI)		
		(B18ME49)		
After com	pletion of this cou	rse, the student shall be/shall		l
1	Compare the cha	racteristics & performance of aerospace pr	opulsion systems	•
2	Estimate their Pe	erformance and behavior of ramjets.		
3	Analyze prelimir	nary designs of rocket to meet specified req	uirements.	
4	Identify testing a propulsion.	nd instrumentation methods for cryogenics	like nuclear and	plasma and
5	TT 1 / 1/1 C	undamentals of turbojet, ramjet and their p		. •



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 Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED THERMODYNAMICS (M18TE01)	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	Emphasize the relevance of Evaluation of thermodynamic properties of working substance					
2	Know the applic	ations of Energy properties of real gases, V	apour pressure,	Clausius		
3		Know about Psychometric mixture properties and psychometric chart, Air conditioning processes, cooling towers.				
4		ombustion Reactions, Enthalpy of formation of tables. Energy of formation, Heat reaction		rmation,		
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) ADVANCED FLUID MECHANICS (M18TE02)	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	Know about Appl	ications of In viscid Flow of Incompressible	le Fluids			
2	Applicability of B	asic Laws of fluid Flow				
3	Understanding the	e Viscous Flow				
4		n Boundary Layer Concepts				
5		nental concept of turbulence				
6		odynamic basics – Equations of continuity,		Energy –		
Course Outcome	Acoustic Velocity 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 o	 	ourse, the students should be able to				
1		onents of Vapor Compression System				
2		ly skills on Production of Low Temperature	e			
3	Develop the study	Develop the study skills on Steam Jet refrigeration system: Representation on T-s and h-s diagrams – limitations and applications				
4			nable students on Construction of Psychometric chart, Requirements of Comfort Air – onditioning, Thermodynamics of human body.			

5	Equip students with Parameters influencing the Effective Temperature. Summer, winter and year round air – conditioning systems			
6	Make students aware of Humidification and dehumidification equipment, Systems of Air cleaning Grills and diffusers Fans and blowers Measurement and control of Temperature and 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 o	completion of this c	ourse, the students should be able to		
1	Understand the I	Fundamentals of turbo machines and their a	pplications	
2	Applicability of siflow on performa	team nozzle and steam turbine in power plance of plant.	ant and the relation	on of their
3	To equip student	s with the fundamental of thermodynamics	s concepts for ga	s dynamics
4		about type and working principle of centrif		
5	Deal with Funda systems	mental concept of Axial flow compressors	and different type	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	need of energy management and its princi	ples.	
2	Analyze the requi	rement of energy audit and its concepts.		
3		encepts of economic analysis and its scope.		
4		bout methods of evaluation of projects.		
5		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	=	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 rot		· · · · · · · · · · · · · · · · · · ·
5		nd advanced concepts and working principl		pe of
5	compressors.			
6		importance of effective combustion system	for maximize th	ne efficiency
U	of gas turbine plant.			
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	,		

1	Know about Solar passive heating E	Energy Applications: Solar water heating.	Space heating,	Active and		
2		re of earth, Geothermal Regions, Hot spring	gs. Hot Rocks			
3		Deal with to solve a problem in Thermionic & thermoelectric generation, MHD generator.				
4		Deal with Fusion, Fusion reaction, P-P cycle, Carbon cycle, Deuterium cycle, Condition or controlled fusion, Fuel cells and photovoltaic.				
5		To enable students on energy sources. Plant productivity, Biomass wastes, aerobic and Anaerobic bioconversion processed				
6		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 o		ourse, the students should be able to				
1	Get details about	heat exchanger and its classifications.				
2	Determine the effect of increasing pipes in performance of heat exchanger and get idea about double pipe heat exchanger.					
3	Understand the working principle of steam condenser and explore the condensation of single vapors.					
4	Get Knowledge a	bout processes like vaporization, evaporation that used 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 o	completion of this c	ourse, the students should be able to				
1	Understand the A	nalysis of air conditioning unit.				
2	Understand the A	nalysis of heat pipe.				
3	Know about Perfo	ormance analysis of flat plate collector.				
4	Know about Perfo	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 o	completion of this c	ourse, the students should be able to				
1	Understand the A	nalysis of flow profile on the designed noz	zle.			
2	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	Understand the A	nalysis of force exerted by the fluid jet on	fixed flat plate			
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			
	Understand that w	when IPR would take such important place			
1	nation, it is needle Right	nation, it is needless to emphasis the need of information about Intellectual Property Right			
2	Compose and wri	te quality research reports and attain famili	arity with intelle	ctual	
2	property rights.				
3	Understand resear	ch problem formulation			
4	Analyze research	related information			
Course Outcome	Semester I Sem	Subject Name (Subject Code) STRESS MANAGEMENT (M18AC02)	No. of Hours L:2 T:0 P:0	Credits: 0	
After the	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		rement of energy audit and its concepts.	•		
3		oncepts of economic analysis and its scope.			
4		bout methods of evaluation of projects			
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED HEAT TRANSFER	No. of Hours L:3 T:0 P:0	Credits: 3	
		(M18TE11)			
After the		ourse, the students should be able to			
1		eneral heat Conduction equation.			
2	Know the Lumpe				
3		ations of fluid flow			
4		concept of free convection, boiling and co			
5		e about transfer of heat in the space and at			
6	Understand the co	oncepts of mass transfer and significance of	f non dimensiona	l numbers	
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED I.C. ENGINES (M18TE12)	No. of Hours L:3 T:0 P:0	Credits: 3	
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 the	e engines.	
4		on Mean velocity and turbulent characteris			
5	•	mal combustion Fuel factors, MPFI.			
6		nissions, Measurement & Exhaust Gas Tre	atment		
Course Outcome	Semester II Sem	Subject Name (Subject Code) CRYOGENIC ENGINEERING (M18TE13)	No. of Hours L:3 T:0 P:0	Credits: 3	
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		th the knowledge of gas separation systems and	~	ems.	

5	To impart knowle	dge on cryogenic refrigeration systems		
6	Make students aw	are applications of cryogenic system in space t	echnology	
Course Outcome	Semester II Sem	Subject Name (Subject Code) JET PROPULSION AND ROCKET ENGINEERING (M18TE14)	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		e concept of turbo jet propulsion system an		f flight.
2	Enable students	to learn the concept of rocketry and its fund	damentals.	
3	To impart knowl propulsion.	ledge on the effect of nozzle design on the	performance of j	et
4	Get idea about th	ne combustion chemistry of fuels used in ro	ocketry.	
5	Equip students v	with the knowledge of advanced rocket eng	ines.	
6	To learn the vari	ous method of liquid rocket propulsion sys	tem	
Course Outcome	Semester II Sem	Subject Name (Subject Code) ALTERNATE FUELS (M18TE15)	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		ilability and properties of alternate fuels, g	eneral use of Alc	ohols, LPG,
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	-	cteristics
5	To enable studer	nts on Layout of an electric vehicle, advant ystem components.		
6		s with electronic control system.		
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED COMPUTATIONAL FLUID DYNAMICS (M18TE16)	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		
	_	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	Solve numerical method.	on Burgers equations: Explicit and implici	t schemes, Rung	e- Kutta
5	Get knowledge of methods.	on Formulations of incompressible viscous	flows by finite d	ifference
6	Get knowledge o	on Finite volume method via finite differen	ce method	
Course Outcome	Semester II Sem	Subject Name (Subject Code) THERMAL AND NUCLEAR POWER PLANTS (M18TE17)	No. of Hours L:3 T:0 P:0	Credits: 3
After the c	completion of this c	course, the students should be able to		
1		ype of Power plants, Direct energy convers	•	
2	Analysis and Un	derstand Recent developments in power ge	eneration.	
3	Know about Fee	d water heaters.		

4	To impart know	ledge on Combined cycle power plant and	its importance.		
5	To understand the concepts of Nuclear Reactor and its Classification				
6	Get knowledge of	on Factors affecting the economics			
Course Outcome	Semester II Sem	Subject Name (Subject Code) THERMAL MEASUREMENTS & PROCESS CONTROLS (M18TE18)	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 fu	ndamental principles of measuring instrum	ents.		
2	Identify the world	king principle of all the instruments used to	determine the f	low.	
3	Develop the adv	anced thermometers for different type of o	perations.		
4	Measure the leve	el by direct or indirect methods.			
5	Impart knowledg	ge on principles used for process control.			
6	Design open as v	well as closed loop control system			
Course Outcome	Semester II Sem	Subject Name (Subject Code) ADVANCED INTERNAL COMBUSTION ENGINES LAB (M18TE19)	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			
	Understand the ef petrol engine.	fect of change in compression ratio on the	performance of o	liesel&	
2	engine.	ct of change in fuel injection timing on the		diesel	
3		analysis Flame propagation analysis of gas			
4	Use different typ	be of fuels and analyze its effect on the peri	formance of dies	el and petrol	
Course Outcome	Semester II Sem	Subject Name (Subject Code) MODELING AND ANALYSIS LAB-II (M18TE18)	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			
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.	<u> </u>		
3		mal stress of crank rod of diesel engine for	real operating c	onditions.	
4	•	ct of thermal stress on the intake and outlet			
Course Outcome	Semester II Sem	Subject Name (Subject Code) ENGLISH FOR RESEARCH PAPER WRITING (M18AC01)	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			
1	To understand th	ne nuances of language and vocabulary in v	vriting a Researc	h Paper.	
2		content, structure and format of writing a re	search paper.		
3	To give the prac	tice of writinga Research Paper.			
4	To enable the stuplagiarism	idents to evolve original research papers w	ithout subjected	to	
Course Outcome	Semester III Sem	Subject Name (Subject Code) ADVANCED MATERIALS FOR THERMAL SYSTEMS (M18TE22)	No. of Hours L:3 T:0 P:0	Credits: 3	

2 Ana 3 Imp 4 Get 5 Det 6	alysis and Unpart knowledge at knowledge at termine the action of this compart knowledge understand the termine the inderstand the built students walyze the effections. Semester III Sem Letion of this compart knowledge understand the built students walyze the effections. Semester III Sem Letion of this compart knowledge understand the built students walyze the effections.	derstand Impact Behavior Heat Treatment of the derstand Impact Behavior Heat Treatment of the derstand Impact Behavior Heat Treatment of the depth of the description of Nuclear Power Plant about materials in Fuel cells and Solar Cells divancement of use of super alloys. I denergy storage system. Subject Name (Subject Code) COMPUTER SIMULATION OF SI & CI ENGINES (M18TE23) Tourse, the students should be able to ge on importance of computer simulation of the concept of Wiebe's function in SI engine mportance of Watsons and White house and the passics of gas exchange processes. With knowledge of heat transfer to the surrounce of friction in moving parts of the engines of the engines of the engines of the engines of the surrounce of the engines of the surrounce of the engines of the surrounce of the engines of the surrounce of the surrou	No. of Hours L:3 T:0 P:0 I C engines. E modeling. I Way models in unding from the	Credits: 3 CI engines. IC engines.
2 Ana 3 Imp 4 Get 5 Det 6	alysis and Unpart knowledge at knowledge at termine the action of this compart knowledge understand the termine the inderstand the built students walyze the effections. Semester III Sem Letion of this compart knowledge understand the built students walyze the effections. Semester III Sem Letion of this compart knowledge understand the built students walyze the effections.	derstand Impact Behavior Heat Treatment of ge on fundamentals of Nuclear Power Plant about materials in Fuel cells and Solar Cells dvancement of use of super alloys. I energy storage system. Subject Name (Subject Code) COMPUTER SIMULATION OF SI & CI ENGINES (M18TE23) Fourse, the students should be able to ge on importance of computer simulation of the concept of Wiebe's function in SI engine mportance of Watsons and White house and coasics of gas exchange processes. With knowledge of heat transfer to the surrout of friction in moving parts of the engines of the engines of the engines of the engines of the surrout of the engines of the surrout of the engines of the engi	No. of Hours L:3 T:0 P:0 I Way models in unding from the son the performs	Credits: 3 CI engines. IC engines. ance of
3	part knowledge at termine the action of this compart knowledge attermine the action of this compart knowledge anderstand the termine the inderstand the built students was alyze the effections. Semester III Sem letion of this compart knowledge and the built students was alyze the effection of this compart knowledge.	ge on fundamentals of Nuclear Power Plant about materials in Fuel cells and Solar Cells dvancement of use of super alloys. It energy storage system. Subject Name (Subject Code) COMPUTER SIMULATION OF SI & CI ENGINES (M18TE23) Fourse, the students should be able to ge on importance of computer simulation of the concept of Wiebe's function in SI engine emportance of Watsons and White house and coasics of gas exchange processes. With knowledge of heat transfer to the surrout of friction in moving parts of the engines of Subject Name (Subject Code) ADVANCED FINITE ELEMENT ANALYSIS (M18TE24)	No. of Hours L:3 T:0 P:0 f IC engines. modeling. Way models in unding from the s on the performa	Credits: 3 CI engines. IC engines. ance of
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6 And eng Course Outcome After the comp 1 Und 2 And 3 Knd	alyze the effections Semester III Sem letion of this c	ct of friction in moving parts of the engines Subject Name (Subject Code) ADVANCED FINITE ELEMENT ANALYSIS (M18TE24)	No. of Hours	ance of
Course Outcome After the complete 1 Under 2 And 3 Known Kno	Semester III Sem letion of this c	Subject Name (Subject Code) ADVANCED FINITE ELEMENT ANALYSIS (M18TE24)	No. of Hours	
Outcome After the complement 1 Under the complement 2 And the complement 3 Kneep	III Sem letion of this c	ADVANCED FINITE ELEMENT ANALYSIS (M18TE24)		Credits: 3
1 Und 2 And 3 Kne		ourse, the students should be able to		
2 Ana 3 Kne		odise, the stadents should be usic to		
3 Kno	derstand the H	Basic concepts, historical back ground, appl	lications of FEM	[.
	alysis and Un	derstand Virtual energy principle		
4 Imp	ow about 1-D	Structural Problems.		
		ge on Hermite shape functions, stiffness ma		ector.
5 Kn	ow about Fini	ite element modeling of Axi-symmetric sol	ids	
6 Get	t knowledge o	on Dynamic considerations and Dynamic ec	quations	
	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 comp	letion of this c	ourse, the students should be able to		
1 Kn	ow about the	basics of one dimensional Optimization me	ethods.	
		s to use Direct search method		
		nic programming.		
	•	programming		
		programming		
		astic programming.		
	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 comp	letion of this c	ourse, the students should be able to		
1 Kne	arri 4h a Dinain	ess Laws related to incorporating a compan	ıy	

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			
Outcome	I/I Sem	LINEAR ALGEBRA AND CALCULUS	L:3 T:1 P:0				
Outcome	1/1 Sem	(B18MA01)	1.3 1.11.0				
After the o	completion of this o	course, the students should be able to					
1		rinciples of matrix to calculate the charact	eristics of system	n of linear			
		ns using multiple methods.					
2	Determine eigen	etermine eigen values, eigen vectors and orthogonally diagonalize symmetric matrices.					
3	Analyze the natur	Analyze the nature of sequence and series to identify the convergence.					
4	Evaluate limits of	Evaluate limits of single-variable functions graphically and computationally. Analyze					
		mproper integrals using Beta and Gamma functions.					
5	Calculate Partial derivatives, Jacobian and extrema of functions of multiple variables						
	with or without co		No. of Hours	Credits:4			
Course	Year /Semester	Subject Name (Subject Code)	L:4 T:0 P:0	Credits:4			
Outcome	I / I Sem	APPLIED PHYSICS (B18PH01)	2.11.01.0				
After com		rse, the student shall be/shall					
1		on of semi conductors, photo detectors, design		mechanics			
2	1	ve optics extend & construct basics of wave op					
3		ers, which leads to new innovations and impro					
4		Elaborate and formulate the study of characterization properties of opto-devices, organize the students to prepare new materials for various engineering applications					
5		ledge on principles and recalls facts of light pro		vate for new			
_		nalyse applications of optical fibers	· F · · · · · · · · · · · · · · · · · ·				
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 o	course, the students should be able to					
1		age effectively in spoken and written forms.					
2	Comprehend the gi	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 listening.	ng comprehension	, writing			
5	-	nmunicates by stating main ideas relevantly a	nd coherently in				
	speaking &writing	<u>, </u>	T	ı			
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	Understand the Pr	rojections of solids.					
3			c sections				
4	Estimate the use of Drawings, dimensioning, scales and conic sections. Modify the Applications of this knowledge in Computer Graphics.						
5		version of isometric views to Orthographic					
	•	<u> </u>		0 14 4			
Course	Year / semester	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	No. of Hours	Credits: 4			
Outcome	I/I Sem	SOLVING(B18CS01)	L:4 T:0 P:0				
After the a	completion of this <i>a</i>	course, the students should be able to	1	I			
1	_	now problems are posed and how they ca	an be analyzed	for obtaining			
2		ne fundamentals of C programming.					
	- macrotanding th	to remound on the programming.					

		making stateme	nts to solve			
Ability to design Methodology	and implement different types of file struc	tures using stand	lard			
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:			
I/I Sem	APPLIED PHYSICS LAB (B18PH02)	L:0 T:0 P:3	1.5			
completion of this c	ourse, the students should be able to					
	1 1					
•	•	No of Hours	Credits:1			
	PROGRAMMING FOR PROBLEM					
1/1 Sem	SOLVING – LAB (B18CS02)	L.0 1.01.2				
completion of this c	ourse, the students should be able to					
Understand basic	structure of the C Programming, data types	s, declaration and	l usage of			
variables, control	structures and all related concepts.					
Ability to understa	and any algorithm and Write the C program	nming code in ex	ecutable			
form.						
Implement Progra	ams using functions, pointers and arrays, an	nd use the pre-pr	ocessors to			
solve real time pro	oblems.					
Ability to use file	structures and implement programs on files	S.				
Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4			
I/II Sem		L:3 T:1 P:0				
completion of this c	ourse, the students should be able to	1				
	*	to real time probl	ems.			
		uations and apply	ing its			
Evaluate the multip	ie integrals in various coordinate systems.					
	•					
Apply the concepts	of gradient, divergence and curl to formulate E	Engineering proble	ems.			
			ems.			
Analyze line, surfac	of gradient, divergence and curl to formulate E	orems.				
Analyze line, surface Year / semester	of gradient, divergence and curl to formulate E ce and volume integrals using fundamental theo Subject Name (Subject Code)	No. of Hours	cms.			
Analyze line, surfac	of gradient, divergence and curl to formulate Este and volume integrals using fundamental theo Subject Name (Subject Code) BASIC ELECTRICAL AND	orems.				
Analyze line, surface Year / semester	of gradient, divergence and curl to formulate E ce and volume integrals using fundamental theo Subject Name (Subject Code)	No. of Hours				
Analyze line, surface Year / semester	of gradient, divergence and curl to formulate Este and volume integrals using fundamental theo Subject Name (Subject Code) BASIC ELECTRICAL AND	No. of Hours				
Analyze line, surface Year / semester I/II Sem	of gradient, divergence and curl to formulate E ce and volume integrals using fundamental theo Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	No. of Hours				
Analyze line, surface Year / semester I/II Sem completion of this completion decircuit reduction technique.	of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended	No. of Hours L:3 T:0 P:0 ities , laws and nexcitation in the sys	Credits: 3			
Analyze line, surface Year / semester I/II Sem completion of this ce Learn Basic circuit reduction technique Analyze the steady	of gradient, divergence and curl to formulate External control of gradient, divergence and curl to formulate External control of gradient, divergence and curl to formulate External control of gradient subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B18EE02) ourse, the students should be able to gradient and apply the network theorems with DC external control of single phase and three phase and three phase gradients.	No. of Hours L:3 T:0 P:0 cities , laws and nexcitation in the system AC circuits and	Credits: 3			
Analyze line, surface Year / semester I/II Sem completion of this ce Learn Basic circuit reduction technique Analyze the steady relationship between	of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended to the control of gradient, divergence and curl to formulate Extended	No. of Hours L:3 T:0 P:0 ities , laws and nexcitation in the system of	Credits: 3 twork ttems study the			
Year / semester I/II Sem completion of this completion technique Analyze the steady relationship between Explore the construction technique Analyze the steady relationship between Explore the construction technique Analyze the steady relationship between Explore the construction technique Analyze the steady relationship between Explore the construction technique and t	of gradient, divergence and curl to formulate External control of gradient, divergence and curl to formulate External control of gradient, divergence and curl to formulate External control of gradient, divergence and curl to formulate External control of gradient, divergence and gradient of gr	No. of Hours L:3 T:0 P:0 cities , laws and nexcitation in the system AC circuits and cotions COT OF THE CONTROL OF THE CONTRO	Credits: 3 etwork etems study the			
	Scientific and en Implementing disolve problems Ability to design Methodology Year / semester I/I Sem Operate different of Develop experime Understand about Have Exposure to Year / semester I/I Sem Ompletion of this control of this con	Scientific and engineering problems. Implementing different operations on arrays and creating solve problems Ability to design and implement different types of file struct Methodology Year / semester I/I Sem Subject Name (Subject Code) APPLIED PHYSICS LAB (B18PH02) ompletion of this course, the students should be able to Operate different equipments related to light & electronics. Develop experimental skills to design new experiments & circuit Understand about modern equipment like solar cell, optical fibre Have Exposure to develop novel semi conductor devices. Year / semester I/I Sem Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING – LAB (B18CS02) ompletion of this course, the students should be able to Understand basic structure of the C Programming, data types variables, control structures and all related concepts. Ability to understand any algorithm and Write the C program form. Implement Programs using functions, pointers and arrays, ar solve real time problems. Ability to use file structures and implement programs on file. Year / semester I/II Sem Subject Name (Subject Code) DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B18MA02) ompletion of this course, the students should be able to Apply the fundamental concepts of ordinary differential equations	Implementing different operations on arrays and creating and using of solve problems Ability to design and implement different types of file structures using stand Methodology Year / semester I/I Sem Subject Name (Subject Code) APPLIED PHYSICS LAB (B18PH02) Operate different equipments related to light & electronics. Develop experimental skills to design new experiments & circuit design. Understand about modern equipment like solar cell, optical fibre etc., Have Exposure to develop novel semi conductor devices. Year / semester I/I Sem Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING – LAB (B18CS02) Ompletion of this course, the students should be able to Understand basic structure of the C Programming, data types, declaration and variables, control structures and all related concepts. Ability to understand any algorithm and Write the C programming code in exform. Implement Programs using functions, pointers and arrays, and use the pre-presolve real time problems. Ability to use file structures and implement programs on files. Year / semester I/II Sem Subject Name (Subject Code) No. of Hours Light Programs using functions and implement programs on files. Year / semester I/II Sem Subject Name (Subject Code) No. of Hours Light Programs on files. Year / semester I/II Sem Operate different equipment programs on files and implement programs on files. No. of Hours Light Programs using functions and implement programs on files. Year / semester I/II Sem Operate different equipment programs on files and implement programs on files of Hours Light Programs on files of Hours Differential equations to real time problems of this course, the students should be able to Apply the fundamental concepts of ordinary differential equations to real time problem find the complete solution of a non homogeneous differential equations and apply concepts in solving physical problems of Engineering.			

		I		1			
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	completion of this o	course, the students should be able to					
1		knowledge regarding atomic and molecular	structure.				
2		ic engineering materials. Recall basic organ					
3	<u> </u>	ies and classify different electronics and ele		•			
		help them to construct different electrical					
4	Examine which	Examine which type of impurities are present in water, specification of drinking water and explain the 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		Credits. 1			
Outcome	I/II Sem	COMMUNICATION SKILLS	L:0 T:0 P:2				
		LAB(B18EN02)					
After the	completion of this (course, the students should be able to		1			
1	_	he influence of the sounds of their mother to	າດນອ				
	1 (Catranzation of t	the influence of the sounds of their mother to	igue				
2	Better understandi group activities	ing of nuances of English language through a	udio- visual expe	rience and			
3		rity and confidence which in turn enhances th	eir employability	skills			
4	1	ppropriately for public speaking	1 2				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5			
		BASIC ELECTRICAL AND		Credits.1.5			
Outcome	I/II Sem	ELECTRONICS ENGINEERING LAB (B18EE03)	L:0 T:0 P:3				
		(BTOLLOS)					
After the		course, the students should be able to					
1		complex electric and electronic circuits by app	lying the KVL and	d KCL laws.			
2		al loading on the system.					
3		rmance of DC machines					
4	Identify and analy	zze the performance and operation of semi cond	ducting devices.	1			
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP &	No. of Hours L:0 T:0 P:3	Credits:1.5			
		ITWORKSHOP (B18ME02)					
After the		course, the students should be able to					
1		ental knowledge of various trades and their usa					
2		of Foundry, Welding, Black smithy, Fitting, Ma					
3		asis for analyzing power tools in construction	and wood worki	ng, electrical			
4		nechanical engineering.	1. 1				
4	Use basic concept	s of computer hardware for assembly and disas		1			
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				
			L:4 T:0 P:0				
	completion of this	OF COMPUTER SCIENCE(B18CS03) course, the students should be able to					
After the	completion of this of Evaluate the notice	OF COMPUTER SCIENCE(B18CS03) course, the students should be able to ons of propositions, predicate formulae, Rul	es of inference.				
After the o	completion of this of Evaluate the notice Illustrate and description	or computer science (B18CS03) course, the students should be able to ons of propositions, predicate formulae, Ruleribe various types of Relations and Function	es of inference.	Multinomial			
After the	Evaluate the notice Illustrate and descention Apply knowledge	or computer science (B18CS03) course, the students should be able to ons of propositions, predicate formulae, Rul cribe various types of Relations and Function of Mathematics, Combinations & Permuta	es of inference.	Multinomial			
After the 6 1 2 3	Evaluate the notice Illustrate and description of this of the second Apply knowledge theorems, Pigeon	of COMPUTER SCIENCE(B18CS03) course, the students should be able to ons of propositions, predicate formulae, Ruleribe various types of Relations and Functions of Mathematics, Combinations & Permutation hole principles.	es of inference. ons. ations, Binomial	Multinomial			
After the o	Evaluate the notice Illustrate and description Apply knowledge theorems, Pigeon Develop to solve	or computer science (B18CS03) course, the students should be able to ons of propositions, predicate formulae, Rul cribe various types of Relations and Function of Mathematics, Combinations & Permuta	es of inference. ons. ntions, Binomial ethods.				

Course Outcome II/I Sem Subject Name (Subject Code) DIGITAL LOGIC DESIGN & MICRO	No. of Hours L:3 T:0 P:0	Credits: 3					
Introme II/I sem	L-3 T-0 P-0						
WICKO	1.5 1.01.0						
PROCESSORS(B18EC49)							
After the completion of this course, the students should be able to							
Understand the basic concepts of different Number systems	s and basic the	rems					
using inBoolean algebra.	s and basic the	лешь					
2 Design the logic circuits using basic logic gates by reducing	the Boolean						
expressions withthe help of Karnaugh Map.	the Boolean						
	nalyze various types of combinational and sequential circuits.						
4 Understand the internal organization of popular 8086micropro							
5 Learn the design of microprocessors – based systems							
Course Year / semester Subject Name (Subject Code)	No. of Hours	Credits: 4					
DATABASE MANACEMENT		Credits. 4					
Outcome II/I Sem DATABASE MANAGEMENT SYSYEMS(B18CS04)	L:4 T:0 P:0						
After the completion of this course, the students should be able to							
Perceive the fundamental concepts of database management.							
Analyze database models & Entity Relationship models and t	to draw the E-R						
diagram forthe given case study.							
Apply relational Database Theory, and be able to write relationships.	tional algebra						
expressions forqueries.							
4 Apply Normalization Process to construct the database and e	explain Basic						
Issues of Transaction processing. Compare the basic Database storage structures and access tec	1 ' E'I						
compare the custo 2 minerals storage structures and access to							
Organizationindexing methods including B- Tree and Hashir		G 114 4					
Course Year / semester Subject Name (Subject Code) DATA STRUCTURES	No. of Hours	Credits: 4					
Outcome II/I Sem DATA STRUCTURES THROUGH	L:4 T:0 P:0						
C++(B18CS05)							
After the completion of this course, the students should be able to							
To find the difference between structured programming and of	object oriented						
programming Language and understanding the features of C+	•	oject					
oriented programming.		3					
2 To explain and apply the major object oriented concepts to im	nplement object						
orientedPrograms in C++.							
To build the basic knowledge to handle operations like inserti							
searching, and Traversing mechanisms in linear data structure							
Examine with advanced data structure such as hash tables and	d priority						
queue datastructures.	11 1						
Ability to have knowledge on trees, balanced trees, graphs an code fornon- linear data structures, and different sorting tech	1 0	++					
<u> </u>	•	G 114 4					
Course Year / semester Subject Name (Subject Code) COMPUTER ORGANIZATION &	No. of Hours	Credits: 4					
Outcome II/I Sem COMP CIER ORGANIZATION & ARCHITECTURE(B18CS06)	L:4 T:0 P:0						
After the completion of this course, the students should be able to							
Perceive basics Computer types, buses, registers.							
2 Understand basic design of Computer, addressing modes, Mic	cro Program Ex	ample.					
Perceive control unit operations and arithmetic Operations.	<u> </u>	•					
4 Understand various Peripheral devices operations.							
5 Design memory organization that uses banks for different wo	ord size operatio	ns.					
Course Year / semester Subject Name (Subject Code)	No. of Hours	Credits: 1.5					
Outcome II/I Sem DIGITAL LOGIC DESIGN &	L:0 T:0 P:3						
MICROPROCESSORS	1.0 1.01.3						

		LAB(B18EC50)					
After the o	completion of this	course, the students should be able to					
1	Demonstrate vari XNOR)and flip	ious types of logic gates (AND, OR, NOT, Not), flops.	NAND, NOR, X	OR,			
2	•	Analyze and design various types of combinational and sequential circuits.					
3	Develop microprocessor based programs for Arithmetic and Logical Operations						
4	Develop micropr	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					
A 64 41		SYSTEMS LAB(B18CS07)					
1	1 -	course, the students should be able to					
		schema for given Application.					
3		odel to Relational Model.	1:4:				
3	realisticproblems	alization techniques for development of aps.	opiication softwa	are to			
4	Construct SQL q	ueries to retrieve information from database	s.	1			
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				
		THROUGH C++ Lab(B18CS08)					
After the o		course, the students should be able to					
1	T -	· · · · · · · · · · · · · · · · · · ·	nming concents				
2	To be able to design and implement Object Oriented Programming concepts. Be able to select the appropriate Data Structure for given problem.						
3		ations like searching, insertion, deletion and					
		arious Data Structures.					
4	To understand ar	nd apply the hashing techniques.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0			
Outcome	II/I Sem	ENVIRONMENTAL	L:2 T:0 P:0				
Outcome		SCIENCE(B18MC02)	2.2 1.0 1.0				
After the o	completion of this	course, the students should be able to					
1	Recall previously	learned ecosystem and find how the biodiv	versity changes				
	went in theenvire						
2		lines of types of pollutions and related to day	y-to-day life.				
3		ant seminars on natural resources.					
4		food chains and energy flow models to solv		parameters.			
5		s of pollutants and distinguish the functions	of sustainable				
	developmentthat	take part in the environment.	Т	1			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	II/II Sem	STATISTICAL METHODS FOR	L:3 T:0 P:0				
		METHODS FOR ENGINEERS(B18MA04)					
After the o	completion of this	course, the students should be able to		I.			
1		heory and deals with modeling uncertainty i	in order to evalu	atethe			
	probability of rea	•					
2	Develop discret	e and continuous probability distributions to	generate data f	rom			
	Binomial, Poiss	on and Normal Distributions.					

3	Parform correlat	ion and ragrassion analysis in order to act	mata the natura	andtha		
3	Perform correlation and regression analysis, in order to estimate the nature andthe strength of the linear relationship between two variables.					
4	Construct confidence interval estimates for population parameters to test the hypothesis.					
5	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 OF ALGORITHMS (B18CS09)	L:3 T:1 P:0			
After the o	completion of this	course, the students should be able to		•		
1	Expose student's algorithms, analy correctness proof	to few known methods of solution procestize the asymptotic performance of algorithms.	ns and to write i	rigorous		
2	Identify appropri classes of applica	iate data structures and algorithm design ations.	methods for sp	pecified		
3		e choice of data structures and algorithm nance of programs and how to compare the		would		
4	Design methods	such as the greedy method, divide a cktracking and branch and bound		ynamic		
5	Perceive methods to deal with logarithmic type, polynomial type and non-polynomial type of classes of problems and Synthesis of efficient algorithms in common engineering designsituations would be discussed.					
Course Outcome	Year / semester II/II Sem	Subject Name (Subject Code) FORMAL LANGUAGES AND AUTOMATA THEORY(B18CS10)	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				
2	theory(DFA&NF Know the produc	A), computability theory, and complexity theory rules of regular expressions and gramm	heory.			
3	Construct a push	free and context: sensitive grammars. Idown automata and context free, regular,	normal			
4	Evaluate solution	design computer languages for various problems using a theoretical for a computer language.	computer			
5	help ofChomsky undecidability.	onship among language classes and gramm Hierarchy, and Distinguish between decidal		I		
Course Outcome	Year / semester II/II Sem	Subject Name (Subject Code) OPERATING SYSTEMS (B18CS11)	No. of Hours L:4 T:0 P:0	Credits:4		
After the o	completion of this	course, the students should be able to				
1		Operating Systems architectures, IO struct		ructure		
2	•	al memory, paging and memory allocation	techniques for			
3		ns. prevention and Deadlock Detection algorith trating system as a File manager, I/O manag				
4		verview of Disk Storage Structure.	301, 1 100088 IIIAII	agei.		
5		ccess controls to protect files.				
Course	Year / semester	Subject Name (Subject Code) MANAGERIAL ECONOMICS	No. of Hours	Credits:3		
Outcome	II/II Sem	& FINANCIAL	L:3 T:0 P:0			

		1	1	1			
		ACCOUNTANCY(B18MB01)					
After the o	completion of this	course, the students should be able to		l			
1		ature, scope and importance of Managerial l	Economics.				
2		Know what demand is, analyze demand and how elasticity of demand is used for pricing					
		evaluate methods for forecasting demand.		ror proving			
3		Know how production function is carried out to achieve least cost combination					
	of Inputsand how to analyze cost.						
4	Understand the c	Understand the characteristics of different kinds of markets and outline different					
	form of business organization and analyze how capital budgeting techniques are						
_	used for investme						
5	_	pare final accounts and how to interpret the	m, analyze and				
Course	Ť	statements using ratio analysis.					
Outcome	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5			
Outcome	II/II Sem	OPERATING SYSTEMS LAB	L:0 T:0 P:3				
		(B18CS12)					
After the o	completion of this	course, the students should be able to					
1	-	duling algorithms, Page replacement algorithms	hms.				
2				ion			
3	Explain Bankers Algorithm for Dead Lock Avoidance & Dead Lock Prevention Describe the concepts of paging and segmentation.						
4	Make use of Linu	1 100					
Course			No. of Hours	Credits:1.5			
		Subject Name (Subject Code) WEB TECHNOLOGIES		Credits:1.5			
Outcome	II/II Sem	LAB(B18CS13)	L:0 T:0 P:3				
		, , ,					
After the o	completion of this	course, the students should be able to					
1	Develop applicat	ions for a range of problems using object or	riented				
	programmingtecl	nniques.					
2	Design GUI base	d applications and Applets for web applicat	ions.				
3		a java program with the mysql database.					
4		ges using advanced server side programming	through Servle	ts and ISP			
Course	1 1	Subject Name (Subject Code)	No. of Hours	Credits: 0			
		GENDER SENSITIZATION		Credits. 0			
Outcome	II/II Sem	(B18MC07)	L:2 T:0 P:0				
After the o	completion of this	course, the students should be able to					
1		and importance of women empowerment.					
2	Extend the levels	of understanding and classification of gender	er disparities.				
3	Identify the need	of equal distribution of work in the entire se					
	irrespective ofge	nder.					
4		ergency needs of saving girl child.					
5		g levels to find solution to the missing wom	en and bring				
	realizationin the	·	Γ	T			
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				
		COMPUTER NETWORKS (B18CS14)					
After the co	mpletion of this co	ourse, the students should be able to	<u> </u>	<u> </u>			
1							
		omputer network technology.	1				
2	Identify the diffe	rent types of network topologies and protoc	ols.				

3	Categorize the l	nardware and software commonly used in	in data commu	nications and		
4	Interpret Design requirements	and Evaluate subnet masks and add	resses to fulfill	networking		
5	Analyze the features and Operations of TCP/UDP, FTP, HTTP, SMTP,SNMP etc.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4		
Outcome	III/I Sem	COMPILER DESIGN (B18CS15)	L:3 T:1 P:0			
After the co	ompletion of this co	ourse, the students should be able to				
1		edge of modern phases of compiler and its				
2	Identify the similarities and differences among varies parsing techniques.					
3	Explain semantic	analysis in the context of the compilation p	process.			
4	Design a symbol	table format for the language defined by a	orammar			
5		generation algorithm.	grammar			
Course		Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III/I Sem	SOFTWARE ENGINEERING	L:3 T:0 P:0	Createsia		
		(B18CS16)	L.3 1.01.0			
After the co	ompletion of this co	ourse, the students should be able to				
1	Define Software	Engineering and list core principles of s	oftware enginee	ring and		
	understand vario	us process models				
2	Develop an und	erstanding of software requirements and	be able to prep	are SRS		
	document.					
3	Understand software design engineering process using structural and object oriented approaches and be able to model.					
4		techniques of verification and validation in	n the process of	software		
		ply the testing strategies on different level	-			
	integration,)		1	,		
5		able to compute quality measures and de	velop a softwar	e quality		
		or a software development.	versp w sortwar	quarry		
Солима	1	Subject Name (Subject Code)	No. of Hours	Credits:3		
Course		MACHINE LEARNING		Credits:3		
Outcome	III/I Sem	(B18CS17)	L:3 T:0 P:0			
After the o	completion of this	course, the students should be able to				
1	_	y underlying machine learning.				
2	Learn beyond bir	nary classification.				
3	Recognize and in	nplement various genetic algorithms.				
4	Construct algorithms to learn tree, to learn linear, non-linear models and Probabilistic models					
5	•	he data using R Programming.				
Course		Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III/I Sem	PRINCIPLES OF PROGRAMMING	L:3 T:0 P:0			
Juttome	III/I OCIII	LANGUAGES (PROFESSIONAL ELECTIVE-I)	1.01.01.0			
		(B18CS18)				
After the co	mpletion of this co	ourse, the students should be able to	1	I		
1		related concepts including context free gran	mars. Attribute	Grammar		
-	•	crated concepts including context free grain	mus, mulout	Tanniai		
	parse trees.					

		repts of Abstraction and Encapsulation consous Language Examples.	structs of classes	, interfaces,	
4	Perceive the impl	ementation of object oriented languages.	D : I		
5		ctional Programming Languages and Logic	Programming I	Languages.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/I Sem	COMPUTER GRAPHICS (PROFESSIONAL ELECTIVE-I) (B18CS19)	L:3 T:0 P:0		
After the co	mpletion of this co	ourse, the students should be able to			
1	Get overview on	applications areas of Computer Graphics, C	Graphic devices a	and Monitors	
2	Learn about basic tools for constructing pictures with straight lines, methods for performing geometric transformations i.e 2-Dimensional, curves, filled area, celNo. of Hours L:array patterns, and text.				
	splines or blobby	ous surface functions such as quadrics, poly objects and 3-Dimensions transformations	in computer gra	phics.	
	Describe the importance of viewing. Learn major considerations in the generation of realistic graphic displays, detecting visible surfaces in a 3-Dimension scene and designing animation sequences.				
5	Discuss the applic	cations of computer Graphics. Analyze the	fundamentals of	animations	
Course Outcome	Year / semester III/I Sem	Subject Name (Subject Code) MOBILE APPLICATION	No. of Hours L:3 T:0 P:0	Credits:3	
		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.			
		e and select appropriate solutions to the mo	bile computing	platform.	
		o the user interface.		•	
4	Ability to work w	rith SQLITE DB.			
5	Student will be able	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 (OPEN ELECTIVE-I) (B18MB06)	L:3 T:0 P:0		
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.		
		nd assess principles in intellectual property			
		ime areas related to semiconductor chip pro			
4	Develop different	law of patents.			
	-	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		
Outcome	III/I Sem	(OPEN ELECTIVE-I) (B18CE53)	1.3 1.01.0		
After the co	mpletion of this co	ourse, the students should be able to	I	<u> </u>	
		ous types of disaster.			
		ous types of Hazards and Vulnerability.			
	_	t approaches of disaster risk reduction.			
	Describe the disaster management and safety plan.				

	Discourse the works	ous 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 64 41	1 4 641 1	(B18MB02)		
	_	ourse, the students should be able to		
		amentals of management and contributions		
2	Define the social	l Responsibilities of an organization toward	ds stakeholders	and build the
	suitable organiza	tion structure and to identify factors influen	cing plant location	on and layou
	decisions.			
3	Know importance	ce of materials management, evaluate qua	ality of products	s using SQC
	techniques and	Identify the basic concepts of marketing	g mix and Hum	an Resource
	concepts.			
4	Know how PER	RT and CPM different and to construct	network by pro	per planning
	organizing an ma	anaging the efforts to accomplish a successf	ful project.	
5	Appraise all cont	emporary management practices and analyz	ze how these con	temporary
	management prac	ctices one applicable in modern business an	d service organiz	zations.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	III/I Sem	COMPUTER NETWORKS AND COMPILER	L:0 T:0 P:3	
		DESIGN LAB (B18CS21)		
A 64 am 4 lb a a a	mulation of this o	arrage the strudents should be able to		
	_	ourse, the students should be able to		
		ogy using network devices and build a devi		
		er software and hardware technologies used		
		orking process of lexical analysis, parsing a	and other compile	er design
	aspects.	king of lex and yacc compiler for debugging	a of muoamama	
	imierbrei ine wor	King of lex and vacc compiler for debugging	o oi mooraine	
	<u> </u>		Ĭ	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
	<u> </u>	Subject Name (Subject Code) MACHINE LEARNING LAB	Ĭ	Credits:1.5
Course Outcome	Year / semester III/I Sem	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22)	No. of Hours	Credits:1.5
Course Outcome After the co	Year / semester III/I Sem ompletion of this c	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to:	No. of Hours L:0 T:0 P:3	Credits:1.5
Course Outcome After the co	Year / semester III/I Sem ompletion of this c Discuss different	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems	No. of Hours L:0 T:0 P:3	
Course Outcome After the co	Year / semester III/I Sem III/I Sem Discuss different Describe various	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to:	No. of Hours L:0 T:0 P:3	
Course Outcome After the co	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses.	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning	No. of Hours L:0 T:0 P:3 s. ng its strengths a	
Course Outcome After the co	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems	No. of Hours L:0 T:0 P:3 s. ng its strengths a	
Course Outcome After the co	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters.	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning	No. of Hours L:0 T:0 P:3 s. ng its strengths a	
Course Outcome After the co	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we attest issues raised by current researchers.	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different	nd
Course Outcome After the co 1 2 3 4 Course	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different No. of Hours	
Course Outcome After the co 1 2 3 4 Course Outcome	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentionin formance of Machine Learning algorithms was atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04)	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different	nd
Course Outcome After the co 1 2 3 4 Course Outcome	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentionin formance of Machine Learning algorithms was atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different No. of Hours	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	Year / semester III/I Sem III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem III/I Sem	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentionin formance of Machine Learning algorithms was atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04)	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different No. of Hours	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentionin formance of Machine Learning algorithms was atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different No. of Hours	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentionin formance of Machine Learning algorithms was atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen	No. of Hours L:0 T:0 P:3 s. ng its strengths a with different No. of Hours L:2 T:0 P:0	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm Identify the power	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we attest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen inistrative structure of the Indian union er of state government and make use of positions.	No. of Hours L:0 T:0 P:3 s. Ing its strengths a with different No. of Hours L:2 T:0 P:0	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm Identify the power	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen inistrative structure of the Indian union er of state government and make use of positions department and local administrations	No. of Hours L:0 T:0 P:3 s. Ing its strengths a with different No. of Hours L:2 T:0 P:0	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm Identify the power	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we attest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen inistrative structure of the Indian union er of state government and make use of positions.	No. of Hours L:0 T:0 P:3 s. Ing its strengths a with different No. of Hours L:2 T:0 P:0	nd
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3 4 5	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm Identify the power Categorize the various	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen inistrative structure of the Indian union er of state government and make use of positions department and local administrations etion commission and its roles	No. of Hours L:0 T:0 P:3 s. Ing its strengths a with different No. of Hours L:2 T:0 P:0	nd Credits:0
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Year / semester III/I Sem Discuss different Describe various weaknesses. Improve the perf parameters. Understand the la Year / semester III/I Sem Demonstrate the Classify the adm Identify the power Categorize the various	Subject Name (Subject Code) MACHINE LEARNING LAB (B18CS22) ourse the students should be able to: application on Machine Learning problems algorithms on Machine Learning mentioning formance of Machine Learning algorithms we atest issues raised by current researchers. Subject Name (Subject Code) INDIAN CONSTITUTION (B18MC04) ourse, the students should be able to fundamental rights and duties of a citizen inistrative structure of the Indian union er of state government and make use of positions department and local administrations	No. of Hours L:0 T:0 P:3 s. Ing its strengths a with different No. of Hours L:2 T:0 P:0 No. of Hours	nd

1	Demonstrate adv	anced knowledge of OSI layers, TCP & UI	OP concepts, Net	working.	
2	Summarize the TCP socket functions and Byte Ordering.				
3	Make use of TCP client server applications and analyze I/O Multiplexing and socket				
	options.		-		
4	Define about the Elementary UDP sockets and Address conversions.				
5	Explain inter process communication consisting of pipes, FIFOs, Semaphores, Message				
	Queues and Rem	ote Procedure Calls	_		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	SOFTWARE TESTING (B18CS24)	L:3 T:0 P:0		
			210 110 110		
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 plani	ning based on the document.			
3	Identify suitable	tests to be carried out.			
4		and test cases designed.			
5	Use of automatic		T	T	
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 64 41	1 4 641 *				
_	_	course, the students should be able to	0.1	11	
1		ining concepts and develops understanding			
2		rstanding of data warehouse, designing and	using data in da	ta warehouse	
3	using various ope		1 ''	1 1,1 1	
3		ok of Association rule mining, association i			
4		me sample data sets, evaluate these method			
4	_	estanding of classification and prediction, cl			
5		me sample data sets, evaluate these method			
3		and understanding of clustering, various			
- C		me sample data sets, evaluate these method			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	WEB SERVICES (B18CS26)	L:3 T:0 P:0		
A fton the	ompletion of this	course, the students should be able to			
After the C	_	service client and server with interoperable	evetome like co	ra distributad	
1	*	, SOA, WSDL, UDDI and EBXML	systems like co	ie distributed	
2		lyze the principles of SOAP.			
3		ement Web Services life cycle, Anatomy or	f WSDL definiti	on document	
	l crecive the mip	ement web betvices into cycle, Anatomy 0.		on accument.	
4	How to utilize th	ne semantics of web services. Working wi	th UDDI, progr	amming with	
	UDDI, UDDI dat	a structures.			
5	Explore interoper	rability between different frameworks. Desi	gn web based ap	plications	
	that use web serv	ices		Г	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	ADVANCED DATABASE	L:3 T:0 P:0		
		MANAGEMENT SYSTEMS			
		(PROFESSIONAL ELECTIVE-II)			
		(B18CS27)			
After the o	completion of this	course, the students should be able to			
1	_	Languages, Models along with Client Serve	er Architecture.		
2		s of Database Recovery protocols.			
		V 1			

3	Construct EER m	nodel for real world problems.			
5	Determine variou Adapt with advar	is database security issues. need Data models and its applications.			
Course	Year/semester	Subject Name (Subject Code) DESIGN PATTERNS	No. of Hours	Credits:3	
Outcome	III/II Sem	(PROFESSIONAL ELECTIVE-II) (B18CS28)	L:3 T:0 P:0		
After the co	empletion of this co	ourse, the students should be able to		•	
1	• • • • • • • • • • • • • • • • • • • •	opriate design patterns to solve object orien			
	Identify and implement appropriate solutions to recurring programming problems by consulting technical documentation and specifications, including design pattern catalogs and existing source code.				
3		elements of structural patterns and their in	plementation.		
	Understand basic	elements of creational patterns and their in	nplementations.		
5		elements of behavioral patterns and their is d of using design patterns.	mplementation a	long with	
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	OPEN SOURCE SOFTWARE (PROFESSIONAL ELECTIVE-II) (B18CS29)	L:3 T:0 P:0		
After the co	mpletion of this co	ourse, the students should be able to			
1	Install and run op	pen-source operating systems.			
2	Gather Information and from sites on	on about free and open source software pr	ojects from soft	ware releases	
3	<u> </u>	one or more free and open source software	e packages.		
	Ability to learn v development com	ersion control system and interface with venmunities.	rsion control sys	stems used by	
5	•	are to and interact with free and open s	source software	development	
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/I Sem	AIR POLLUTION CONTROL (OPEN ELECTIVE – II) (B18CE52)	L:3 T:0 P:0		
After the o	completion of this o	course, the students should be able to			
1	Perceive Air poll	ution Concepts.			
2		cts of air pollution on the environment.			
3	the pollutant cond			d to predict	
5		persion modelling and assess the concentrate lity monitoring devices.	tions.		
Course	•	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	III/II Sem	BIOMEDICAL INSTRUMENTAION (OPEN ELECTIVE – II) (B18EC23)	L:3 T:0 P:0		
After the o	completion of this o	course, the students should be able to			
1	Understand the fusignals.	unctions of bio amplifiers, characteristics of	f medical instrur	nents and bio	
2		us internal, external Bio electrodes and relatities of heart.	ntions between e	lectrical and	
		concepts of Cardiac Instrumentation and g	ain the knowled	ge about	
4		rapeutic Equipment and their operation.			

5	Acquires knowle	dge 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 (OPEN ELECTIVE – II)	L:3 T:0 P:0				
		(B18EC24)					
After the o		course, the students should be able to					
1		lge of digital image fundamentals and imag					
2		rsis of image enhancement in spatial and fre	equency domain	•			
3	Understand the d	Understand the different methods to restore an image.					
4	Inspect different processing.	Inspect different image segmentation techniques and understand morphological image processing.					
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				
Outcome	III/II Sem	COMMUNICATION SKILLS LAB	2.01.01.3				
		(B18EN03)					
After the o		course, the students should be able to					
1		vely and appropriate vocabulary to be used cor	textually				
2		r Writing and felicity in written expression.					
3	Enhancing job pro	sspects.					
4	Acquiring effective	e speaking abilities					
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5			
		NETWORK PROGRAMMING LAB		Credits.1.5			
Outcome	III/II Sem	(B18CS30)	L:0 T:0 P:3				
After the o	completion of this o	course, the students should be able to					
1	Elaborate basic U	JNIX commands, shell scripts and AWK sc	ripts.				
2		nipulate files and directories.	•				
3	Model TCP and I	UDP client server applications and outline	the I/O multiple	xing concepts			
	of Select and Pol		_				
4		ess communication consisting of pipes, FII and develop RPC applications.	FOs, Semaphore	s 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				
After the c	rompletion of this (course, the students should be able to	l				
1	, 	of data warehouse and implement OLAP	perations				
2		For data mining task such as association rule	*	ication and			
_		few algorithms from the respective task.	o mining, classif	ication and			
3		ing using WEKA and apply classification u	sing Naive bave	s technique.			
		ing woing mid upply componition w	sing rear ve surje	s commence.			
4	Will have experie	ence and/or awareness of testing problems a	and will be able	to develop a			
	simple testing rep	oort.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0			
Outcome	III/II Sem	LOGICAL REASONING &	L:2 T:0 P:0				
0 000001110		QUANTITATIVE APTITUDE (B18MC05)					
A ftow 4h a	nompletion of this		<u> </u>				
		course, the students should be able to	hodologias to	adamatar d a : d			
1		re reasoning and mathematical analysis met	modologies to ui	iderstand and			
2	solve problems.	formation compathy determine which well	amatical read-1	hast			
L	1 0	formation correctly, determine which math	emancai model	oest			
	describes the data	1.					

d problem Credits:3 Credits:3				
Credits:3				
Credits:3				
Credits:3				
rvices.				
Credits:3				
Credits:3				
Citaits.5				
rices				
sues				
Analyze the issues of cloud computing like cloud security. Explain the core issues of cloudcomputing such as security and privacy				
7				

	T				
	Apply the information systems auditing methodology. Identify and manage the security controls.				
	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	Year / semester IV/I Sem	Subject Name (Subject Code) ARTIFICIAL INTELLIGENCE	No. of Hours L:3 T:0 P:0	Credits:3	
		(PROFESSIONAL ELECTIVE-III) (B18CS35)			
After the c	ompletion of this o	course, the students should be able to			
1	Remember variou	as AI concepts like the AI technique, level of	of model, there		
2	underlyingassumptions etc. Perceive the concepts of AI search techniques. Solve various problems by apply in search methods				
3		Representation techniques. Analyze different	ent structures of		
	1	h techniques. Analyze different Planning To	echniques		
_	Create Expert sys		<u> </u>		
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV/I Sem	SOFT COMPUTING (PROFESSIONAL ELECTIVE-IV) (B18CS36)	L:3 T:0 P:0		
	completion of this o	course, the students should be able to			
		tificial neural network and soft computing t			
	Associativememo			arious	
	Perceive the algonetworks, Specia	rithms for pattern association unsupervised lnetworks.	d learning		
		mappings in fuzzy sets. Interpret the Scoceive defuzzification methods and discussion	-	-	
5	Analyze and con	apprehends the concepts and applications of outing techniques for problem solving	f genetic algorit	hms,	
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) BUSINESS INTELLIGENCE AND BIG	No. of Hours L:3 T:0 P:0	Credits:3	
	1771 Sem	DATA(PROFESSIONAL ELECTIVE-IV) (B18CS37)	2.0 1.01.0		
After the c	ompletion of this o	course, the students should be able to			
1	Explain the found	lations, definitions and capabilities of Bigda	ıta.		
		ns, concepts, architectures and challenges in tions, concepts, and enabling technologies	0		
		epts on Handoop Ecosystem in Big data.			
4	Analyze the Map	reduce programming in Big data Analytics.			
		ocation-based analytics, social networking, '	elligence using Web 2.0, reality		
Course Outcome		Subject Name (Subject Code) SOFTWARE PROJECT MANAGEMENT (PROFESSIONAL ELECTIVE-IV) (B18CS38)	No. of Hours L:3 T:0 P:0	Credits:3	

1		course, the students should be able to of software economics, phases in the	life cycle of	software	
		ject organization, and project control and p	•		
2		vare economics, software development li			
		ws, checkpoints, project organization and	•		
		ess instrumentation.			
3	Choose the right software development approach. Compare various project				
	organizations and				
4	Analyze the major and minor milestones, artifacts and metrics for management and technical perspective.				
5	Design software product using conventional and modern principles of software project				
	management.		1	1 3	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV/I Sem	NANO TECHNOLOGY	L:3 T:0 P:0		
Outcome	1 V/1 Sciii	(OPEN ELECTIVE-III) (B18ME25)	1.5 1.01.0		
After the	completion of this	course, the students should be able to			
1	Know the import	ance of nano scale ,types and their properti	es.		
2	•	mechanical phenomenon in two and three of		finements	
3	• •	pplications of carbon nano structures.			
4	Differentiate nan	o scale characterization techniques.			
5		devices and other devices.			
Course		Subject Name (Subject Code)	No. of Hours	Credits:3	
		ENTREPRENEURSHIP DEVELOPMENT	1	Credits.5	
Outcome	IV/I Sem	(OPEN ELECTIVE-III) (B18MB03)	L:3 T:0 P:0		
After the	completion of this	course, the students should be able to	1	l	
1	Define the nature	and Qualities of Entrepreneur and relate to	types of owners	hip.	
2	What are risk Red	duction, market scope and Imitation strategi	es.		
3		regulations system and IPRs and summarize	e the source of		
	finance fromdiffe				
4	Identify the needs	s of business ethics and develop the principl	les.		
5		es of corporate governance and interpret the	guidelines.		
		1 0			
	Elaborate thecon	cept of social responsibility and improve pr	ofessional ethics	•	
Course		cept of social responsibility and improve property Subject Name (Subject Code)	ofessional ethics No. of Hours	Credits:3	
Course Outcome		cept of social responsibility and improve pr Subject Name (Subject Code) EMBEDDESYSTEMS			
	Year / semester	cept of social responsibility and improve probable Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III)	No. of Hours		
Outcome	Year / semester IV/I Sem	cept of social responsibility and improve procept of social responsibility and improve process of the social responsibility and improve	No. of Hours		
Outcome	Year / semester IV/I Sem	cept of social responsibility and improve probable Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III)	No. of Hours		
Outcome	Year / semester IV/I Sem completion of this of Explain the difference of the semester of the	cept of social responsibility and improve procept of social responsibility and improve process of the social responsibility and improve	No. of Hours L:3 T:0 P:0	Credits:3	
Outcome	Year / semester IV/I Sem completion of this explain the differ designing them.	cept of social responsibility and improve probable to subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) course, the students should be able to rent embedded system design techniques and	No. of Hours L:3 T:0 P:0 d the metrics or o	Credits:3	
Outcome After the	Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the completion of this of the completion of the completion of this of the completion of the completion of this of the completion of the comp	cept of social responsibility and improve procept of social responsibility and improve process of the students	No. of Hours L:3 T:0 P:0 d the metrics or of Processor.	Credits:3	
After the of 2	Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the condemonstrate Soft	Subject Name (Subject Code) EMBEDDESYSTEMS (OPEN ELECTIVE-III) (B18EC31) Course, the students should be able to rent embedded system design techniques and	No. of Hours L:3 T:0 P:0 d the metrics or of Processor. and High Level I	Credits:3	
After the of the	Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the concentrate Soft Classify the differ WindowsCE. Understand the Explain the Explain the Interest of the Interest of Interest	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	No. of Hours L:3 T:0 P:0 d the metrics or of Processor. and High Level I RTOS Vx Work and Tools and Per	challenges Language.	
2 3 4 5	Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the concentrate Soft Classify the differ WindowsCE. Understand the Explain the E	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 con Host Machine, Simulators, Laboratory	No. of Hours L:3 T:0 P:0 d the metrics or of Processor. and High Level I RTOS Vx Work and Tools and Per Tools	challenges Language. s,	
After the of the	Year / semester IV/I Sem completion of this of Explain the differ designing them. Understand the concentrate Soft Classify the differ WindowsCE. Understand the Explain the E	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	No. of Hours L:3 T:0 P:0 d the metrics or of Processor. and High Level I RTOS Vx Work and Tools and Per	challenges Language.	

After the a	completion of this	course, the students should be able to			
1	Perceive, plan and execute a mini project as an individual or in a team in				
	development ofm	1 0			
2		al 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	<u> </u>	e communication skills for presentation of n	nini project relate	ed activities.	
5		nical seminar based on the Mini Project wo			
Course	Year / semester Subject Name (Subject Code) No. of Hours Credits				
Outcome	IV/I Sem	NETWORK SECURITY & CRYPTOGRAPHY LAB (B18CS39)	L:0 T:0 P:3		
After the o	completion of this o	course, the students should be able to	L	L	
1	Implement the cip	oher techniques.			
2	Apply the mather	natical foundation required for various cryp	tographic algori	thms.	
3	Develop the vario	ous security algorithms.			
4	Use different ope	n source tools for network security and anal	lysis.		
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE – I	No. of Hours L:0 T:0 P:8	Credits:4	
		(B18CS47)			
After the o	completion of this o	course, the students should be able to	I	<u> </u>	
1		l knowledge and skills in engineering and a	pply it effective	y on a	
2		e of the 'real world' situations that a profess	sional engineer c	an encounter	
3	Apply critical and	l creative thinking in the design of software	, Hardware and		
	Networkingproje	cts.			
4	As a team student	t can organise, record and compile their wo	rk done through	out the	
	projectin an effic		C		
5	Manage any disp	utes and conflicts within and outside their to	eam.		
6		und technical knowledge of their selected p			
7		knowledge, skills and attitudes of a professi	•		
8		propriate list of literature review, analyse p		d relate them	
	tocurrent project.	• •	revious work an	a relate them	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0	
Outcome	IV/I Sem	HUMAN VALUES AND PROFESSIONAL ETHICS (B18MC09)	L:2 T:0 P:0		
After the o	completion of this o	course, the students should be able to	•	•	
1	Perceive the impo	ortance of ethics and values in life and socie	ety.		
2		sponsibility and mould them as best profess	•		
3	Create ethical vis	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.		

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	IV/II Sem	INTERNET OF THINGS (IoT)	L:3 T:0 P:0				
0 440001110		(PROFESSIONAL ELECTIVE-V) (B18CS40)					
After the o	completion of this c	course, the students should be able to					
1	Interpret the vision	on of IoT from global context.					
2	Perceive building	blocks of Internet of Things and its charact	teristics.				
3	Learn the basic concepts of Python. Implement the python programming using Raspberry.						
4	Perceive the application areas of IoT. Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks						
5		arket perspective of IoT. Develop Pythor	n web application	ons and cloud			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	IV/II Sem	ADVANCED OPERATING SYSTEMS (PROFESSIONAL ELECTIVE-V) (B18CS41)	L:3 T:0 P:0				
After the o	completion of this c	course, the students should be able to		•			
1	Discuss the variou demonstrate the M	as synchronization, scheduling and memory	y management is	sues			
2							
3		on and agreement protocols of Distributed of					
	Discuss the variou	us resource management techniques for dis	tributed systems				
4	Identify the differ	ent features of real time and mobile operati	ng systems				
5	Install and use av	ailable open source kernel. Modify existing	open source ker	rnels in terms			
	of functionality or	r 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 o	completion of this c	course, the students should be able to					
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	nta from/to files in Python Programs.					
5	To build software	·					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	IV/II Sem	CYBER SECURITY& HACKING	L:3 T:0 P:0	Createsia			
Outcome	TV/II Selli	(PROFESSIONAL ELECTIVE-VI) (B18CS43)	L:5 1:0 F:0				
After the o	completion of this o	course, the students should be able to					
1	Outline key terms	and concepts in cyber law, intellectual pro	perty and cybero	crimes.			
2	Explore the vulne	rabilities, threats and cybercrimes posed by	criminals.				
3		ecurity challenges phased by mobile device					
4		ypes of tools and methods used in cybercriso maintain security protection.	me, develops the	e secure			
5		er security risk management policies in or	order to adequa	tely protect			

Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) SERVICE ORIENTED ARCHITECTURE (PROFESSIONAL ELECTIVE-VI) (B18CS44)	No. of Hours L:3 T:0 P:0	Credits:3		
After the c	completion of this (course, the students should be able to				
1	-					
2	Design various service layers Model service candidate derived from existing business documentation.					
3	Design the composition of SOA.					
4	Design applicatio	n services for technology abstraction.				
5	Principles of Serv	rice-Orientation				
Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) INFORMATION RETRIEVAL SYSTEMS (PROFESSIONAL ELECTIVE-VI) (B18CS45)	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	Define Vector spa	ace model, understand various similarity coe	efficient and me	asures.		
2	Develop an Unde Analysis, Thesaur	erstanding on Relevance feedback, , Cluster i.	ing, Regression			
3	Apply various Re	trieval Utilities for Information Retrieval.				
4	-	rstanding about Signature files, Duplicate d		on.		
5		es to locate relevant information large colle	ection of data.	T		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
Outcome	IV/II Sem	TECHNICAL SEMINAR (B18CS48)	L:0 T:0 P:2			
After the o		course, the students should be able to				
1	Identifies, unders	tand and discuss current, real-world issues.				
2	Explain the role of life	of self-efficacy, personal goals, and motivation	on in improving	academic		
3	Describe the beha	aviours and characteristics of an effective lea	arner. Gain knov	wledge of fast		
	and rapidly chang	ging by self learning				
4	Practice finding r	elevant course material on the Internet and	incorporate then	n in their		
	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 o	ral communicati	ion.		
Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE –II	No. of Hours L:0 T:0	Credits:8		
Outcome	TV/II Selli	(B18CS49)	P:16			
After the a	completion of this <i>a</i>	course, the students should be able to	<u> </u>	1		
1		l knowledge and skills in engineering and a	pply it effective	ly on a		
2		of the 'real world' situations that a profess	ional engineer c	an encounter.		
3		I creative thinking in the design of software,				
	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		L:3 T:0 P:0				
Outcome	1 Sem	Data Structures and	2.0 1.01.0				
		Algorithms(M18CS01)					
On successf		nis course, students will be able to:					
1		basic on data structures to store and retrieve an sts, trees, heaps, and hash tables.	ordered or unord	ered data. Such			
2	·	e on applications of data structures having the	ahility to impleme	ent algorithms			
2		o perform operation as create, insert, delete, search, and sorting.					
3		Learn to analyze and to compare efficiency of an algorithm.					
4	Understand the bas	ic concepts of latest techniques.					
5	Ability to have con	cepts on tree and graphs.					
6	•	projects on these data structures and plan B-Tı	rees to implement	different			
	various operations.						
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	I Sem	Distributed Systems(M18CS02)	L:3 T:0 P:0				
On success	sful completion of	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	•	veness and shortcomings for solutions.					
5	Identify the princip	les that are based on these contemporary distri	buted systems.				
6	Explain its affect of	on software design to identify the features.	1	T			
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				
After the o	completion of this o	course, the students should be able to					
1	Describe the basic	terminology, latest technology along with its ap	pplications.				
2	Discuss the protoco	ols based on the concepts such as machine to m	nachine.				
3	Illustrate the IOT	devices using Python Scripting Language.					
4		ation with Raspberry PI platform which can be	widely used in m	any			
_	applications of IoT						
5	Implement it widel	y that can be used in many applications of IoT	devices.				
6	Design a web appli	cation framework on REST ful web API.					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	I Sem	Machine Learning(M18CS04)	L:3 T:0 P:0				
1	Discuss different	application on Machine Learning problems.					
2	Describe various al	Igorithms on Machine Learning mentioning its	strengths and wea	knesses			
	1						

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

г	T		·	1			
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	ul completion of th	is course, students will be able to:					
1	Discuss main conce	epts, key strengths, and limitations for cloud co	omputing.				
2	PaaS, IaaS, public	Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.					
3		on cloud computing along with security, privac	• •	oility.			
4		appropriate technology, methods on these issu					
5		and explain, analyze, and evaluate various clo		itions.			
6	Provide the approp	priate solutions on cloud computing based on the					
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 So	cience 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 vis	ualization on given data.					
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) Advanced Wireless and Mobile Networks(M18CS07)	No. of Hours L:3 T:0 P:0	Credits:3			
After the o	completion of this c	course, the students should be able to					
1	Discuss the state-of	f-the-art in network protocols, architectures and	d applications				
2	Analyze existing no	etwork protocols and networks.					
3	Develop new protocols on networking						
4	Describe novel ideas in the area of Networking via term-long research projects.						
5	Implement various	protocols on localization Methods.					
6	Design a real time a	applications on RFID.					

	1					
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 languages	S.			
2	Discuss Python o	n regard as the object-oriented concepts,				
3		ent built-in objects of Python,				
4		iscuss advanced applications such as TCP/IP network programming, multithreaded				
7		b applications, discrete-event simulations, etc.		cu		
5		modules on exception handling applications.				
6	Plan a Real Time					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2		
		Research Methodology(M18MC01)				
Outcome	I Sem	research memodology (milomeor)	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	research.			
2	Analyze the various	s methods in Data Collection, Data Organization	on and different ap	proaches of		
	Data Representatio					
3		basic concepts required to prepare				
	a. Research sync	ppsis				
	b. Dissertation	d				
4		d research proposal of Patent Rights and Administration of Patent	System			
4	interpret the scope	of Fatent Rights and Administration of Fatent	System.			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:0		
Outcome	I Sem	English for Research Paper	L:2 T:0 P:0			
Outcome	1 Sem	Writing(M18MC01)				
On success						
	sful completion of	f this course, students are able to:				
1			rnose of writing a	nx,		
1	Obtain complete kr	nowledge on Definition of a research paper, Pu	rpose of writing a	ny		
_	Obtain complete kr research paper, its	nowledge on Definition of a research paper, Pu Scope and Benefits.		ny		
2	Obtain complete kr research paper, its S Understand the star	nowledge on Definition of a research paper, Pu Scope and Benefits. Indard English formats .for scripting the best res	search paper			
_	Obtain complete kr research paper, its S Understand the star Analyze all the Qua	nowledge on Definition of a research paper, Pu Scope and Benefits.	search paper			
2	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism.	nowledge on Definition of a research paper, Pu Scope and Benefits. Indard English formats .for scripting the best research Methodology	search paper gies and the ethics	of		
2 3	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism.	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best research Methodological process of writing and publishing any research	search paper gies and the ethics	of		
2 3	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism. Explain the detailed	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best research allitative and Quantitative Research Methodology. If process of writing and publishing any research ing.	search paper gies and the ethics	of		
2 3 4 Course	Obtain complete kr research paper, its s Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper write Year / semester	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restalitative and Quantitative Research Methodological process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms	search paper gies and the ethics th paper and perfo	rm a case		
2 3 4 Course Outcome	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper write Year / semester I Sem	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restallitative and Quantitative Research Methodology of process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms Lab(M18CS09)	search paper gies and the ethics h paper and perfo	rm a case		
2 3 4 Course Outcome After the c	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper write Year / semester I Sem	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restalitative and Quantitative Research Methodological process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms Lab(M18CS09) Sourse, the students should be able to	search paper gies and the ethics th paper and perfo	rm a case		
2 3 4 Course Outcome After the course	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper write Year / semester I Sem	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restalitative and Quantitative Research Methodological process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms Lab(M18CS09) Sourse, the students should be able to	search paper gies and the ethics th paper and perfo	rm a case		
2 3 4 Course Outcome After the course	Obtain complete kr research paper, its 3 Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper writ Year / semester I Sem	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restalitative and Quantitative Research Methodological process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms Lab(M18CS09) Sourse, the students should be able to	search paper gies and the ethics th paper and performance No. of Hours L:0 T:0 P:4	rm a case		
2 3 4 Course Outcome After the c	Obtain complete kr research paper, its S Understand the star Analyze all the Qua plagiarism. Explain the detailed study on paper write Year / semester I Sem Completion of this of Analyze algorithms	nowledge on Definition of a research paper, Purscope and Benefits. Indard English formats .for scripting the best restalitative and Quantitative Research Methodological process of writing and publishing any researching. Subject Name (Subject Code) Data Structures and Algorithms Lab(M18CS09) course, the students should be able to	search paper gies and the ethics th paper and performance No. of Hours L:0 T:0 P:4	rm a case		

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
		ecture along with specific infrastructure on c cloud, private cloud, hybrid cloud, etc.	loud 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 appro	priate solutions on cloud computing based on t	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 successi	ful completion of th	us course, students will be able to:		
1	Determine Linux u	tilities.		
2	Identify file handling	ng techniques and signals.		
3	Explain what is IPO	C and network programming in Java.		
4	Learn how process	es communicate with each other across a Comp	outer Network.	
5	Develop Network p	programming using TCP/UDP sockets		
6	Implement Real T	ime and current trends in client server Applicat	ion.	
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 of	f this course, students are able to:		
1	Understand the fuz	zy logic, concepts of fuzziness involved in fuzz	zy set theory	
2		ts of fuzzy sets, knowledge representation usin ning, fuzzy inference systems, and fuzzy logic.	g fuzzy rules,	
3	* *	ntal theory, concepts of neural networks.		
4	Identify different n	eural network architectures, algorithms, applica-	ations along their	limitations.
5	Classify different lowith its application	earning rules, architectures to learn several neus.	ral network parad	igms along
6	Deploy different ap	oplications of these models to solve engineering		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	II Sem	Computer Vision(M18CS13)	L:3 T:0 P:0	
After the	completion of this o	course, the students should be able to		
1	Elaborate developn	nent of algorithms and techniques.		
2	Analyze and interp	ret the visible world around us with real time p	roblems.	

pattern analysis visual geometric modeling, stochastic optimization etc. 4 Take part to makeup and contribute in research developments in the field of computer vision. 5 Explain different applications ranging from Biometrics, Medical diagnosis, document processing, mining of visual content, to surveillance, advanced rendering etc. 6 Identify applications In-vehicle vision system. Course (Year / semester) Subject Name (Subject Code) Data Preparation and Analysis (M18CS14) L: 3 T: 0 P: 0 1 Work for a business environment dealing with data preparation. 2 Prepare data marts for statistical analysis using SAS software. 3 Implement SAS with an efficient 4 Analyze data from databases to clean the data for statistical analysis in SAS. Develop many strategies to deal with imperfect real world data. Course (Vear/Semester) Subject Name (Subject Code) No. of Hours Digital Forensics (M18CS15) L: 3 T: 1 P: 0 On successful completion of this course, students will be able to: 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position. 3 Demonstrate the techniques, usage of digital forensics tools 4 Elaborate digital forensics in detail. 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course (Vear/Semester) Subject Name (Subject Code) L: 3 T: 0 P: 0 On successful completion of this course, students are able to: 1 Describe various techniques used for data fragmentation, replication, and allocation for a distributed database. 2 Compare simple strategies for executing a distributed query optimization. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course (Vear/semester) Subject Name (Subject Code) No. of Hours (L: 3 T: 0 P: 0) After the completion of this course, the students should be a	3		ntal concepts on multi-dimensional signal proc		traction,		
Explain different applications ranging from Biometries, Medical diagnosis, document processing, mining of visual content, to surveillance, advanced rendering etc. 6 Identify applications In-vehicle vision system. Course Vear / semester Outcome II Sem Data Preparation and Analysis (M18CS14)	4	·					
mining of visual coment, to surveillance, advanced rendering etc. Course Outcome I Sem	4	Γake part to makeup and contribute in research developments in the field of computer vision.					
Course Outcome II Sem 1 Work for a business environment dealing with data preparation. 2 Prepare data marts for statistical analysis using SAS software. 3 Implement SAS with an efficient 4 Analyze data from databases to clean the data for statistical analysis in SAS. 4 Develop many strategies to deal with imperfect real world data. Course Year/Semester Subject Name (Subject Code) Digital Forensics (M18CS15) On successful completion of this course, students will be able to: 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position. 3 Demonstrate the techniques, usage of digital forensics tools 4 Elaborate digital forensics in detail. 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year/Semester Subject Name (Subject Code) Distributed Databases (M18CS16) On successful completion of this course, students are able to: 1 Describe various techniques used for data fragmentation, replication, and allocation for a distributed database. 2 Compare simple strategies for executing a distributed query optimization. 3 Learn the two-phase commit protocol on multiple nodes. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course Year/semester Subject Name (Subject Code) Human Computer Interaction(M18CS17) After the completion of this course, the students should be able to 1 Discuss the characteristics of graphical and web user interfaces. 2 Understand the principles of design of business function.	5						
Data Preparation and Analysis (M18CS14) L:3 T:0 P:0	6	Identify application	ns In-vehicle vision system.				
Work for a business environment dealing with data preparation.	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
2 Prepare data marts for statistical analysis using SAS software. 3 Implement SAS with an efficient 4 Analyze data from databases to clean the data for statistical analysis in SAS. 4 Develop many strategies to deal with imperfect real world data. Course Year/Semester Outcome II Sem Digital Forensics (M18CS15) On successful completion of this course, students will be able to: 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position. 3 Demonstrate the techniques, usage of digital forensics tools 4 Elaborate digital forensics in detail. 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year /Semester Outcome II Sem Distributed Databases (M18CS16) 1 Describe various techniques used for data fragmentation, replication, and allocation for a distributed database. 2 Compare simple strategies for executing a distributed query optimization. 3 Learn the two-phase commit protocol on multiple nodes. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course Year/semester Subject Name (Subject Code) Understand the principles of design of business function.	Outcome	II Sem	Data Preparation and Analysis(M18CS14)	L:3 T:0 P:0			
2 Prepare data marts for statistical analysis using SAS software. 3 Implement SAS with an efficient 4 Analyze data from databases to clean the data for statistical analysis in SAS. 4 Develop many strategies to deal with imperfect real world data. Course Outcome II Sem Digital Forensics(M18CS15) Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position. 3 Demonstrate the techniques, usage of digital forensics tools 4 Elaborate digital forensics in detail. 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome Vear /Semester Utcome Utsem User Utsem Understand the two-phase commit protocol on multiple nodes. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course Vear /semester Utcome User Subject Name (Subject Code) Illustrate techniques used for data fragmentation, replication, and allocation for a distributed database. 2 Compare simple strategies for executing a distributed query optimization. 3 Learn the two-phase commit protocol on multiple nodes. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course Vear /semester Outcome User Subject Name (Subject Code) Human Computer Interaction(M18CS17) L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss the characteristics of graphical and web user interfaces. 2 Understand the principles of design of business function.	1	Work for a busines	s environment dealing with data preparation.				
4 Analyze data from databases to clean the data for statistical analysis in SAS. 4 Develop many strategies to deal with imperfect real world data. Course Vear/Semester Subject Name (Subject Code) No. of Hours Digital Forensics (M18CS15) L:3 T:1 P:0 On successful completion of this course, students will be able to: 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on the investigator's position. 3 Demonstrate the techniques, usage of digital forensics tools 4 Elaborate digital forensics in detail. 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Distributed Databases (M18CS16) No. of Hours L:3 T:0 P:0 On successful completion of this course, students are able to: 1 Describe various techniques used for data fragmentation, replication, and allocation for a distributed database. 2 Compare simple strategies for executing a distributed query optimization. 3 Learn the two-phase commit protocol on multiple nodes. 4 Describe distributed concurrency control. 5 Illustrate techniques based on the distinguished voting methods. 6 Learn different types of Heterogeneous Database System Course Vear / semester 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 1 Discuss the characteristics of graphical and web user interfaces. 2 Understand the principles of design of business function.	2		Ţ , ,		•		
Develop many strategies to deal with imperfect real world data. Course Year/Semester Subject Name (Subject Code) Digital Forensics (M18CS15) L:3 T:1 P:0	3	Implement SAS wi	th an efficient				
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2 Understand the principles of design of business function.		_					
enderstand the principles of design of same so function.							
3 Demonstrate the system menus and screen based controls.		Understand the pr	inciples of design of business function.				
	3	Demonstrate the s	ystem menus and screen based controls.				

4	Adapt the goals ar	nd conceptualization interaction.				
5	Design the process	Design the process of interaction and affective aspects				
6	Compare the fram	Compare the framework, predictive models and prototypes.				
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Software Process and Project Management	No. of Hours L:3 T:0 P:0	Credits: 3		
		(M18CS18)				
1		execute projects based on required standar	ds.			
3		nge of tools used on project management.	dalasia.			
4	· · ·	pts related on project governance and metho sis on solving problems and planning process				
			·			
5	Describe planning,	Risk and issues management.				
6	Plan process, prag	matic planning service delivery and quality as	surance			
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	ful completion of th	is course, students will be able to:				
1	Maintain a stress a effects.	wareness log. Include identification of causes,	symptoms, and a	nalysis of		
2	Gather information relevance.	n on current stress management techniques a	and evaluate pers	onal		
3	Practice specific te	chniques, track effectiveness, and revise to m	neet personal pre	ferences.		
4	Choose an adaptak 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			
		course, the students should be able to	1	<u> </u>		
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.				
· 	2 STITUTION OF THE PROPERTY OF	to detemp determination for eyear referrible.				

Course Outcome		Subject Name (Subject Code) Mini Project (M18CS21)	No. of Hours L:0 T:0 P:2	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 con	npleted task and compile the report.		Elaborate the completed task and compile the report.		

III-SEMESTER

Course Outcome	Year/Semester M Sem	Subject Name (Subject Code) Semantic Web & Social Networks (M18CS22)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successf	ful completion of th	nis 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	descriptions in XM	epts of metadata, semantics of knowledge and IL-based syntax and web ontology language (C		ogy, andtheir		
3	Describe logic sen	nantics and inference with OWL.				
4	Use ontology engi-	neering approaches in semantic applications				
5		applications with Java API.				
6		ept structure of the semantic web technolog World Wide Web and its uses.	gy and how this	technology		
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:	,			
1	Explain the mobile	issues and development strategies.				
2	Discuss WAP and I	mobile security issues.				
3	Define the Bluetoo	oth security issues.				
4	Classify the SMS Se	ecurity issues.				
5	Demonstrate the E	Demonstrate the Enterprise Security on the Mobile OS.				
6	Develop Application 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		

After the o	completion of this o	course, the students should be able to				
1		Transform algorithms in the computational area to efficient programming code for modern				
	•	computer architectures.				
2		nd handle programs for scientific computation	ons.			
3	Develop tools for p	performance optimization and debugging.				
4	Analyze code with	respect to performance and suggest and impl	ement performan	ce		
	improvements.					
5	Report on perform	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	ul completion of th	is course, students will be able to:				
1		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,	reliably to find an approximate solution.				
5	Compare the perfo	ormance of an algorithm.				
6	Discovery, study, u	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			
On success	sful completion of	f this course, students are able to:	1	•		
1	Compare the subje	ect from the technical, legal and economical p	points .			
2	Learn solid waste					
3	Describe environm	ent for sound management.				
4	Understand a mun	icipal solid waste management system.				
5		management system for decision makers.				
6	Design an incinera	·				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Embedded System Design (M18VL07)	L:3 T:0 P:0			
After the o	completion of this o	course, the students should be able to	1	<u> </u>		
1		ed systems, design, technology to explain its	metrics or challe	nges.		
2		gle – purpose processors using combinationa				
3	Discuss about opt	imizing single – purpose processors. Discuss eneral purpose processors.	•			
4	Define and distin	guish between a timer and a counter, var onous Receiver/ Transmitter. Explain contro	• • •			

5	Discuss common memory types ROM , RAM, advanced RAM. Explain microprocessor					
	interfacingand ar	bitration methods, various protocols like se	erial, parallel.			
6	Explain basics of	interrupts, architectures like Round Robin	, Real – Time Ope	rating		
	Systemarchitectu	re.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 10		
Outcome	III Sem	Dissertation Phase-I (M18CS25)	L:0 T:0 P:20			
1	Identify the probl	em 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 modules through effective team work after efficient testing					
5	Elaborate the con	Elaborate the completed task and compile the project report.				

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	ul completion of th	is course, students will be able to:			
1	Identify the probl	Identify the problem by applying acquired knowledge.			
2	Analyze and cate	Analyze and categorize executable project modules.			
3	Choose efficient t	ools for designing project modules.			
4	Combine all the r	nodules through effective team work after	efficient testing		
5	Elaborate the con	npleted task and compile the project repor	t.		

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 conten	ng the contents 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	<u> </u>			
	homogenou	homogenous 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 int	o canonical form.				
3	Discuss con	Discuss convergence and divergence in its simplest form, classifying difference between a						
	sequence an	nd series in application context and	further investigate	e infinite process.				
4	Judge the co	onsequences and geometrical appro	ach to the mean v	alue theorems and				
	engineering	applications to mathematical probl	lems. Learn to ado	pt different techni	ques for			
	multi-dimer	nsional change of variables to transf	form the coordinat	tes over which into	egration			
	proceeds.							
5		the maximum & minimum function			g limits			
	with Partial	differential equations and recogniz	their application	s in developing				
	mathematic	al models.						
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	-	its of this subject, the student must						
1		brication of semiconductors, photo			nechanics			
2		of wave optics extend & construct						
3	_	out lasers, which leads to new inno						
4	Elaborate an	nd formulate the study of characteri	ization properties	of opto-devices, o	rganize the			
		prepare new materials for various e						
5	Apply basic	knowledge on principles and recal	ls facts of light pr	operties, and moti	vate for			
	new innova	tions. Analyze applications of optic	al fibers					
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		, 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	Communica	nte confidently in various contexts a	and different cultu	res.				
4	Acquire bas	ic proficiency in English including	reading and lister	ning comprehension	n, writing			
	and speakin	o skills						
	and speaking	5 skins.						
5	•	nd Communicates by stating main i	deas relevantly an	d coherently in sp	eaking &			

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 co	oncepts inclu	ded in this course will help the stud	lent to gain:			
1		ious knowledge regarding atomic a	<u>×</u>	cture.		
2	•	ymeric engineering materials. Reca				
3	0 1 3	atteries and classify different electr			odes, etc.,	
		o construct different electrical/ elec		•		
4	Examine wl	nich types of impurities are present	in water, specific	ation of drinking v	water and	
		corrosion behavior/ activity of met				
5	Apply phase	e rule and adsorption to construct the	he materials by an	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	Capable in	Better Understanding of nuances of	f language through	audio-visual exp	erience	
	and group a	ctivities.				
2	Develop Ne	eutralization of accent for intelligib	ility			
3	Speak out w	vith clarity and confidence thereby	enhances the emp	loyability skills of	the	
	students by	acquiring knowledge and techniqu	es.			
4	Extend to sp	peak fluent English, through advan-	ced vocabulary to	improve quality in	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	Operate diff	ferent equipment's related to light of	& electronics			
2	Develop exp	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		ts of this subject, the student must	be able to			
1		ferent trade exercise.				
2	Assemble a	nd Disassemble a computer and dia	agnostic exercises	with installation of	of	
	operating sy	stems and Linux Tools				
3	•	ustrial environment and operation	*			
	Gain knowledge of foundry, welding, black smithy, fitting and house wiring					
4			~		~	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
		Differential Equations And	Subject Code B18MA02	No. of Hours L/T/P :3/1 /0	Credits:	
Course Outcome	Semester II Sem	Differential Equations And Vector Calculus	B18MA02			
Course Outcome	Semester II Sem ng the conten	Differential Equations And Vector Calculus ts of this subject, the student must	B18MA02 be able to	L/T/P :3/1 /0	4	
Course Outcome	Semester II Sem ng the conten Recall fund	Differential Equations And Vector Calculus	B18MA02 be able to o build its solution	L/T/P :3/1 /0 as and Summarize	4	

	concept of	differential equations					
2	Identify, an	alyze, formulate and perceive phys	ical situation who	se behavior can be	e described		
	by ordinary	differential equations.					
3		Interpret the multiple integrals for functions and elaborate areas and volumes in different					
	situations. Evaluate line, surface and volume integrals to predict its outcomes.						
4	Utilize the concept of gradient, divergence and curl of vector field to predict areas and						
	volumes						
5	Explain im	portance of integrals theorems to de	esign different geo	metries and their			
	•	characteristics.					
Course	Semester	Semester Subject Name Subject Code No. of Hours Credits:					
Outcome	II Sem	Electrical Circuits-I	B18EE01	L/T/P :3/1 /0	4		
After learning	ng the conter	its of this subject, the student must	be able to	<u> </u>			
1	~	es of electrical circuits such as laws		nd network reduct	tion		
	techniques.						
2	Explore the	basic principles and concepts invo	lved in AC circuit	ts and analyze pov	wer in		
		parallel AC circuits					
3	Understand	various network theorems and its	applications in ele	ctrical circuits.			
4	Analyze the	e series and parallel magnetic circu	its with basic mag	netic principles ar	nd laws of		
	electromag	netic induction.					
5	Explore var	rious network topologies and analy	ze the networks w	ith loop and nodal	l methods		
	with depen	dent and independent current and v	oltage sources.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	~				1 _		
Outcome	II Sem	Electronic Devices And	B18EC01	L/T/P :3/0 /0	3		
Outcome	II Sem	Electronic Devices And Circuits	B18EC01	L/T/P :3/0 /0	3		
				L/T/P :3/0 /0	3		
	ng the conter	Circuits ats of this subject, the student must liperation of analog devices and circuits	be able to		-		
	ng the conter	Circuits ats of this subject, the student must	be able to		-		
	ng the conter Understand equivalent Acquire kn	Circuits ats of this subject, the student must la operation of analog devices and circuit of diodes owledge of rectifiers and filters and	be able to rcuits. Evaluate th I their classification	e characteristics a	-		
After learnin	ng the conter Understand equivalent Acquire kn	Circuits ats of this subject, the student must operation of analog devices and circuit of diodes	be able to rcuits. Evaluate th I their classification	e characteristics a	-		
After learnin	understand equivalent of Acquire kn Analyze the Learn trans	Circuits Its of this subject, the student must laperation of analog devices and circuit of diodes owledge of rectifiers and filters and experiments of oscillators and amplification biasing and stabilization	be able to rcuits. Evaluate th I their classification fiers.	ne characteristics a	-		
After learnin	understand equivalent of Acquire kn Analyze the Learn trans	Circuits Its of this subject, the student must operation of analog devices and circuit of diodes owledge of rectifiers and filters and e operation of oscillators and ampli	be able to rcuits. Evaluate th I their classification fiers.	ne characteristics a	-		
After learnin	understand equivalent of Acquire kn Analyze the Learn trans	Circuits Its of this subject, the student must la operation of analog devices and circuit of diodes owledge of rectifiers and filters and experation of oscillators and amplification biasing and stabilization lativibrators and wave shaping circuits subject Name	be able to rcuits. Evaluate the distribution of their classification fiers. It with using basic con Subject Code	ne characteristics a ons ons on the characteristics and the characteristics are characteristics.	-		
After learnin 1 2 3 4 5	Understand equivalent of Acquire kn Analyze the Learn trans	Circuits Its of this subject, the student must operation of analog devices and circuit of diodes owledge of rectifiers and filters and experation of oscillators and amplification biasing and stabilization of the circuit of the control of the control of the circuit of the cir	be able to rcuits. Evaluate th I their classification fiers. uits using basic con	ne characteristics a	and		
After learnin 2 3 4 5 Course Outcome	Understand equivalent of Acquire kn Analyze the Learn trans Design multiple Semester II Sem	Circuits Its of this subject, the student must laperation of analog devices and circuit of diodes owledge of rectifiers and filters and experation of oscillators and amplification biasing and stabilization lativibrators and wave shaping circuit vibrators and wave shaping circuit Subject Name Programming for Problem Solving	be able to rcuits. Evaluate the distribution of their classification fiers. uits using basic con Subject Code B18CS01	ne characteristics a ons ons on the characteristics and the characteristics are characteristics.	and Credits:		
After learnin 2 3 4 5 Course Outcome	Ing the content Understand equivalent of Acquire kn Analyze the Learn trans Design multiple Semester II Sem	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and eoperation of oscillators and amplification lativibrators and wave shaping circuit vibrators and stabilization lativibrators and stabilization wave shaping circuit vibrators and stabilization lativibrators	be able to rcuits. Evaluate the distribution of their classification fiers. It their classification fiers. It is using basic contained by the basic contained	mponents No. of Hours L/T/P :4/0 /0	Credits:		
After learnin 2 3 4 5 Course Outcome	Ing the content of th	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and experation of oscillators and amplification livibrators and wave shaping circuit vibrators and wave shaping circuit vibrator	be able to rcuits. Evaluate the distribution of their classification fiers. It their classification fiers. Subject Code B18CS01 be able to Inming language and field fiers.	mponents No. of Hours L/T/P:4/0/0	Credits:		
After learnin 2 3 4 5 Course Outcome After learnin	Ing the content Understand equivalent of Acquire know Analyze the Learn transposition Design multiple Semester II Sem In general Understand problem in	Circuits Its of this subject, the student must label operation of analog devices and circuit of diodes owledge of rectifiers and filters and experimental operation of oscillators and amplification of stabilization lateral vibrators and wave shaping circuit vibrators and stabilization lateral vibrators and wave shaping circuit vibrators and wave shaping circui	be able to rcuits. Evaluate the distribution of their classification of their	mponents No. of Hours L/T/P :4/0 /0 ad learn to illustratin C programmin	Credits: 4 te a g.		
After learnin 2 3 4 5 Course Outcome	Ing the content of th	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and experation of oscillators and amplification litivibrators and wave shaping circuit vibrators and vibrators and vibrators and	be able to rcuits. Evaluate the description of their classification fiers. It their classification fiers. It their classification fiers. Subject Code B18CS01 be able to print the description of the control of the	mponents No. of Hours L/T/P:4/0/0 ad learn to illustration C programmin spective decision in the control of th	Credits: 4 te a g.		
After learnin 2 3 4 5 Course Outcome After learnin 1	Ing the content of th	Circuits Its of this subject, the student must label operation of analog devices and circuit of diodes owledge of rectifiers and filters and experience operation of oscillators and amplification of stabilization lateral vibrators and wave shaping circuit vibra	be able to rcuits. Evaluate the I their classification fiers. Its using basic con Subject Code B18CS01 be able to ming language and and expressions g, looping with researd storage classe	mponents No. of Hours L/T/P :4/0 /0 ad learn to illustration C programmin spective decision is sective.	Credits: 4 te a g.		
After learnin 2 3 4 5 Course Outcome After learnin 1 2	Ing the content of th	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and experience operation of oscillators and amplificator biasing and stabilization litivibrators and wave shaping circuit subject Name Programming for Problem Solving Its of this subject, the student must lithe fundamental basics of program flowchart. Learn the basic operators of sequencing, branching and also explore various functions different operations for problems under the student operations of the student operations operations of the student operations of the student operations operated operated operations operated operations operated operations operated operated operations operated operated operated operated operated operated operated operated	be able to rcuits. Evaluate the d their classification fiers. its using basic con Subject Code B18CS01 be able to ming language and expressions g, looping with research storage classe and storage classe using arrays, String	mponents No. of Hours L/T/P:4/0/0 ad learn to illustratin C programmin spective decision is seen and structures.	Credits: 4 te a g.		
After learnin	Ing the content of th	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and eloperation of oscillators and amplification litivibrators and wave shaping circuit vibrators and wave shaping circuit vibra	be able to rcuits. Evaluate the I their classification fiers. hits using basic con Subject Code B18CS01 be able to raming language and expressions g, looping with research storage classe using arrays, String tions using pointer	mponents No. of Hours L/T/P:4/0/0 ad learn to illustratin C programmin spective decision is seen and structures.	Credits: 4 te a g.		
After learnin 2 3 4 5 Course Outcome After learnin 1 2	Ing the content of th	Circuits Its of this subject, the student must loperation of analog devices and circuit of diodes owledge of rectifiers and filters and experience operation of oscillators and amplificator biasing and stabilization litivibrators and wave shaping circuit subject Name Programming for Problem Solving Its of this subject, the student must lithe fundamental basics of program flowchart. Learn the basic operators of sequencing, branching and also explore various functions different operations for problems under the student operations of the student operations operations of the student operations of the student operations operated operated operations operated operations operated operations operated operated operations operated operated operated operated operated operated operated operated	be able to rcuits. Evaluate the I their classification fiers. hits using basic con Subject Code B18CS01 be able to raming language and expressions g, looping with research storage classe using arrays, String tions using pointer	mponents No. of Hours L/T/P:4/0/0 ad learn to illustratin C programmin spective decision is seen and structures.	Credits: 4 te a g.		

Outcome	II Sem	Electronic Devices and Circuits Lab	B18EC02	L/T/P :0/0 /2	1			
After learni	ing the conte	nts of this subject, the student must	he able to					
1	•	the use of RPS & CRO & different		actronia circuita 1	icina			
1	experiment		meters and test er	ectronic circuits t	ising			
2	_	operation of different electronic co	mnonants and das	ian alaatronia aira	wita to			
2	_	_	imponents and des	igh electronic ch	cuits to			
2	•	ic requirements.						
3		Understand working principle of electronic circuits. Evaluate the characteristics of the electronic circuits.						
4			1	N. 644	Q 114			
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 learni		nts of this subject, the student must						
1		the fundamentals of C programmin	-					
2		ncepts of sequencing, branching, lo	oping and decision	n making statemen	nts to solve			
		nd engineering problems.						
3		different operations on arrays and for						
4	Design and	implement different types of file str	ructures using star	dard methodolog	y.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits: 3			
Outcome	II Sem	Engineering Graphics	B18ME01	L/T/P:1/0/4				
After learni	ing the conte	nts of this subject, the student must	be able to					
1	Learn the p	rinciples of Engineering Graphics a	nd their significan	ce, ISO and ANS	I standards			
	for coordina	ate dimensioning- usage of Drawing	g instruments, lette	ering				
2	Perform pro	ojection of lines inclined to one or ty	wo planes					
3	Perform the	e projections and views on the plane	s and solids					
4		nt of surfaces on solids and understa		erent types of con	ic sections			
5		hographic views into isometric view						
		echnologies for graphical communic		1				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	III Sem	Electrical Circuits – II	B18EE07	L/T/P :3/0 /0	3			
After learni	ing the conte	nts of this subject, the student must						
1		the basics of network representatio		zing the network	and			
_	duality of n	*	, <u>-</u>	, 8				
2		lanced and unbalanced three phase	circuits and measu	re voltage, currer	nt and			
_	_	ree phase star and delta connections		iro voitugo, comion				
3	-	ransient response of series and paral		or DC and sinusoi	dal			
3	-	Analyze the response for step, ramp						
4		rent types of network functions and						
7	-	ing transformed variables	evaluate the netwo	ork parameters in	two port			
5		t different types of filters and Fourie	er analysis annlied	to AC circuits				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
		Numerical Methods and	B18MA03		4			
Outcome	III Sem		DIOMAUS	L/T/P :3/1 /0	4			
		Complex Variables						

After learni	ing the conter	nts of this subject, the student must	be able to				
1	Find a better approximate root of a given equation						
2	Estimate the	derivative at a given value and into	egral of function				
3	Analyze the	complex function with reference to	their analyticity,	integration using	Cauchy's		
	-	residue theorems	•		•		
4	Taylor's and Laurent's series expansions of complex function						
5	Evaluate bilinear transformation.						
Course	Semester	Semester Subject Name Subject Code No. of Hours Credits:					
Outcome	III Sem	Power Systems – I	B18EE08	L/T/P :3/0 /0	3		
After learni	ing the conter	nts of this subject, the student must	be able to				
1	Gain the kno	owledge on operation of Hydro Elec	ctric generation.				
2	Acquire and	Acquire and interpret fundamental concepts Thermal generation.					
3		various economic aspects of Power					
4		owledge on power system distribution	*				
5		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 learni	ing the conter	nts of this subject, the student must	be able to				
1	Evaluate the	e stored and converted energy and a	lso exerted force i	n electromechanic	cal energy		
	conversion of	devices.					
2	Able to anal	yze and design the types of dc gene	erators				
3		ct appropriate D.C Generator to me		ts of the application	n in		
	industry		_				
4	To understa	nd the characteristics and concept s	of speed control.				
5	Able to Test	the performance and select approp	riate D.C machine	to meet the requi	rements of		
	the applicati	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 learni	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, N	Maxwell's		
	equations w	ith respect to electrostatics.					
3	Understand	the magnetic field concepts using E	Biot-Savart law an	d Ampere's law			
4	Analyze the	relation between two or more cond	luctors when subje	ected to magnetic	fields		
5		the concepts of time varying fields	in both electric an	nd magnetic fields	and their		
		in evaluating power					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	III Sem	Object Oriented Programming	B18CS50	L/T/P :3/0 /0	3		
		& Data Structures					
After learni	_	nts of this subject, the student must					
1		ference between structured program			•		
	language an	d understanding the features of C+-	+ supporting object	et oriented program	nmina		

2	Explain and apply the major object oriented concepts to implement object oriented programs						
	in C++.						
3		asic knowledge to handle operations		eletions, searching	g, and		
	O	nechanisms in linear data structures					
4		th advanced data structure such as l					
5		nowledge on trees, balanced trees, §		ping C++ code for	nonlinear		
		res and Pattern Matching Algorithm					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	III Sem	Electrical Circuits Lab	B18EE11	L/T/P :0/0 /3	1.5		
		nts of this subject, the student must	be able to				
1	_	concept of circuit laws					
2	•	ork theorems					
3		Z, Y and ABCD parameters for a gi					
4		e time response and frequency response conditions.	onse characteristic	s of RLC series ci	rcuit and		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	III Sem	Data Structures Through C++	B18CS08	L/T/P:0/0/3	1.5		
		Lab					
After learn	ing the conter	nts of this subject, the student must	be able to				
1	To be able t	o design and implement Object Ori	ented Programing	concepts.			
2	To select th	e appropriate Data Structure for giv	en problem				
3	To illustrate	e operations like searching, insertion	n, deletion and trav	versing mechanism	n on		
		a Structures and to gain practical kn	<u> </u>	-			
4		nd and apply the hashing technique	s and to able to de	sign and impleme	nt Linear		
	and Non-Li	near Data Structure.	,	,			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	III Sem	Environmental Sciences	B18MC02	L/T/P :2/0 /0	0		
After learn		nts of this subject, the student must					
1	_	iously learned ecosystem and find h	ow the biodiversit	ty changes went in	the		
	environmen						
2		e outlines of types of pollutions and		day life.			
3	Ŭ	nportant seminars on natural resource					
4		els of food chains and energy flow r					
5		types of pollutants and distinguish	the functions of si	ustainable develop	ment that		
~	_	the environment.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	IV Sem	Pulse Digital And Linear	B18EC45	L/T/P :3/0 /0	3		
A C: 1	1	Integrated Circuits	1 11 .				
		nts of this subject, the student must					
1		operational amplifiers with linear in					
2	-	different families of digital integra					
3	Identity the	applications of diode as integrator,	differentiator, clip	ppers, clamper circ	cuits		
4	TT 1	Jnderstand the timer circuits and phase locked loops					

5	Explore var	rious A-D and D-A converters and in	ts applications						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Electrical Machines-II	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	Understand the concepts and performance of single phase transformer.							
2	Test the per	Test the performance of single phase Transformer							
3	Choose a su	Choose a suitable three phase transformer based on its application and also convert three							
		phase to two phases or vice versa.							
4	Understand	Understand the concepts of Construction, operation characteristics, testing (concept of circle							
	diagram) ar	nd speed.							
5	Analyze spe	eed torque characteristics and contro	ol the speed of ind	uction motors					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Electrical Measurements and	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								
2		sistance, voltage, current measurem		ntiometers, voltag	e and				
		surements through instruments tran							
3		and energy measurements through							
4		esistance measurements through DO			ce				
		nts through AC bridges and differen							
5		ledge on Measurement of frequency		_					
	_	nstruments and different types of er	rors & their reduc	tion methods in m	neasuring				
	instruments		T = - = -	T					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	IV Sem	Power Systems – II	B18EE14	L/T/P :3/0 /0	3				
		nts of this subject, the student must	be able to						
1		ower system in P.U values.	1 1.1 1	1					
2		nductance and capacitance of single	phase and three pl	nase.					
3	•	rformance of transmission line							
4		the transients on transmission line							
5	_	ig and string efficiency.		NI CIT	G 114				
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	.1 .				
1		the concept of feedback and analyz	e the control syste	em components by	their				
2		cal modeling	1						
2		e time domain specifications and ste	*	.1					
3		ous time domain and frequency dom	ain techniques to	assess the system					
	performanc		a anitable 11	an an 4/an					
4	_	e system performance by designing	a suitable controll	er and/or a compe	nsator for				
	a specific a	ppncation							

5	Test system	Controllability and Observability u	sing state space re	epresentation and	
	_	s of state space representation to var		•	
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 conte	nts of this subject, the student must	l be able to		
1		explain the functionality of logic ga		OR NOR XOR	XNOR
1	NOT).	explain the functionality of logic ga	ics (7111D, 11711D	, 011, 11011, 11011	, 111011,
2		erent combinational circuits using n	ninimization techn	ianes	
3	_	ious flip flops, and design of registe		iques.	
4	_	esign procedures to design basic sec			
5		d design of small sequential circuits	_	rd sequential	
3	_	uilding blocks to build more comple		ra sequentiai	
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
Outcome	1 v Scin	Integrated Circuits Lab	BIOLETI	1/1/1 .0/0/5	1.0
After learn	ing the conte	nts of this subject, the student must	be able to		
1		the applications of diode as integra		clippers and clam	ner
•	circuits.	the approximons of those us integra	tor, directorization,	emplois and cian	.per
2		uits using operational amplifiers for	various application	ons.	
3	_	VCO & PLL circuits.	, arrous apprount		
4		and implement DAC conversions u	sing 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 conte	nts of this subject, the student must	be able to		
1		e of apparatus based on the ratings of			
2		Characteristics of DC machines by o			
3		e efficiency of the machine by analy	<u>~</u>		
4		l control methods for dc machines			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits
Outcome				L/T/P :3/0/0	3
	V Sem	Electrical Machines-III	B18EE17	L/1/P:3/0/0	3
After learn	V Sem	Electrical Machines-III ats of this subject, the student must	B18EE17 be able to	L/1/P:3/0/0	3
After learni	ing the conte	nts of this subject, the student must		L/1/P :3/0/0	
	ing the conter Demonstrat	nts of this subject, the student must e basic concepts of AC machines.	be able to	L/1/P:5/0/0	3
1	Demonstrat Analyze the	nts of this subject, the student must e basic concepts of AC machines. concepts of regulation of synchron	be able to ous generators	L/1/P:3/0/0	3
1 2	Demonstrat Analyze the Evaluate pe	nts of this subject, the student must e basic concepts of AC machines. concepts of regulation of synchron rformance characteristics of synchron	be able to ous generators onous machines.	L/1/P:5/0/0	3
1 2 3	Demonstrat Analyze the Evaluate pe Analyze the	nts of this subject, the student must e basic concepts of AC machines. concepts of regulation of synchron rformance characteristics of synchron operating characteristics of synchron	ous generators onous machines.		
1 2 3 4	Demonstrat Analyze the Evaluate pe Analyze the	nts of this subject, the student must e basic concepts of AC machines. concepts of regulation of synchron rformance characteristics of synchron	ous generators onous machines.		
1 2 3 4 5	Demonstrat Analyze the Evaluate pe Analyze the Identify the machines	nts of this subject, the student must be basic concepts of AC machines. It concepts of regulation of synchron aronarce characteristics of synchron coperating characteristics of synchron Construction, operation and characteristics.	ous generators onous machines. onous motors teristics of single-		special
1 2 3 4	Demonstrat Analyze the Evaluate pe Analyze the Identify the	nts of this subject, the student must e basic concepts of AC machines. concepts of regulation of synchron rformance characteristics of synchron operating characteristics of synchron	ous generators onous machines.	phase motor and s	special
1 2 3 4 5	Demonstrat Analyze the Evaluate pe Analyze the Identify the machines Semester	nts of this subject, the student must be basic concepts of AC machines. It concepts of regulation of synchron are characteristics of synchron coperating characteristics of synchron Construction, operation and characteristics of Subject Name	ous generators onous machines. onous motors teristics of single- Subject Code	phase motor and s	special Credits:
1 2 3 4 5 Course Outcome	Demonstrat Analyze the Evaluate pe Analyze the Identify the machines Semester V Sem	nts of this subject, the student must be basic concepts of AC machines. It concepts of regulation of synchron aronarce characteristics of synchron coperating characteristics of synchron Construction, operation and characteristics.	ous generators onous machines. onous motors teristics of single- Subject Code B18EE18	phase motor and s	special Credits:

	types						
2	Understand the basic principle of electromagnetic Relay Operation and its various types to						
	different app		, r		~ 1		
3	Explore the	Explore the various schemes of protecting generator and transformers.					
4		Explore various relaying operation in protecting the transmission line and bus bar.					
5	_	cessity of neutral grounding and pr	-				
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 conten	ts of this subject, the student must	be able to	•			
1	Understand	the differences between signal leve	el and power level	devices			
2	Examine sin	gle phase-controlled rectifier circu	its.				
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 a	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 conten	ts of this subject, the student must	be able to	1	l .		
1	Understand	the basic design consideration, star	ndards. Study the l	neat dissipation, co	ooling		
	characteristi	cs and electrical characteristics of	various dielectric i	materials.			
2	Understand	the design, choice of materials and	specifications in l	DC machines			
3		and design the main dimensions of					
4	Design the c	onstructional features of induction	motors and estima	ate their currents a	ınd		
	reactance						
5	Design the c	onstructional features of synchron	ous motors				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	V Sem	Electrical Distribution	B18EE21	L/T/P :3/0 /0	3		
		Systems					
After learn	ing the conten	ts of this subject, the student must	be able to				
1		design of various loads					
2	Analyze the	need of substations and there erect	ion and site select	ion			
3	Understand	protection of distribution system.					
4	Acquire kno	wledge of power factor improvement	ent.				
5	Calculate the	e distribution voltage drop calculat					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	V Sem	Signals And Systems	B18EC03	L/T/P :3/0 /0	3		
After learn		ts of this subject, the student must					
1	~ ~ ~	nowledge of vectors, orthogonal ba	•	•			
		cs of continuous-time periodic sign	-	series.			
2		e and apply Fourier transform on va					
3	Apply the Lasignals	aplace transform and Fourier transf	form for the analys	sis of continuous-	time		
4	Analyze sys	tems based on their properties and	determine the resp	onse of LTI syste	m		
5	Understand	the concepts of convolution and co	rrelation of signal	S.			

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 learni	ing the conter	ats of this subject, the student must	be able to					
1	Understand	the fundamental concepts of databa	ise management a	nd analyze databa	se models			
	& Entity Re	lationship models and to draw the I	E-R diagram for th	ne given case study	у.			
2	Apply relati	onal Database Theory, and be able	to write relational	algebra expressio	ns for			
	queries and	ueries and Utilize the knowledge of basics of SQL and construct queries using SQL.						
3	Apply Norn	nalization Process to construct the d	latabase. Explain I	Basic Issues of tra	nsaction			
	processing	processing						
4	Understand	Concurrency control and Recovery	strategies of DBN	AS.				
5	Compare the	e basic Database storage structures	and access technic	ques: File Organiz	ation,			
	indexing me	thods including B- Tree and Hashi	ng.	-				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Computer Organization	B18EC12	L/T/P :3/0 /0	3			
After learni	ing the conter	ats of this subject, the student must	be able to					
1	Explain the	I/O and memory organization in de	pth.					
2	Develop ass	embly language programs for various	ous applications					
3	Estimate the	basic components of computers ar	nd extend the design	gn of Digital Logi	c Circuits			
	and apply to	Computer Organization.						
4	Analyze the	memory organization and evaluate	the performance	of Computer syste	ms.			
5	Understand	the basic chip design and organizat	ion of 8086 with a	assembly language)			
		g and Compare RISC and CISC Ar						
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 learni	ing the conter	nts of this subject, the student must	be able to					
1	Interpret the	vision of IOT from a global contex	ĸt.					
2	Perceive but	ilding blocks of Internet of Things a	and its characterist	tics.				
3	Learn the ba	sic concepts of Python						
4	Implement t	he python programming using Rasp	oberry					
5	Design a RE	EST						
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						
After learni	ing the conter	nts of this subject, the student must	be able to	1				
1	Select range	of apparatus based on the ratings.						
2	Draw the Ed	quivalent circuits and analyze vario	us AC machines					
3	Determine p	performance and Characteristics of	AC machinery					
4	Evaluate the	efficiency of the machine by analy	zing test results					
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						
	i i							

1	Compare pe	rformance of MC, MI and Dynamo	meter types of me	asurements, Ener	gy meter.			
2	Determine the circuit parameters using AC and Dc bridges.							
3	Compute the errors CT's and PT's.							
4	Understand the performance of industrial instruments							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Control Systems Lab	B18EE24	L/T/P :0/0 /2	1			
		nts of this subject, the student must			_			
1		time & Frequency response of con						
2	· ·	e performance of feedback control s	*					
3		Examine the response of PID controllers						
4		Performance of AC & DC servo m	otors					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	V Sem	Human Values and	B18MC09	L/T/P :2/0 /0	0			
		Professional Ethics						
After learn	ing the conter	nts of this subject, the student must	be able to	<u> </u>				
1		importance of ethics and values in						
2		ral responsibility and mould them	•	ıls.				
3		al vision and achieve harmony in li						
4	Provide a cr	itical perspective on the socialization	on of men and wor	men.				
5		important issues related to gender						
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	ing the conter	nts of this subject, the student must	be able to		•			
1	Analyse eco	nomic operation of power system.						
2	Understand	the working of hydrothermal coord	lination.					
3	Analyse loa	d frequency control of Single area	and Two area pow	er system				
4	Understand	power factor and voltage control						
5								
	Acquire kno	whedge on reactive power control.						
Course	_	wledge on reactive power control.	Subject Code	No. of Hours	Credits:			
	_	wledge on reactive power control.	Subject Code B18MB01	No. of Hours L/T/P :3/0 /0	Credits:			
Course	Semester	whedge on reactive power control. Subject Name						
Course Outcome	Semester VI Sem	whedge on reactive power control. Subject Name Managerial Economics and	B18MB01					
Course Outcome	Semester VI Sem ing the conter	Subject Name Managerial Economics and Financial Analysis	B18MB01 be able to	L/T/P :3/0 /0				
Course Outcome	Semester VI Sem ing the conter Understand	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis atts of this subject, the student must	B18MB01 be able to f Managerial Ecor	L/T/P :3/0 /0 nomics.	3			
Course Outcome After learn	Semester VI Sem ing the conter Understand Know what	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis ats of this subject, the student must the nature, scope and importance o	B18MB01 be able to f Managerial Ecor w elasticity of der	L/T/P :3/0 /0 nomics.	3			
Course Outcome After learn	Semester VI Sem ing the conter Understand Know what decisions an	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis ats of this subject, the student must the nature, scope and importance of is demand, analyze demand and ho	B18MB01 be able to f Managerial Ecor w elasticity of der ng demand	L/T/P:3/0/0 nomics. mand is used for p	ricing			
Course Outcome After learn 1 2	Semester VI Sem ing the conter Understand Know what decisions an Know how p how to analy	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis Its of this subject, the student must the nature, scope and importance of is demand, analyze demand and hold to evaluate methods for forecastic production function is carried out to give cost.	be able to f Managerial Ecor w elasticity of der ng demand o achieve least cos	L/T/P:3/0/0 nomics. mand is used for p t combination of l	ricing Inputs and			
Course Outcome After learn 1 2	Semester VI Sem ing the conter Understand Know what decisions an Know how p how to analy	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis Its of this subject, the student must the nature, scope and importance of is demand, analyze demand and hold to evaluate methods for forecastic production function is carried out to	be able to f Managerial Ecor w elasticity of der ng demand o achieve least cos	L/T/P:3/0/0 nomics. mand is used for p t combination of l	ricing Inputs and			
Course Outcome After learn 1 2 3	Semester VI Sem ing the conter Understand Know what decisions an Know how p how to analy Understand business org	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis Its of this subject, the student must the nature, scope and importance of is demand, analyze demand and hold to evaluate methods for forecastic production function is carried out to give cost.	be able to f Managerial Ecor w elasticity of der ng demand o achieve least cos s of markets and o	L/T/P:3/0/0 nomics. mand is used for p t combination of l outline different for	ricing Inputs and orm of			
After learns 1 2 3 4	Semester VI Sem ing the conter Understand Know what decisions an Know how phow to analy Understand business org decisions.	whedge on reactive power control. Subject Name Managerial Economics and Financial Analysis Its of this subject, the student must the nature, scope and importance or is demand, analyze demand and hold to evaluate methods for forecastic production function is carried out to tyze cost. The characteristics of different kind ganization and analyze how capital	be able to f Managerial Ecor w elasticity of der ng demand o achieve least cos s of markets and o budgeting techniq	L/T/P:3/0/0 nomics. mand is used for p t combination of l outline different for ues are used for in	ricing Inputs and orm of avestment			
Course Outcome After learn 1 2 3	Semester VI Sem ing the conter Understand Know what decisions an Know how phow to analy Understand business org decisions. Know how to	Subject Name Managerial Economics and Financial Analysis ats of this subject, the student must the nature, scope and importance of is demand, analyze demand and had to evaluate methods for forecastic production function is carried out to tyze cost. The Subject Name Managerial Economics and inspect of this subject, the student must the nature, scope and importance of is demand, analyze demand and had to evaluate methods for forecastic production function is carried out to tyze cost.	be able to f Managerial Ecor w elasticity of der ng demand o achieve least cos s of markets and o budgeting techniq	L/T/P:3/0/0 nomics. mand is used for p t combination of l outline different for ues are used for in	ricing Inputs and orm of avestment			

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Power Semiconductor Drives	B18EE26	L/T/P :3/0 /0	3			
After learn	ing the conter	nts of this subject, the student must	be able to		I			
1	Analyze the	operation of converter fed dc moto	ors and four quadra	ant operations of d	lc motors			
	using dual c	_	•	1				
2	Ŭ	Describe the chopper fed dc motors in various quadrants of operation						
3		Know the concept of speed control of induction motor by using AC voltage controllers and						
		voltage source inverters.						
4	_	ifferentiate the stator side control and rotor side control of three phase induction motor.						
5		speed control mechanism of synchi		1				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Renewable Energy Systems	B18EE27	L/T/P :3/0 /0	3			
		nts of this subject, the student must		2/1/1 10/0/0				
1		echnology to capture the energy from		ources like sun w	ind			
1		ass, geothermal.	in the tenewable s	ources like sun, w	ma,			
2		t renewable energy sources to prod	uce electrical now	ve r				
3		e use of conventional energy source						
4		fact that the conventional energy re						
5		direct energy sources.	bources are depict	ica.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Electrical Engineering Material	_	L/T/P :3/0 /0	3			
		nts of this subject, the student must		L/1/1 .5/0/0				
1		nowledge on electrical engineering		cation and their ar	nlications			
2		erformance characteristics of various						
2		d their applications in design of ele	_		saration			
3		ous magnetic materials and their cl		me devices.				
4		us special purpose of materials	assification					
5		ous electronic components						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VI Sem	Digital Signal Processing	B18EC16	L/T/P :3/0 /0	3			
		nts of this subject, the student must		L/1/1 .3/0/0	3			
1		time domain and frequency domair		the cionale				
2	-	different types of the systems and t		the signals.				
3		the inter relationship between DFT		forms and fast oar	nnutation			
3		appreciate the FFT processing	and various trails	iornis and rast cor	пригаттоп			
4		different types of windowing techr	niquae					
5	_	gital filters for a given specification	-	novelodoo to mool v	rrowld			
3	processing a		s and Appry the Ki	nowledge to fear v	voria			
Солидо	Semester	**	Subject Code	No. of Hours	Credits:			
Course		Subject Name	Subject Code					
Outcome	VI Sem	Advanced Power Electronics	B18EE29	L/T/P :3/0 /0	3			
		nts of this subject, the student must						
1	-	ver circuits for various power semic						
2	Analyze the	operation of multi-pulse converter	S					

3	Understand	the operation of resonant converter	S.			
4		ifferences between VSI and CSI.				
5	Gain knowledge 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		nts of this subject, the student 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 various theorems for stability analysis of linear and nonlinear systems.					
4	Implement modal control and calculus of variations.					
5	•	nd solve optimal control problems.				
Course	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		Transients in power system.				
2		knowledge on breakdown in solid,	Liquid and gaseon	us dielectrics.		
3	Understand the generation of high voltage and current.					
4	Identify the measurement of high voltage and current.					
5	Analyze power apparatus and insulation coordination.					
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	ning the contents of this subject, the student must be able to					
1	Study Characteristics of various Power Semiconductor devices.					
2	Analyze AC/AC and AC/DC Converters.					
3	Analyze the	behavior of various DC/DC and D	C/AC converters			
4	_	types of Power Electronic converte		eir 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 Transmission line parameters, efficiency and regulation.					
2	Evaluate the Performance analysis of Over/Under Voltage Relay					
3	Understand the Analysis and performance testing of Feeder Protection System					
4	Calculate Sequence Reactances of 3- Φ Transformer.					
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 for control boards.					
2	Gain knowledge on designing of various triggering circuits for SCR					
3	Develop scaling and conditioning circuits for various sensors.					
4	Develop PWM control and gate driver circuits for various power electronic applications.					
•	Develop P v	the control and gate arriver emeants				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Course Outcome	_		Subject Code B18MC05	No. of Hours L/T/P :2/0 /0	Credits:	

After learn	ing 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	Compete in academic as well as competitive levels through which students are able to solve						
	_	ld problems.	-				
3	Analyze the number systems						
4		decisions to face the critical arithm	etic problems.				
5	Analyze the mathematical problems.						
Course	Semester Subject Name Subject Code No. of Hours Credits:						
Outcome	VII Sem	Computer Methods in Power	B18EE35	L/T/P :3/0 /0	3		
		Systems					
After learn	ing the conter	nts of this subject, the student must	be able to				
1				etwork and form Y	bus for		
	Learn to differentiate the incidence and primitive matrices of a network and form Ybus for network calculations						
2	Perform load	d flow to evaluate the complex volt	age at all nodes in	the power system	1		
3		the faulted power system using Zbu					
4	Analyse symmetrical components.						
5	Know the stability of the power system for small and large disturbance.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Microprocessors and	B18EC20	L/T/P :3/0 /0	3		
		Microcontrollers					
After learn	ing the conter	nts of this subject, the student must	be able to				
1	<u> </u>	e internal organization of popular 80		ocessors/microcor	ntrollers.		
2	Contrast hardware and software interaction and integration.						
3	Design microprocessors and microcontrollers-based systems and develop microcontroller						
	based systems for real time applications.						
4		owledge about microcontroller 805	l and its programm	ning.			
5							
	Explain the Memory organization, classification and their applications and Assess programming, interfacing etc of various devices with microprocessors and external world.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Soft Computing Techniques	_	L/T/P :3/0 /0	3		
		nts of this subject, the student must					
1	Learn the basic concepts of soft computing and differentiate it from hard computing						
2	Explore the fuzzy logic sets and fuzzy logic controller application to its real time problems						
3	Understand various architecture of ANNs and explore its applications of ANNs to solve some						
-	real-life problems						
4	Learn the basic concepts of GA and its different architecture to solve single objective						
	optimization problem						
5	Understand the concept of multi-objective optimization problems (MOOPs) and issues o						
	solving it.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Advanced Electrical Drives	B18EE37	L/T/P :3/0 /0	3		
		nts of this subject, the student must		<u> </u>	<u> </u>		
1		operation of three phase converter					
•) =======	1 Paris Pari					

2	Describe the	VSI and CSI fed induction motor	operation.				
3		oncept of vector control of inductio					
4	Understand the concept of direct torque control for three phase induction motor.						
5	Gain knowledge on vector control of PMSM drives and introduction to BLDC drives.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	HVDC and FACTS	B18EE38	L/T/P :3/0 /0	3		
		its of this subject, the student must					
1		the basic knowledge on converters		f HVDC system			
2	Apply harmonics filters for reactive power control.						
3	Analyze power flow analysis in HVDC systems.						
4	Understand basic concepts and necessity of FACTS controllers.						
5		ous 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		
	, == 5 -==	Vehicles		_, _, _,			
After learni	ing the conter	ats of this subject, the student must	be able to				
1	Gain the knowledge on basic concepts of Electric Vehicles.						
2	Acquire and interpret fundamental concepts of advanced batteries and super capacitors.						
3	Identify various Motor drives used for Electric Vehicles.						
4	Understand various concepts of Electric Train.						
5	Acquire knowledge on series and parallel connections 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 conten	its of this subject, the student must	be able to				
1		rminology, and definitions of vario		oroblems			
2		anderstand the components of curre			lal single		
	phase supply/load systems						
	phase supply	v/load systems					
3		•	ent/power in sinus	oidal/non-sinusoid	lal three		
3	Define and u	y/load systems understand the components of curre y/load systems	ent/power in sinuso	oidal/non-sinusoid	lal three		
3	Define and uphase supply	understand the components of curre					
_	Define and uphase supply Analyze the	understand the components of curre y/load systems	e sag and distortion				
4	Define and uphase supply Analyze the	understand the components of curre y/load systems e power outages, unbalance, voltage	e sag and distortion				
4 5	Define and uphase supply Analyze the Design the p	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a	e sag and distortion	ns in power syster	ns		
4 5 Course Outcome	Define and uphase supply Analyze the Design the p Semester VII Sem	understand the components of curre y/load systems e power outages, unbalance, voltage bassive shunt/series compensators a Subject Name	e sag and distortion and power filters Subject Code B18EE41	ns in power syster No. of Hours	ms Credits:		
4 5 Course Outcome	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems	e sag and distortion and power filters Subject Code B18EE41 be able to	No. of Hours L/T/P:3/0/0	ms Credits:		
4 5 Course Outcome After learni	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must	e sag and distortion and power filters Subject Code B18EE41 be able to econstruction Z-tra	No. of Hours L/T/P:3/0/0 nsforms.	Credits:		
4 5 Course Outcome After learni	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re	e sag and distortion and power filters Subject Code B18EE41 be able to construction Z-tra lysis to discrete time	No. of Hours L/T/P:3/0/0 nsforms. me control system	Credits:		
4 5 Course Outcome After learni 1 2	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know Replace the	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re pledge of Mathematics, Z-plane ana	e sag and distortion and power filters Subject Code B18EE41 be able to econstruction Z-tra elysis to discrete tin Digital control syst	No. of Hours L/T/P:3/0/0 nsforms. me control systemem.	Credits:		
4 5 Course Outcome After learni 1 2 3	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know Replace the Evaluate and	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re eledge of Mathematics, Z-plane ana conventional control system with I	e sag and distortion and power filters Subject Code B18EE41 be able to econstruction Z-tra elysis to discrete tin Digital control syst	No. of Hours L/T/P:3/0/0 nsforms. me control systemem.	Credits:		
4 5 Course Outcome After learni 1 2 3 4	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know Replace the Evaluate and	understand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a 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 discrete	e sag and distortion and power filters Subject Code B18EE41 be able to econstruction Z-tra elysis to discrete tin Digital control syst	No. of Hours L/T/P:3/0/0 nsforms. me control systemem.	Credits:		
4 5 Course Outcome After learni 1 2 3 4 5	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know Replace the Evaluate and Apply state:	ninderstand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re eledge of Mathematics, Z-plane ana conventional control system with I d apply Z-plane analysis of discrete feedback controllers and observers	e sag and distortion and power filters Subject Code B18EE41 be able to construction Z-tra lysis to discrete tin Digital control syste e time control syste	No. of Hours L/T/P:3/0/0 nsforms. me control systemem.	Credits: 3		
4 5 Course Outcome After learni 1 2 3 4 5 Course Outcome	Define and uphase supply Analyze the Design the p Semester VII Sem ing the content Acquire a str Apply know Replace the Evaluate and Apply state: Semester VII Sem	rinderstand the components of curre y/load systems e power outages, unbalance, voltage passive shunt/series compensators a Subject Name Digital Control Systems ats of this subject, the student must rong foundation in sampling and re eledge of Mathematics, Z-plane ana conventional control system with I d apply Z-plane analysis of discrete feedback controllers and observers Subject Name	sag and distortion and power filters Subject Code B18EE41 be able to econstruction Z-tracelysis to discrete time control systems to time control systems are control systems. Subject Code B18MB02	No. of Hours L/T/P:3/0/0 nsforms. me control systemem. ems No. of Hours	Credits: 3 Credits:		

	operations th	nrough Work study					
2	Carry out production operations through Work study.						
3	Understand the markets, customers and competition better and price the given products						
	appropriately.						
4	Ensure quality for a given product or service						
5	Plan and control the HR function better.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Oops Trough Java	B18CS52	L/T/P :3/0 /0	3		
After learn	ing the conten	ats of this subject, the student must	be able to				
1	Describe the concepts of Java Programming language						
2	Demonstrate the concepts of Polymorphism and Inheritance						
3		oust applications using Exception ha					
4	_	ltithreaded applications with synch					
5		based applications and Applets for					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	VLSI Design	B18EC21	L/T/P :3/0 /0	3		
After learn	ing the contents of this subject, the student must be able to						
1	Understand IC technology and basic electrical properties of MOS and BiCMOS.						
2	Discuss the design process of VLSI circuit						
3	Develop and design the gate level circuits.						
4	Gain the knowledge to design data path subsystems like Adders, Shifters, ALUs etc						
5	Illustrate different programmable logic devices and CMOS testing						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Business Intelligence and Big	B18CS37	L/T/P :3/0 /0	3		
		Data					
After learn	ing the conten	its 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						
2	Understand the key technologies such as manipulating, storing, and analyzing big data.						
3	Understand the concept of map reduce and explore its extensions						
4	Explore various big data solutions to real world problems						
5	Understand the ethics and practices of big data analysis in the real world.						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VII Sem	Microprocessors and	B18EC29	L/T/P:0/0/2	1		
		Microcontrollers Lab					
After learn	ing the conten	its of this subject, the student must	be able to				
1	Demonstrate experimentally basic programming of Microprocessor.						
1	Demonstrate	omponimentary outsit programming	Exhibit microprocessor interfacing with various peripherals for various applications.				
2			s peripherals for v	arious application	S.		
	Exhibit mici				s.		
2	Exhibit micro Demonstrate	coprocessor interfacing with variou	g of microcontroll	er.			
2 3	Exhibit micro Demonstrate	coprocessor interfacing with various experimentally basic programmin	g of microcontroll	er.			
2 3 4	Exhibit micro Demonstrate Exhibit micro	coprocessor interfacing with various experimentally basic programmin coprocessor interfacing with various	g of microcontroll s peripherals for v	er. arious application	S.		
2 3 4 Course Outcome	Exhibit micro Demonstrate Exhibit micro Semester VII Sem	coprocessor interfacing with various experimentally basic programmin coprocessor interfacing with various Subject Name	g of microcontrolls peripherals for v Subject Code B18EE42	er. arious application No. of Hours	s. Credits:		

1	Get the basic	e simulation knowledge o	n electric	al subjec	ts			
2		ne response and frequenc						
3		d flow analysis	J 1					
4		g knowledge on PSPICE	software					
Course	Semester	Subject Name		Subject	ct Code	No. of I	Hours	Credits:
Outcome	VII Sem	Advanced Engli			EN03	L/T/P:		1
	,	Communication Ski						
After learn	ing the conten	ts of this subject, the stud		be able t	0			
1	_ ·	nd vocabulary and its pro						
2		ir for Writing and felicity						
3	Enhance job	<u>-</u>						
4	·	ctive speaking abilities.						
Course	Semester	Subject Name		Subject (Code	No. of Ho	ours	Credits: 2
Outcome	VII Sem	Mini Project and Sum		318EE43		L/T/P :0/0		
	,	Internship				_, _,_ ,		
1	Students wil	l be able to practice acqu	ired know	ledge wi	thin the	chosen area	a of tecl	nnology for
	project development							
2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive							
	and systematic approach.							
3	Reproduce, improve and refine technical aspects for engineering projects							
4	Work as an individual or in a team in development of technical projects and Communicate							
	and report et	fectively project related	activities	and findi	ngs.			
Course	Semester	Subject Name	Subject	Code	No. o	f Hours	Cr	edits: 4
Outcome	VII Sem	Project Stage – I	B18EE44	1	L/T/P	:0/0 /8		
1		problem by applying a						
2		lan and implement an i					ject.	
3		ill to use some laborate						
4		ommunicate results, co						
Course	Semester	Subject Name			ct Code			Credits:
Outcome	VIII Sem	Neural Networks and	l Fuzzy	B18.	EE45	L/T/P:	3/0 /0	3
A.C. 1	1	Systems	1	1 11 .				
-	~	ts of this subject, the stud						
1		the concepts of feed forw						
2	_	quate knowledge about fe					1 1	
3		lge about the concept of t	uzziness i	involved	in vario	us systems	and abo	out fuzzy
4	set theory.	1 66 1	1 1 1	ı: C	1 .	1, 1 '	.1 (,
4		edge of fuzzy logic contro	oi and ada	ptive fuz	zy logic	and to desi	gn the i	uzzy
		g genetic algorithm.	£11		1 4 1 4			
5	_	wledge of application of						
Course	Semester	Subject Name			ct Code	No. of I		Credits:
Outcome	VIII Sem	Utilization of Elec	trical	B18	EE46	L/T/P:	3/U/U	3
A.C 1 .		Energy ts of this subject, the stud	1	h a a1-1 - 4				
	LILLE LIDE CONTAN	is or this subject, the still	ieni miist	ne anie t	()			

1	Choose a rig	Choose a right drive for a particular application					
2	Identify Hea	ting and welding schemes for give	en 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 elec	ctrical energy consumption for trac	ction system.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VIII Sem	Smart Grids	B18EE47	L/T/P :3/0 /0	3		
After learni	ning the contents of this subject, the student must be able to						
1	Understand to	echnologies for smart grid and fea	tures of Smart Gri	id 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	olved in smart gri	ds and importance	e of		
	PMUs, EMS	, WAMS, SCADA		_			
4	Classify varie	ous Smart Distribution Technolog	ies				
5	•	egulations and market models for s		ious tariffs			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
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 the qualities and skills of entrepreneurship						
2	Explore various aspects that promotes entrepreneur in the society						
3	Understand the necessity of ethical guidelines in business						
4		he basics of corporate governance		n			
5		he impact of social responsibility of					
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		s of this subject, the student must					
1		he basics of an embedded system					
2		thod of designing an embedded sy	stem for any type	of applications.			
3		he operating systems concepts, typ					
4		ypes of memory and interacting to					
5		ded firmware design approaches.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VIII Sem	Power Plant Engineering	B18ME36	L/T/P :3/0 /0	3		
		s of this subject, the student must		1	l		
1		he layout of power generation unit		rgy sectors.			
2		rent subsystem and systems of po					
3	•	sting and emerging alternative ene					
4	_	opportunities in contributing towar		energy crisis.			
5	·	ral arrangement of power distribut					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	VIII Sem	Intellectual Property Rights	B18MB06	L/T/P :3/0 /0	3		
Juttonie	VIII SEIII	intencetual I Toperty Nights	DIOMIDOO	1/1/1 .3/0/0			

After learning the contents of this subject, the student must be able to							
1	Understand t	Understand the basics and importance of intellectual property rights					
2	Explore the I	Purpose and function of	trade marks an	d related p	rocesses		
3	Understand t	he importance of copy r	ight and the iss	ues involv	ed in its viola	ation	
4	Analyze the	trade secrets and its asso	ociated laws				
5	Explore the r	new developments in IP	R				
Course	Semester	Subject Name	Subj	ect Code	No. of Ho	ours	Credits: 1
Outcome	VII Sem	Technical Seminar	B18E	E48	L/T/P:0/0	/0	1
1	Identify and analyze the real time Electrical Engineering problems						
2	Acquire awareness on latest technology and current trends in the field of Electrical Engineering.						
3	Participate i	n discussions for enha	ancement of k	nowledge	;		
4	Apply comprofessiona	nunication skills and I ethics.	Document and	present	echnical rep	orts fo	ollowing
Course	Semester	Subject Name	Subject Cod	e No	of Hours	C	redits: 8
Outcome	VII Sem	Project Stage – II	B18EE49	L/T/	P :0/0 /16		
1	Identify the	problem by applying	acquired know	vledge.			
2	Ability to p	Ability to plan and implement an investigative or developmental project.					
3	In-depth ski	ll to use some laborat	ory, modern t	ools and t	echniques		
4	Ability to co	Ability to communicate results, concepts, analyses and ideas in written and oral form.					

VAAGDEVI COLLEGE OF ENGINEERING AUTONOMOUS TMENT OF COMPLITER SCIENCE AND ENGINE

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

	1	T	•			
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	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		out applications of data structures including cr g of data for each data structure.	reating, inserting, d	eleting,		
4	Experiment with us applications.	ing linear data structures like stacks, queues an	d linked list for rea	I time		
5	Distinguish between	Trees and Graphs and the areas where best ap	oplicable.			
6	Be able to decide ar	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 software requirement engineering and its application using various models.					
3	Understand design thinking at varied levels i.e architectural and component level and to also user interface					
4	Understand testing	and its theoretical background along with met	trics to test source	code,		
	applications and ma	intenance of application				
5		I 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		pts key strengths, and limitations for cloud cor				
2	·	eture along with specific infrastructure on cloud		2022		
	PaaS, public cloud,	private cloud, hybrid cloud, etc		_		
3	Explain the issues o	n cloud computing along with security, privac	cy, and interoperabi	lity		
4		appropriate technology, methods on these issu				
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 the	e application.			
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Component Based Software Engineering (M18SW02)	No. of Hours L:3 T:0 P:0	Credits: 3		
	1	N	1			

M.Tech-SW R18-Regulations Understand component 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. Demonstrate the learnt principles in effective reuse and maintenance of software 4 5 Survey technologies that support implementation of component based software development Credits: 3 Year/SemesterI **Subject Name (Subject Code) Course** No. of Hours Internet Technologies and services(M18SW03) Sem L:3 T:0 P:0 **Outcome** Survey client side technologies for web development. 2 Understand life cycle of a java servlet and apply it to a develop software. Develop understanding on JSP and enhance the solution using JSP program. 3 Create awareness on Struts framework and its application, develop complex solution using this 4 framework. 5 Introduce web services and service oriented architecture to develop seamless applications that are portable and highly interoperable. **Credits: 3** Year/SemesterI **Course Subject Name (Subject Code)** No. of Hours Software requirements and Estimation Sem L:3 T:0 P:0 **Outcome** (M18SW04) To develop an understanding of software requirements and asses their nature. To analyze software requirement management. 2 3 To be able to estimate the cost of software development by understanding various methods. 4 To be able to draw conclusions on effort, schedule and cost estimation Survey tools for requirements management, software estimation tools. 5 **Credits: 3 Course** Year/SemesterI **Subject Name (Subject Code)** No. of Hours Object Oriented Software Engineering **Outcome** Sem L:3 T:0 P:0 (M18SW05) To understand Scope of Object-Oriented Software Engineering, Software Life-Cycle Models, 1 Software Process. To analyze role of teams, tools for the trade, testing. 2 To be able to create reusable and portable applications. 3 To be able to draw conclusions from requirement workflow. 4 5 Design and implement workflow and maintain post delivery... **Credits: 3** Course Year/SemesterI **Subject Name (Subject Code)** No. of Hours Information Theory and Coding (M18SW06) Sem L:3 T:0 P:0 **Outcome** Ability to learn about information and entropy 1

	codes. They also learn about syndrome calculation and design of an encoder and decoder.			
3	Understanding the	sequential search and Viterbi algorithm		
4	Apply knowledge of	on text compression techniques. They also learn	about speech and	audio coding
	Apply knowledge on image compression, graphics interchange format, JPEG and MPEG standards.			
Course	Year/SemesterI	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	Sem	Research Methodology(M18MC01)	L:2 T:0 P:0	
1	Acquire knowledge on Research Design and statistical methods in research.			
2	Analyze the variou	s methods in Data Collection, Data Organization	on and different app	proaches
	ofData Representat	ion.		

Ability to learn about Hamming weight, minimum distance decoding and different types of

2

R18-Regulations M.Tech-SW Understand all the basic concepts required to prepare 3 a. Research synopsis b. Dissertation c. Writing a good research proposal Interpret the Scope of Patent Rights and Administration of Patent System. No. of Hours Credits: 0 Course Year/SemesterI **Subject Name (Subject Code)** L:2 T:0 P:0 English for Research Paper Writing(M18AC01) **Outcome** Sem Obtain complete knowledge on Definition of a research paper, Purpose of writing any research 1 paper, its Scope and Benefits. Understand the standard English formats .for scripting the best research paper. Analyze all the Qualitative and Quantitative Research Methodologies and the ethics of 3 plagiarism. 4 Explain the detailed process of writing and publishing any research paper and perform a case study on paper writing. No. of Hours Credits: 2 Year/SemesterI **Subject Name (Subject Code)** Course L:0 T:0 P:4 Software Development Methodologies Lab Outcome Sem (M18SW07) Review the basics of software engineering, processes, models and practices. 1 2 Understand software requirement engineering and its application using various models. 3 Understand design thinking at varied levels i.e architectural and component level and to also userinterface. 4 Understand testing and its theoretical background along with metrics to test source code, applications and maintenance of application Develop an understand on risks, risk identification, risk projection, Risk refinement, risk 5 management and dealing with change management, survey few tools for configuration management. No. of Hours Credits: 2 **Course** Year/SemesterI **Subject Name (Subject Code)** L:0 T:0 P:4 Cloud Computing Lab (M18CS10) **Outcome** Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability. 3 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. 4

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.			
	Contribute to effici development proce	ent delivery of software solutions and implements	nt improvements in	the software
5	To gain expertise in processes.	n designing, implementation and development o	f computer based s	ystems and IT

M.Tech-SW R18-Regulations **Credits: 3** Course Year/SemesterII **Subject Name (Subject Code)** No. of Hours Software Project and Project Management Outcome Sem L:3 T:0 P:0 (M18CS18) Discuss and plan to execute projects based on required standards. 2 Understand the range of tools used on project management. 3 Analyze the concepts related on project governance and methodologies. Apply critical analysis on solving problems and planning process. 4 Describe planning, Risk and issues management. 5 Plan process, pragmatic planning service delivery and quality assurance 6 Credits: 3 Course Year/SemesterII **Subject Name (Subject Code)** No. of Hours Software Architecture and Design Patterns **Outcome** Sem L:3 T:0 P:0 (M18SW09) 1 To understand the concept of patterns and the Catalog. 2 To discuss the Presentation tier design patterns and their affect on: sessions, client access, validation and consistency. To understand the variety of implemented bad practices related to the Business and Integration 3 tiers. 4 To highlight the evolution of patterns. 5 To learn how to add functionality to designs while minimizing complexity Credits: 3 Year/Semester II **Course Subject Name (Subject Code)** No. of Hours Agile Software Development(M18SW10) Sem L:3 T:0 P:0 **Outcome** Understand the architecture, creating it and moving from one to any, different structural patterns. 1 2 Analyze the architecture and build the system from the components. 3 Design creational and structural patterns. 4 Learn about behavioral patterns. 5 Do a case study in utilizing architectural structures Credits: 3 **Subject Name (Subject Code)** No. of Hours Course Year/Semester Bigdata Analytics (M18SW11) IISem Outcome L:3 T:0 P:0 Understand what Big Data is and why classical data analysis techniques are no longer adequate 2 Understand the benefits that Big Data can offer to businesses and organizations 3 Understand conceptually how Big Data is stored 4 Understand how Big Data can be analysed to extract knowledge Communicate with data scientists Credits: 3 Course Year/Semester **Subject Name (Subject Code)** No. of Hours Software Security Engineering (M18SW12) **Outcome** II Sem L:3 T:0 P:0 An ability to analyze security and privacy and properties of systems. 2 An ability to conduct user-cantered design for security engineering. 3 An ability to understand programming constraints with systems security. 4 An understanding of limitations and advantages of security protocols, functional and attacker perspectives, password authentication and various alternative systems. Discussing the Security adopting considerations and limitations 5 6 Credits: 3 Year/SemesterI No. of Hours Course **Subject Name (Subject Code)**

Business Process Management (M18SW13)

M.Tech-SW R18-Regulations Outcome L:3 T:0 P:0 Develop new or improved innovative business processes from gap analysis through process 1 design in support of a company's strategic objectives in a socially responsible manner. Develop business models that support a company's strategic objectives. 3 Articulate the interdependence between financial and operational metrics used in value chain analysis to key decision makers. 4 Appraise the impact on financial and operational performance of specific Evaluate the opportunities for business process and supply chain improvement based on 5 currentbest practices across industries, as well as new breakthrough thinking. 6 Analyze the key business processes that drive the value chain of an organization throughout theentire product life cycle. Credits: 3 **Course** Year/Semester **Subject Name (Subject Code)** No. of Hours Cyber Security(M18CN12) L:3 T:0 P:0 **Outcome** IISem Understand the different kinds of security attacks 1 2 Define a internetwork 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. Demonstrate IP security architecture and explain how Pretty Good Privacy (PGP) and S/MIME 6 provides Email privacy. Credits: 0 Year/Semester No. of Hours Course **Subject Name (Subject Code)** Stress Management (M18AC02) II Sem L:2 T:0 P:0 **Outcome** 1 Maintain a stress awareness log. Include identification of causes, symptoms, and analysis of Gather information on current stress management techniques and evaluate personal relevance. 2 Practice specific techniques, track effectiveness, and revise to meet personal preferences. 3 4 Create an adaptable stress management plan for academic success incorporating selected techniques. No. of Hours **Credits: 2** Course Year/Semester **Subject Name (Subject Code)** L:0 T:0 P:4 Software Testing Lab(M18SW14) II Sem **Outcome** 1 Understanding Selenium tool to perform testing Writing test suits for applications 2 3 Construct and test simple programs. Understanding the use of bug tracking and testing tool 4 Ability to learn any open source Testing tool 5 No. of Hours Credits: 2 Course Year/Semester **Subject Name (Subject Code)** L:0 T:0 P:4 Bigdata Analytics Lab (M18SW15) **Outcome** II Sem Understand what Big Data is and why classical data analysis techniques are no longer adequate 2 Understand the benefits that Big Data can offer to businesses and organizations 3 Understand conceptually how Big Data is stored 4 Understand how Big Data can be analysed to extract knowledge 5 Communicate with data scientists

	Year/SemesterII Sem	Subject Name (Subject Code) Mini Project(M18SW16)	No. of Hours L:0 T:0 P:2	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 com	pleted task and compile the report.		

III-SEMESTER

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	IIISem	Information Retrieval Systems (M18SW17)	L:3 T:0 P:0	
1	Define Vector space	ce model, understand various similarity coefficient	nt and measures.	
2	Develop an Unders Analysis, Thesauri	standing on Relevance feedback, , Clustering, Re	egression	
3	•	rieval Utilities for Information Retrieval.		
4		standing about Signature files, Duplicate docume	ent detection.	
5		es to locate relevant information large collection		
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 im	portance of Information Security.		
2	Describe the need	and role of network security.		
3	Deploy the security	y Technologies and adapt various firewalls and Ir	ntrusion detection s	ystems.
4	Implement the tech	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 view	w of
3		ply chain management and digital documents &a	mp; Adapt advertis	e and
4		nods and strategy for E-commerce infrastructure.		
5	Discuss issues on processing	privacy and legal E-commerce & Develop el	lectronic and deskto	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 func	tions.	I.
2	Analyze study on s	solving optimization problem.		
3	1	ormula on optimization problem.		
4		, reliably to find an approximate solution.		
5		pare the performance of an algorithm.		
6	Discovery, study,	understand and solve optimization techniques us	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	
1	Evaluate the subject	ct from the technical, legal and economical poin	ts.	
2	Learn solid waste	management.		

M1.1 CCH-D	AV		MIU-MU	guiuiions	
3	Describe environm	nent for sound management.		-	
4	Understand a mun	icipal solid waste management system.			
5	Plan a solid waste	management system for decision makers.			
6	Design an incinera	tion 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 differe	ent embedded system design techniques and the	metrics or challeng	ges in	
	designing them.				
2	Understand the complete architecture of 8051 and Advanced Processor.				
3	Demonstrate Software programming in Assembly language and High Level Language.				
4	Develop code for object oriented Programming, Embedded Programming using Macros and Functions in c++ and java.				
5	Classify the different Real Time Operating System (RTOS), RTOS Vx Works, Windows CE.				
6	Understand the En	nbedded Software Development Process and To	ols.		
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	ng	
5		Elaborate the completed task and compile the project report.			

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.	
2	Analyze and categorize 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 th	e completed task and compile the project	report.	



Autonomous

Bollikunta, Warangal Urban-506 005 (T.S)

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (CO's) FOR B.TECH – CIVIL ENGINEERING (R18) **Subject Name (Code):** Course Year / Semester No. of Hours: Linear Algebra and Credits: 4 : I / I-Sem L: 3 T: 1 P: 0 Outcome Calculus(B18MA01) After the completion of this course, the students should be able to

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.
G	V (0) (0) (0) (1) (1)

Credits: 2
oui P:

After the completion of this course, the students should be able 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 comprehension, writing and speaking skills.			
5	Develops and Communicates by stating main ideas relevantly and coherently in speaking & writing.				
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Engineering Chemistry (B18CH01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	

After the completion of this course, the students should be able to

		Subject Name (Code):				
5	Apply phase rule an compositions.	Apply phase rule and absorption to construct the materials by analyzing their compositions.				
4	The knowledge of w	The knowledge of water treatment and corrosion.				
3	The required princip	The required principles and concepts of electro chemistry and batteries.				
2	The knowledge of organic reaction mechanisms and polymers.					
1	Recall previous kno	Recall previous knowledge regarding atomic and molecular structure.				

3	The required principles and concepts of electro chemistry and batteries.				
4	The knowledge of	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	

	ompletion of this cou				
1	Learn the principles of Engineering graphics and their significance.				
2	1 0	of lines inclined to one or two p			
3	Perform the projecti	ons and views on the planes an	nd solids.		
4	Development of sur	faces on solids and draw differ	ent 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:				
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	Understanding how obtaining solutions.	problems are posed and how the	ney can be analyzed for		
2	Understanding the f	undamentals of C programming	g.		
3		cing, branching, looping and de engineering problems.	cision making statemen	its to	
4	to solve problems.	ent operations on arrays and cr			
5	Ability to design an methodology.	d implement different types of	file structures using star	ndard	
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	Better understanding experience and grou	g of nuances of English langua up activities	ge through audio- visua	1	
2	Speaking with clarit skills	y and confidence which in turn	enhances their employ	ability	
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	rse, the students should be a	ble to		
1	Design the fundame	entals of C programming.			
2	Write C programs u	<u> </u>			
3	solve scientific and	cing, branching, looping and de engineering problems.		its to	
4	Implementing differ functions to solve p	rent operations on arrays and cr roblems.	eating and using of		
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	

After the co	ompletion of this cou	rse, the students should be a	ble to	
1	Identify whether the given differential equation of first order is exact or not			
2	Solve higher differential equation and apply the concept of differential equation to real world problems			
3	_	e integrals and apply the conce gravity for cubes, sphere and re	=	
4	Evaluate the Gradient, Divergence and Curl of vector field to predict areas and volumes.			
5	Evaluate the line, su another	rface and volume integrals and	converting them from o	one to
Course Outcome	Year / Semester : I / II-Sem Subject Name (Code): Engineering Physics (B18PH03) No. of Hours: L: 4 T: 0 P: 0 Credits: 4			
After the co	ompletion of this cou	rse, the students should be a	ble to	
1	The student learns a	bout transformation concept.		
2	The student gains kr	nowledge on basics of rigid boo	dy 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.			to
5	Gain knowledge aboimprovements.	out lasers which leads to new in	nnovations and	
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Mechanics (B18CE01)	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	Understand the force	e system and Degree of freedon	m	
2	Understand the spec			
3	Develop algebraic rebased on analysis of	elationships among Key physic a specifiedsystem	al parameters and varial	oles
4	11.0	of mechanics for solving prac bodies and particle inmotion.	tical problems related to)
5	Apply the dynamic,	motion principles in engineering	ng 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	
1		ce between structured programstanding the features of C++ su		

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: 0 T: 0 P: 3				
After the co	ompletion of this cou	rse, the students should be a	ble to		
1	Know the fundamen	tal knowledge of various trade	s and their usage in rea	l time Applications.	
2	Gain knowledge of	Foundry, Welding, Black smith	ny, Fitting, Machine sho	op and house wiring.	
3		s for analyzing power tools in chanical engineering.	construction and wood	working, electrical	
4	Use basic concepts	of computer hardware for asser	mbly and disassembly.		
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Physics Lab (B18PH04)	No. of Hours: L: 0 T: 0 P: 3	Credits: 1.5	
After the co	ompletion of this cou	rse, the students should be a	ble to	I	
1	The laboratory coursengineering.	se helps the student how to ope	erate different equipmen	nts related to	
2	It also allows the stuengineering.	ident to develop experimental s	skills to design new exp	periments in	
3	The course enlighter	ns the student about modern eq	uipment like solar cell,	optical fibre etc.,	
4	With the exposure to experiment.	o these experiments, the studen	t can compare the theor	ry and correlate with	
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): OOP's and Data Structures Lab (B18CS51)	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	Apply the oops cond probles using c++.	cepts like inheritance, polymorp	phism, abstraction and i	many more to solve	
2	Understand basic da	ta structures such as arrays, lin	nked lists, stacks and qu	eues.	
3		Understand basic data structures such as arrays, linked lists, stacks and queues. Able to write programs on hash functions and concepts of collision and its resolution methods, graphs, trees and heaps.			
4	Apply Algorithm for deletion of data.	r solving problems like sorting	, searching, insertion ar	nd	

After the completion of this course, the students should be able to 1	Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Probability and Statistics (B18MA04)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
Develop discrete probability distributions and its applications, and use these techniques to generate data from Binomial and Poisson Distributions. Develop continuous probability distributions and its applications, and use these techniques to generate data from Binomial and Poisson Distributions. Develop continuous probability distributions and its applications, and use these techniques to generate data from Normal Distribution. Perform correlation analysis, in order to estimate the nature and the strength of the linear relationship that may exist between two variables due to a given change in the other variable. Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test (chi-square). Subject Name (Code): After the completion of this course, the students should be able to 1 Outline the various stresses and strains. 2 Draw the shear force and Bending moment diagram for different beams. 3 Evaluate the flexural and shear stresses for various sections. 4 Calculate the slope and deflection of determinant beams. 5 dentify the concepts of torsion and spring subjected to loading. Course Outcome Year / Semester Outcome Subject Name (Code): Fluid Mechanics (B18CE03) L: 3 T: 0 P: 0	After the co	ompletion of this cou	rse, the students should be a	ble to	
Develop discrete probability distributions and its applications, and use these techniques to generate data from Binomial and Poisson Distributions. Develop continuous probability distributions and its applications, and use these techniques to generate data from Normal Distribution. 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. Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test (chi-square). Course Outcome Year / Semester Outcome Subject Name (Code): Strength of Materials—I (B18CE02) No. of Hours: Draw the shear force and Bending moment diagram for different beams. Draw the shear force and Bending moment diagram for different beams. Evaluate the flexural and shear stresses for various sections. Calculate the slope and deflection of determinant beams. dentify the concepts of torsion and spring subjected to loading. Course Year / Semester Outcome Year / Semester Outcome Year / Semester Subject Name (Code): No. of Hours: Credits: 3 After the completion of this course, the students should be able to Demonstrate the basic properties of fluids and the principles of manometer. Compute dimensional flows of a pipe applying continuity equation. Differentiate laminar and turbulent flow and various losses in pipe flow. Determine drag force and lift force of hydraulic structure. Course Year / Semester Outcome Year / Semester Subject Name (Code): No. of Hours: Credits: 3 Credits: 3 Credits: 3 Credits: 3 Identify the classification of surveying and its instruments.	1				crete and continuous
generate data from Normal Distribution. 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. Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test (chi-square). Course Outcome Year / Semester Outcome Year / Semester Outcome Subject Name (Code): Strength of Materials—I (B18CE02) No. of Hours: L: 3 T: 0 P: 0 Credits: 3 Evaluate the various stresses and strains. Draw the shear force and Bending moment diagram for different beams. Evaluate the slexural and shear stresses for various sections. Calculate the slope and deflection of determinant beams. dentify the concepts of torsion and spring subjected to loading. Course Year / Semester Outcome Year / Semester Subject Name (Code): No. of Hours: Credits: 3 After the completion of this course, the students should be able to Demonstrate the basic properties of fluids and the principles of manometer. Compute dimensional flows of a pipe applying continuity equation. Calculate measurement of flow by Eulers and Bernoulli's equation. Determine drag force and lift force of hydraulic structure. Course Year / Semester Outcome Year / Semester Outcome Surveying (B18CE04) L: 3 T: 0 P: 0 Credits: 3 After the completion of this course, the students should be able to	2		· · · · · · · · · · · · · · · · · · ·	• •	se techniques to
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. Construct confidence interval estimates for population parameters and conduct hypothesis tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test (chi-square). Course Outcome Year / Semester Outcome Subject Name (Code): Strength of Materials—I (B18CE02) After the completion of this course, the students should be able to 1 Outline the various stresses and strains. 2 Draw the shear force and Bending moment diagram for different beams. 3 Evaluate the flexural and shear stresses for various sections. 4 Calculate the slope and deflection of determinant beams. 5 dentify the concepts of torsion and spring subjected to loading. Course Outcome Year / Semester Subject Name (Code): Fluid Mechanics (B18CE03) After the completion of this course, the students should be able to 1 Demonstrate the basic properties of fluids and the principles of manometer. 2 Compute dimensional flows of a pipe applying continuity equation. 3 Calculate measurement of flow by Eulers and Bernoulli's equation. 4 Differentiate laminar and turbulent flow and various losses in pipe flow. 5 Determine drag force and lift force of hydraulic structure. Course Year / Semester Subject Name (Code): No. of Hours: Credits: 3 After the completion of this course, the students should be able to 1 Identify the classification of surveying and its instruments.	3	_	=	ts applications, and use	these techniques to
tests concerning population parameters, for single and multiple populations based on sample data. And also perform Student T-test, F-test and X2- test (chi-square). Course Outcome	4	relationship that may	y exist between two variables of	of interest, Perform regr	ession analysis to
Course Outcome Fear / Semester Outcome II / III - Sem	5	tests concerning pop	oulation parameters, for single	and multiple population	* *
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Subject Name (Code): No. of Hours :				n for different beams.	
4 Calculate the slope and deflection of determinant beams. 5 dentify the concepts of torsion and spring subjected to loading. Course Outcome 'Year / Semester Outcome ': II / III-Sem Subject Name (Code): No. of Hours: L: 3 T: 0 P: 0 After the completion of this course, the students should be able to 1 Demonstrate the basic properties of fluids and the principles of manometer. 2 Compute dimensional flows of a pipe applying continuity equation. 3 Calculate measurement of flow by Eulers and Bernoulli's equation. 4 Differentiate laminar and turbulent flow and various losses in pipe flow. 5 Determine drag force and lift force of hydraulic structure. Course Outcome Year / Semester Subject Name (Code): No. of Hours: L: 3 T: 0 P: 0 After the completion of this course, the students should be able to I Identify the classification of surveying and its instruments.					
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Course Outcome Subject Name (Code): Identify the classification of surveying and its instruments. Calculate measurement of flow by Eulers and Bernoulli's equation. Differentiate laminar and turbulent flow and various losses in pipe flow. Determine drag force and lift force of hydraulic structure. Subject Name (Code): No. of Hours: L: 3 T: 0 P: 0 Credits: 3					
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Course Outcome Year / Semester Subject Name (Code): No. of Hours: L: 3 T: 0 P: 0 After the completion of this course, the students should be able to I Identify the classification of surveying and its instruments.					
Outcome : II / III-Sem Surveying (B18CE04) L: 3 T: 0 P: 0 After the completion of this course, the students should be able to 1 Identify the classification of surveying and its instruments.	3	Determine drag 1010	c and fire force of flydraufic su	ucture.	
1 Identify the classification of surveying and its instruments.					Credits: 3
	After the co	ompletion of this cou	rse, the students should be a	ble to	
	1	Identify the classific	ation of surveying and its instr	ruments.	
z je alculate the horizontal and vertical angle using Tacheometric surveying.	2				

3	Understand the process of control surveying and adjustments.			
4	*	of Hydrographic and Astronomi	•	
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	l Impletion of this cou	rrse, the students should be al	ble to	
	<u>,</u>	•		
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: 0 T: 0 P: 2	Credits: 1
After the co	ompletion of this cou	irse, the students should be a	ble to	
1	Identify the bending	behavior of beams using bend	ing test.	
2	Determine the behavior of material under torsion.			
3	Determine the hards	ness of materials using different	t test.	
4		eristic of material using compre		r test.
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Surveying Lab (B18CE06)	No. of Hours: L: 0 T: 0 P: 3	Credits: 1.5
After the co	mpletion of this cou	urse, the students should be al	ble 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		;
4	Determine the dista	nce of the given points using To	otal station	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): 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 cou	irse, the students should be a	ble to	
1	Learn to simplify co	omplex electric and electronic c	ircuits by applying the l	KVL and
2	Identify the optimal	loading on the system.		
3	Analyze the perform	nance of DC machines.		
4	Identify and analyze devices.	Identify and analyze the performance and operation of semi conducting		

Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Environmental Sciences (B18MC02)	No. of Hours : L: 2 T: 0 P: 0	Credits: 0	
After the co	ompletion of this cou	irse, the students should be a	ble to		
1	Recall previously learned ecosystem and find how the biodiversity changes went in the environment.				
2	Demonstrate outline	es of types of pollutions and rel	ated to day-to-day life.		
3	Organize important	seminars on natural resources.			
4	parameters.	od chains and energy flow mod			
5		f pollutants and distinguish the ke part in the environment.	functions of sustainable	;	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Building Materials and Construction Planning (B18CE0)	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	Categorize stone an	d brick material with their prop	perties		
2	Contrast the importa	ance of concrete and its propert	ies		
3	Outline the differen	t building components			
4	Explain different bu	nilding services and NBS/IS nor	rms		
5	Build knowledge ab	out masonry and finishing wor	k		
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	
After the co	ompletion of this cou	rrse, the students should be a	ble to		
1	Analysis the fixed a	nd continuous beams.			
1 2		and continuous beams.	nt structures.		
	Evaluate the direct a	and continuous beams. and bending stresses of differential load of columns and stresses		thin	
2	Evaluate the direct and Determine the critical cylinders.	and bending stresses of differen	developed in thick and	thin	
3	Evaluate the direct and Determine the critical cylinders. Understand the conditional conditions are conditional conditional conditions.	and bending stresses of differential load of columns and stresses	developed in thick and rain energy.		
2 3 4	Evaluate the direct and Determine the critical cylinders. Understand the conditional Analyze the unsymmetric cylinders.	and bending stresses of differential load of columns and stresses cept of principal stresses and st	developed in thick and rain energy.		
2 3 4 5 Course Outcome	Evaluate the direct and Determine the critic cylinders. Understand the conditional Analyze the unsymmatic section. Year / Semester: II / IV-Sem	and bending stresses of differential load of columns and stresses cept of principal stresses and stresses and stretrical bending of beams and stresses and stresses and stretrical bending of beams and stresses and stretrical bending of beams and stresses are stresses. Subject Name (Code): Hydraulics & Hydraulic	rain energy. shear centre for differen No. of Hours: L: 3 T: 0 P: 0	t	
2 3 4 5 Course Outcome	Evaluate the direct and Determine the critic cylinders. Understand the conditional Analyze the unsymmetric section. Year / Semester: II / IV-Sem ompletion of this conditional and the c	sand bending stresses of differential load of columns and stresses cept of principal stresses and stresses an	rain energy. shear centre for differen No. of Hours: L: 3 T: 0 P: 0 ble to	t Credits: 3	
2 3 4 5 Course Outcome	Evaluate the direct and Determine the critic cylinders. Understand the conditional Analyze the unsymmatic section. Year / Semester: II / IV-Sem Ompletion of this conditional Apply fundamental	and bending stresses of differential load of columns and stresses cept of principal stresses and	rain energy. shear centre for differen No. of Hours: L: 3 T: 0 P: 0 ble to draulics in Civil Engine	t Credits: 3	
2 3 4 5 Course Outcome After the co	Evaluate the direct and Determine the critic cylinders. Understand the conditional Analyze the unsymmatic section. Year / Semester: II / IV-Sem Impletion of this county fundamental Describe dimension	sand bending stresses of differential load of columns and stresses cept of principal stresses and stresses an	rain energy. shear centre for differen No. of Hours: L: 3 T: 0 P: 0 ble to draulics in Civil Engined welop hydraulic model.	t Credits: 3	
2 3 4 5 Course Outcome After the co	Evaluate the direct and Determine the critic cylinders. Understand the constant and the constant and the unsymmetrion. Year / Semester: II / IV-Sem Impletion of this county for the constant and the constant a	and bending stresses of differential load of columns and stresses cept of principal stresses and	rain energy. shear centre for differen No. of Hours: L: 3 T: 0 P: 0 ble to draulics in Civil Engineer elements of the control of the contr	t Credits: 3	

Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): 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 differen	nt types of arches.		
3	Gain knowledge abo	out cables and suspension bridge	ges.	
4		ed cantilever and continuous be		
5		t of plastic analysis of structure		
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		es of rocks within the frameword with emphasis on their practi		
2	Model physical and quantification.	mechanical properties of rocks	s and rock mass through	h
3	Justify importance of redistribution of stre	of residual stresses in rock mass esses during.	s and to model the	
4	geophysical investig		•	
5	Apply geological produms 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
After the co		rse, the students should be a		
1		Energy sources and IC engine		
2		noval process using Lathe, dril		ions.
3	1 11	ntion and usage of various engi		
5	<u> </u>	le of operation of Impulse and nce of engineering materials.	reaction turbine.	
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		ipe
3	Demonstrate a practical working of Hydraulic machines- different types of Turbines, Pumps, and other miscellaneous hydraulics machines.			
4	Compare the results of analytical models introduced in a lecture to the actual behavior of real fluid flows and draw correct and sustainable conclusions.			

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	rse, the students should be a	ble to		
1	Learn about the grou	und surface features based on mental concepts of basic scien	nap patterns of contour		
2	Identify physical and mechanical properties of rocks and minerals and its application in civil engineering uses.				
3	Measure strike and	dip of the bedding planes.			
4	_	he sections for geological maps ed beds, folds, faults.	s showing horizontal be	ds,	
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	ompletion of this cou	rse, the students should be a	ble to		
1	Use the usage of Au	toCAD 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 (B18MC07)	No. of Hours : L: 2 T: 0 P: 0	Credits: 0	
A ft on the co	lotion of this con	, ,	hla 4a		
		irse, the students should be a importance of women empow			
1					
2		understanding and classification			
3	Identify the need of	equal distribution of work in the	he entire sector irrespec	tive 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		
	Year / Semester : III / V-Sem	Subject Name (Code): Design of Steel Structures (B18CE15)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3	
	, -	rse, 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	ompletion of this cou	rse, the students should be a	ble to		
1	Identify the problem solutions through sy	ns in founding strata and sugge stematic analysis.	st economically feasible	;	
2	Analyse the water flow and providing solutions to counter the hydraulic pressures.				
	1	Awareness of the classical concepts of soil mechanics and its necessity.			

4	Ability to analyze the consolidation settlements.			
5	Understand the princ	ciples of compaction to improv	e 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	ompletion of this cou	rse, the students should be a	ble to	
1	_	cement materials and types of a		
2		aggregates, properties and its		
3		ortion of concrete and learn from		ete.
4		nardened and durability proper		
5	Obtain knowledge o	f special concretes and its appl	ication.	
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	ompletion 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 metl	nods to formulate the velocity	of stream flow.	
3	-	nce of estimation of runoff, and unit hydrograph, flood hydrog	•	
4	Make use of Technic	ques of the Hydrograph to fore	cast 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): Engineering Hydrology (B18CE18)	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	_	ity of precipitation available for		ea.
2	* * *	nods to formulate the velocity		
3	-	nce of estimation of runoff, and unit hydrograph, flood hydrog	•	
4	Make use of Technic	ques of the Hydrograph to fore	cast Flood discharge at	various duration.
5	Build the necessary their yields.	theoretical background of grou	ind 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 frames by slope deflection method and learn to draw the shear force and bending moments diagram for frames.			ne shear force and
2	Apply the method of approach to analysis of portal frame by moment distribution method.			
3	Able to analysis bear	ms and frames by Kani's meth	od and Approximation	method.
4		ous beam, Pin jointed plane fra		
5	T.			
	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	ompletion of this cou	rse, the students should be a	ble to	
1		ninology,concept of remote sens		
2	Understand different 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	ensing in engineering and science	ce streams.	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): 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		dge of Environmental impacts,		
2		mental clearances and guideline	es.	
3		nment laws and regulations.		
4		to prepare an audit report.		
5	Prepare EIA reports	and environmental management	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	empletion of this cou	irse, 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 elluate methods for forecasting of	_	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	Charletana the than	acteristics of different kinds of on and analyze how capital bud	manie di	
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	mpletion of this cou	rse, the students should be a	ble to	
1	1 -	ne test on cement and aggregate		
2		pility of fresh the Concrete.		
3		gth characteristics of harden co	ncrete.	
4		non-destructive test on concrete		
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	rse, the students should be a	ble to	
1		propriately designate them.		
2	Calculate the permea			
3	•	ng properties of soil and sugge	est suitable field improv	ements.
4		strength properties of soil.	<u>*</u>	
C	Wasan / Camasadan	Subject Name (Code):	N. CH.	
Course	Year / Semester	Indian Constitution	No. of Hours:	Credits: 0
Outcome	: III / V-Sem	(B18MC04)	L: 2 T: 0 P: 0	
After the co	_	rse, the students should be a		
1	_	edge and legal literacy about Ir		-
1	take up competitive	examinations & to manage/fac	e complex societal issue	es in society.
2	Understand state and	d central policies (Union and S	tate Excutive), fundame	ental Rights & their
<i>L</i>	duties.			
3	Understand Electora	l Process and special provision	ns in Constitution.	
4		endments in Indian Constitution		
5	*	and functions of Municipalities	s, Panchayats and Coop	erative
J	Societies, with Hum	an Rights and NHRC.		
Course	Year / Semester	Subject Name (Code):	No. of Hours:	
Outcome	: III / VI-Sem	Design of RC Structures	L: 3 T: 0 P: 0	Credits: 3
		(B18CE21)		
After the co	_	rse, the students should be a		
1		inforced, doubly reinforced and	_	
2	•	as under flexure, shear and tors		
3		slab, two-way slab and stairca		
4		paded, uniaxial and biaxial ben	_	
5	Design the isolated s	square, rectangular and circular	r footings	
Course	Year / Semester	Subject Name (Code):	No. of Hours:	
Outcome	: III / VI-Sem	Irrigation Engineering	L: 3 T: 0 P: 0	Credits: 3
A C4 41	14' 641'	(B18CE22)		
After the co		rse, the students should be a s, techniques and modernizatio		n about irrigation
1	-	on-farm development and comr	•	· ·
2		for canal irrigation and the ba		
3	-	rigation canal design	ores or acorgii.	
4	Analyze gravity and			
5	Plan and design dive			
<i>J</i>	I fair and design dive	Subject Name (Code):		
Course	Year / Semester	Highway Engineering	No. of Hours:	Credits: 3
Outcome	: III / VI-Sem	(B18CE23)	L: 3 T: 0 P: 0	Citains. 3
After the co	mpletion of this cou	rse, the students should be a	ble to	
1		g process required for highway		etric
2		nent: sight distance, horizontal		
3		f traffic volume and importanc	•	
4	•	e highway materials and design		nent
5		yze the causes for failure of flo		
C		Subject Name (Code):		
Course	Year / Semester	Foundation Engineering	No. of Hours:	Credits: 3
Outcome	: III / VI-Sem	(B18CE36)	L: 3 T: 0 P: 0	
After the co	mpletion of this cou	rse, the students should be a	ble to	

1	Understand soil exp	loration methods and calculate	the bearing capacity of	soils.
2	Detect the failures in slopes and suggest appropriate improvement methods.			
3		pressures and provide sustaina		
4		shallow foundations.	<u> </u>	
5	Analyze and design			
		Subject Name (Code):		
Course Outcome	Year / Semester : III / VI-Sem	Advanced Surveying (B18CE37)	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		ngulation method,system,basel		
2		hods to find locations		
3		c principles of theodolite,photo	ogrammetric	
4		inology and concepts of astron		rent
5		e of Total Station and GPS in		Tent
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Ground Improvement Techniques (B18CE38)	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	Select the ground in	provement technique which is	suitable and economica	al for
2	Select different tech	niques based on the various typ	pes of soils in-situ.	
3	Design reinforced ea	arth structures.		
4	Apply the knowledg	e of geo-synthetic material for	usage.	
5		e of modification by confinem		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Rehabilitation & Retrofitting of Structures (B18CE39)	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		stress & damage of structures.		
2	Understand about pr			
3	1	orrosion of steel reinforcement.		
4		fferent techniques of repairs of		
5		Ith Monitoring of Structures by		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Geographical Information System (B18CE40)	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	Understand The Cor	ncept Of Cadastral Maps.		
2	Able To Identify Gr	ound Points, Different Sources	Of Map Information.	
3	Able To Coordinate	The Points Through Digital.		
4	Understand The Bas	ics Of Open Source Software.		
5		n The Maps With Alignemts.		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Construction Management (B18CE41)	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	

2	Understand network	techniques, management and i	its applications CPM &	PERT.
3	Able to get knowledge on resource planning, methods of budgets.			
4	_	cepts of contract, types of contra		
5		nd financial aspects, safety syste		
	Learn about legar an	Subject Name (Code):	ons.	
Course Outcome	Year / Semester : III / VI-Sem	Human Values and Professional Ethics (B18EN04)	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	It ensures students s skills.	sustained happiness through ide	entifying the essentials of	of human values and
2	It facilitates a correc	ct understanding between profe	ssion and happiness.	
3	It helps students und	derstand practically the importating interaction with nature.		atisfying human
4		ppropriate technologies and ma	anagement patterns to cr	reate
5		obal Issues and problems in ext		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Database Management System (B18CS04)	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	Ability to understan	d the fundamental concepts of	database management.	
2		atabase models & Entity Relation the given case study.	onship models and to de	raw
3	Apply relational Da expressions for quer	tabase Theory, and be able to wries.	vrite relational algebra	
4	Utilize the knowled	ge of basics of SQL and constr	uct queries using SQL.	
5	Apply Normalizatio transaction processi	n Process to construct the dataling.	base. Explain Basic Issu	ues of
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Power Plant Engineering (B18ME36)	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		out of power generation units fo		ors.
2		bsystem and systems of power		
3		nd emerging alternative energy		
4	1 0	inities in contributing towards t		isis.
5		angement of power distribution		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Advanced English Communications Skills Lab (B18EN03)	No. of Hours: L: 0 T: 0 P: 3	Credits: 1.5
	_	irse, the students should be a		
1		ely and appropriate vocabulary		/ .
2		Writing and felicity in written	expression.	
3	Enhancing job prosp			
4	Acquiring effective	1		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Highway Engineering Lab (B18CE24)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1

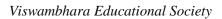
After the co	mpletion of this cou	rse, the students should be a	ble to	
1		rement materials based on prop		
2	Perform quality control tests on pavement materials.			
3	Gain knowledge on	basic understanding of mix des	sign.	
4	Understand the salie	ent features of traffic studies.		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Structural Design and Detailing Lab (B18CE25)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5
After the co	mpletion of this cou	rse, the students should be a	ble to	
1	Draw and show the	detailing of reinforcement in fo	ootings.	
2	Draw and show the	detailing of reinforcement of d	ifferent types of column	ns
3	Draw and show the	detailing of reinforcement of d	ifferent types of beams	
4	Draw the steel struct	tures.		
Course Outcome	Year / Semester : III / VI-Sem	Subject Name (Code): Logical Reasoning and Quantitative Aptitude (B18MC05)	No. of Hours : L: 2 T: 0 P: 0	Credits: 0
After the co	mpletion of this cou	rse, the students should be a	ble to	
1	To improve their log concepts.	gical thinking in terms of gener	al and mathematical	
2	-	to compete in academic as we ents are able to solve the real w	•	
3	To make quick decis	sions to face the critical proble	ms.	
4	Improve their mathe problems.	matical skills in various genera	al aspects to solve real v	vorld
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Estimation and Valuation Practice (B18CE26)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	mpletion of this cou	rse, the students should be a	ble to	
1	Evaluate the detailed	d estimate of RC building.		
2	Evaluate the rate for	construction activities.		
3	Prepare the report as	nd tender for the contact works	s.	
4	Understands what ty	pe of contract is used for a spe	ecific work.	
5	Understands the imp	oortance of valuation.		
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Environmental Engineering (B18CE27)	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	_	lge of the water borne diseases e with the different pollution re		nity by
2	Demonstrate the step	ps involved in water filtering.		
3	Acquire the knowled	dge of water distribution syster	n and their fittings.	
4	Explain wastewater	collection systems & design se	ewers.	
	Gain knowledge of t	the different processes of water	r treatment and would b	e

		Subject Name (Code):		
Course	Year / Semester	Watershed Management	No. of Hours:	G 114 2
Outcome	: IV / VII-Sem	(B18CE42)	L: 3 T: 0 P: 0	Credits: 3
		,		
After the co	ompletion of this co	ırse, the students should be a	ble to	
1		ysical, biological and environm	nental aspects and their i	nterrelations within
	a watershed.			
2	Identify the causes			
3	_	ter harvesting and groundwater		
4	11.	vailable system tools for system		
		and design a sustainable waters		
5		towards the multiple use of lar	nd- and water resources	and social equity
	and economic avail	ability.		
		Subject Name (Code):		
Course	Year / Semester	Transportation Engineering	No. of Hours:	Credits: 3
Outcome	: IV / VII-Sem	(B18CE43)	L: 3 T: 0 P: 0	Credits. 3
After the co	ompletion of this co	ırse, the students should be a	ble to	
1		components and characteristics		
2	Conduct different to	raffic studies and analyze the da	ata.	
3	Analyze and determ	nine the LOS of highway.		
4	Analyze and design			
5	To know various tra	affic control devices and princip	ples of highway safety.	
Course	Year / Semester	Subject Name (Code):	No. of Hours :	
Outcome	: IV / VII-Sem	Bridge Engineering	L: 3 T: 0 P: 0	Credits: 3
Outcome	. IV / VII-Selli	(B18CE44)	L: 31: UF: U	
After the co		urse, the students should be a	ble to	
1	Obtain knowledge	of bridges and its loading.		
2		b and T-Beam bridges.		
3	-	ts and design of plate girder and		
4	• • • • • • • • • • • • • • • • • • • •	f bearing and design of piers an		
5	Show the important	ce of bridge inspection and mai	ntenance.	
		Subject Name (Code):		
Course	Year / Semester	Pre stressed Concrete	No. of Hours:	Credits: 3
Outcome	: IV / VII-Sem	(B18CE45)	L: 3 T: 0 P: 0	Credits: 5
After the co	ompletion of this co	ırse, the students should be a	ble to	
1	Understand the prin	ciples and types of prestressing	g.	
2	Know the methods	of prestressing and losses of pr	restress.	
3	Gain knowledge an	alyze of beams in flexure and si	hear.	
4	Outline the transfer	of prestresses force in member	rs.	
5	Analyze the compo	site beam and deflection.		
C	V / C	Subject Name (Code):	N. CH	
Course	Year / Semester	Earthquake Engineering	No. of Hours:	Credits: 3
Outcome	: IV / VII-Sem	(B18CE46)	L: 3 T: 0 P: 0	
	mpletion of this co	ırse, the students should be a	ble to	
After the co	mpietion of this co.	,		
After the co	T -	causes of earthquake, Theory	of vibration.	
	Discuss and explain	n causes of earthquake, Theory n the load path, ductility and ear		ments.

4	Anaalye and design	of earthquake resistant masonr	v 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	ompletion of this cou	rse, the students should be a	ble to	
1	Understand the histo	ory and mechanism of reinforce	ed soil.	
2	Become aware about	t situations where geosynthetic	es can be used.	
3	Know about various	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 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	ompletion of this cou	rse, the students should be a	ble to	
1		entrepreneur and relate the ski		
2	Classify SWOT and	summarize the sources of fina	nce	
3	Apply the ethical gu	idelines for business		
4	Identify the shadow	economy and political issues		
5	Assess the issues of	corporate governance and Imp	prove the professional et	hics.
Course Outcome	Year / Semester : IV / VII-Sem	Industrial Management (B18MB05)	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	_	rship and Organization.		
2		nal structures and its uses.		
3		d time for projects with the hel	p of PERT and CPM.	
4		d make use of work study tech	_	
5	-	oblems in operation manageme	•	
Course Outcome	Year / Semester : IV / VII-Sem	Subject Name (Code): Digital Image Processing (B18EC24)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co		rse, the students should be a		
1		of digital image fundamentals	-	
2	· -	of image enhancement in spati		n.
3		erent methods to restore an ima		
4		age segmentation techniques ar		gical
5	Analyze the differen	nt image compression technique	es.	
		Subject Name (Code):	No. of Hours :	Credits: 1
Course Outcome	Year / Semester : IV / VII-Sem	Environmental Engineering Lab (B18CE28)	L: 0 T: 0 P: 2	Cituits. 1
Outcome	: IV / VII-Sem			Credits. 1
Outcome	: IV / VII-Sem	Lab (B18CE28)	ble to	Credits. 1
Outcome After the co	: IV / VII-Sem	Lab (B18CE28) urse, the students should be a water samples to determine pl	ble to	Credits. 1
Outcome After the co	: IV / VII-Sem Ompletion of this county Test water and wast	Lab (B18CE28) urse, the students should be a ewater samples to determine plated COD of water.	ble to	Credits. 1

		Subject Name (Code):		
Course	Year / Semester	Pavement Design	No. of Hours:	Credits: 3
Outcome	: IV / VIII-Sem	(B18CE48)	L: 3 T: 0 P: 0	Credits. 3
After the co	ompletion of this cou	rse, the students should be a	ble to	
1		effecting the pavements.		
2		sis concepts and procedures for	r stresses, strains and	
3	<u> </u>	cept of soil modification and its		
4		ge of design of flexible and rig	• •	nt
5		of pavement for low volume ro		
Course Outcome	Year / Semester : IV / VIII-Sem	Subject Name (Code): Solid Waste Management (B18CE49)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co		rse, the students should be a		_
1		dge of solid waste management	t	
2	<u> </u>	disposal techniques.		
3	-	dge of Biomedical waste dispo	•	
4		te method for solid waste colle	ction, transportation,	
	redistribution and di	1		
5	Acquire the knowle	dge of e- waste disposal technic	ques.	
Course	Year / Semester	Subject Name (Code):	No. of Hours :	
Outcome	: IV / VIII-Sem	Finite Element Method	L: 3 T: 0 P: 0	Credits: 3
		(B18CE50)		
		rse, the students should be a		
1		e element method and define st	•	
2	_	finite element methods for 1Da		. 1
3		basic problems in structural m		
4	problems into finite	ate mathematical models for so element.	lution of simple and coi	mmon engineering
5	Appreciate the impo	ortance of ethical issues pertain	ing to the effective utili	zation of FEA.
Course	Year / Semester	Subject Name (Code): Intellectual Property Rights	No. of Hours:	
Outcome	: IV / VIII-Sem	(B18MB06)	L: 3 T: 0 P: 0	Credits: 3
		` ′		
	_	rse, the students should be a		
1		ng importance of intellectual pr		
2		tion procedures and trade mark	registration process	
3	1 11 0	nt principles and rights		
4		patents and patent ownership.		
5	Develop the trade se	ecret and maintenance. [Subject Name (Code):	<u> </u>	
Course	Year / Semester	Nanotechnology (B18ME25)	No. of Hours :	
Outcome	: IV / VIII-Sem	(DIOMEDE)	L: 3 T: 0 P: 0	Credits: 3
	T -	rse, the students should be a	ble to	
1		lamentals of Nanotechnology.		
2	-	nt classes of nano materials.		
3		ques involved in Nanotechnolo	gy.	
4	Compare nanotechn	ology potentialities.		

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	ompletion of this co	urse, the students should be a	ble to	
1	Apply the technolo	gy to capture the energy from th	ne renewable sources lik	ke sun,
2	Compare different renewable energy sources to produce electrical power minimize the use of conventional energy sources to produce electrical energy.			
3	Identify the fact that the conventional energy resources are depleted.			
4	Understand direct energy conversion.			
5	Differentiate limita	Differentiate limitations and principles of direct energy conversion.		



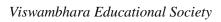


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Department of Electronics and Communication Engineering

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

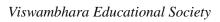
Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4
Outcome	I/I Sem	LINEAR ALGEBRA AND CALCULUS	
		(B18MA01)	
After the c	ompletion of this co	urse, the students should be able to	1
1	Write the matrix repr	resentation of a set of linear equations and to ans.	alyse the solution of the
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 of	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 valu	ues of functions of two variables with/ without	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	ompletion of this cours	se, the students should be able to	1
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 sequencing scientific and engine	ng, branching, looping and decision makin eering problems.	g statements to solve





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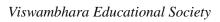
4	mplement different operations on arrays and creating and using of functions to solve problems.			
5	Design and implement	nt different types of file structures using standar	d methodology.	
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) APPLIED PHYSICS (B18PH01)	L:4 T: 0 P: 0 C: 4	
After the co	ompletion of this cours	e, the students should be able to		
1	llustrate fabrication of	semi conductors, photo detectors, design basis of quantum conductors.	uantum mechanics	
2	Recall facts of wave op	Recall facts of wave optics extend & construct basics of wave optics.		
3	nterpret about lasers, v	nterpret about lasers, 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	ompletion of this cours	e, the students should be able to		
1	Recall the enrichment of comprehension and fluency will be adaptable.			





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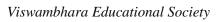
2	Gain confidence in usin	ng language in varied situations	
3	Develops neutralization	n of accent for intelligibility.	
4	Adapt effective speaking	ng abilities.	
5	Develops and Commur	nicates by stating main ideas relevantly and cohere	ently in speaking & writing.
Course Outcome	Year / semester I/I Sem	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	
		oments related to light & electronics.	
2	Develop experimental	skills to design new experiments & circuit design.	
3	Jnderstand about mode	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	1/1 SCIII		
		WORKSHOP (B18ME02)	
After the con	mpletion of this cours	e, 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 dov	re tail joint in carpentry, scoope, funnel and tray it	tems in tin smithy.





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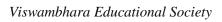
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) PROGRAMING FOR PROBLEM SOLVING LAB (B18CS02)	L: 0 T: 0 P: 2 C: 1			
After the completion of this course, the students should be able to						
1	Jnderstand how problems are posed and how they can be analyzed for obtaining solutions					
2	Understand basic structure of the C programming, declaration and usage of variables.					
3	Write C programs using operators. Implement different operations on arrays and creating and using of functions to solve problems.					
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 AND VECTOR CALCULUS (B18MA02)	D			
After the completion of this course, the students should be able to						
1	dentify whether the given differential equation of first order is exact or not					
2	Solve higher order 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 parallelopiped					
4	Utilize the concept of gradient divergence and curl of a vector field to predict area and volumes.					
5	Evaluate the line, surface and volume integrals and converting them from one to another.					





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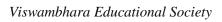
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4			
Outcome	I/II Sem	ENGINEERING CHEMISTRY (B18CH01)				
After the co	mpletion of this cours	ea the students should be able to				
After the completion of this course, the students should be able to						
1	Recall previous knowledge regarding atomic and molecular structure.					
2	Design polymeric engineering materials. Recall basic organic reactions					
3	Construct batteries and classify different electronics and electrical like cells, electrodes, e.t.chelp them to construct different electrical/ electronic parts.					
4	Examine which type of impurities is present in water, specification of drinking water and explain the corrosion behavior/ activity of metals.					
5	Apply phase rule and adsorption to construct the materials by analyzing 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 of surfaces.					
2	Jnderstand the projections of solids					
3	Jnderstand the isometric 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)				





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After the co	After the completion of this course, the students should be able to						
1	Learn basic concepts of electrical circuits, electrical parameters etc						
2	Relate the learned basics to understand the AC and DC circuits						
3	Analyse and solve the electric and magnetic circuits						
4	Learn to demonstrate various network theorems and resonance condition						
5	Apply various network theorems to solve real time application						
6	Assess various above 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 semiconductor theory and characteristics of the PN junction diode and Zener diode.						
2.	Compare and contrast the rectifiers with and without filters.						
3.	Jnderstand the construction and voltage- current characteristics of Junction Transistor and illustrate the different configurations of transistor						
4.	Design and analyze the different biasing circuits and amplifier circuits.						





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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: 0 P: 2 C: 1			T: 0 P: 2 C: 1	
Outcome	I/II Sem	ELECTRONIC DEVICES AND			
		CIRCUITS LAB (B18EC02)			
After the co	ompletion of this cou	rse, the students should be able to			
1	dentify and find th	e values of resistors, capacitors and inductors.			
2	Measure voltage, frequency and phase of any waveform using CRO				
3	Demonstrate the characteristics and operation of electronic devices.				
4	Demonstrate various amplifier circuits.				
Course	Year / semester Subject Name (Subject Code) L: 0 T: 0 P: 2			L: 0 T: 0 P: 2	
Outcome	I/II Sem ENGLISH LANGUAGE & COMMUNICATIONS C: 1			C: 1	
		SKILLS LAB (B18EN02)			
After the co	ompletion 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			C: 0	

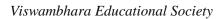


Viswambhara Educational Society

VAAGDEVI COLLEGE OF ENGINEERING

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	ENVIRONMENTAL SCIENCE (B18MC02)
After the	e 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.





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Department of Electronics and Communication Engineering

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

Course Year / semester Subject Name (Subject Code) Outcome I/I Sem CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior	Course	Year/Semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
After the completion of this course, the students should be able to Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Combinational MOS logic circuits. Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Sequential MOS logic circuits. Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. Recommend various CMOS techniques and also other device technologies based of circuit constraints requirement. Course Year / semester Subject Name (Subject Code) Outcome I/I Sem CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to	Outcome	I/I Sem CMOS DIGITAL INTEGRATED				
1 Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Combinational MOS logic circuits. 2 Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Sequential MOS logic circuits. 3 Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. 4 Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. 5 Recommend various CMOS techniques and also other device technologies based or circuit constraints requirement. Course Year / semester Subject Name (Subject Code) CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to			CIRCUIT DESIGN (M18VL01)			
implementation, analysis & design of Combinational MOS logic circuits. 2 Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Sequential MOS logic circuits. 3 Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. 4 Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. 5 Recommend various CMOS techniques and also other device technologies based or circuit constraints requirement. Course Year / semester Subject Name (Subject Code) Outcome I/I Sem CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to	After the comp	l Detion of this cours	se, the students should be able to	<u> </u>		
Relate, compare, interpret and make the use of the best CMOS design techniques for implementation, analysis & design of Sequential MOS logic circuits. Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. Recommend various CMOS techniques and also other device technologies based or circuit constraints requirement. Course Year / semester Subject Name (Subject Code)	1	Relate, compare, in	nterpret and make the use of the best CMOS	design techniques for		
implementation, analysis & design of Sequential MOS logic circuits. Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. Recommend various CMOS techniques and also other device technologies based of circuit constraints requirement. Course Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3 CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to		implementation, analysis & design of Combinational MOS logic circuits.				
Know & tell different types of memories and compare performance evaluation of each memory modules so they can be able to think & justify how to improve performance by taking different structures. Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. Recommend various CMOS techniques and also other device technologies based or circuit constraints requirement. Course Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 2 CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to Define the parameters of MOS Devices & can predict the performance or behavior	2	Relate, compare, in	nterpret and make the use of the best CMOS	design techniques for		
each memory modules so they can be able to think & justify how to improve performance by taking different structures. 4 Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. 5 Recommend various CMOS techniques and also other device technologies based of circuit constraints requirement. Course Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3 CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior		implementation, as	nalysis & design of Sequential MOS logic cir	cuits.		
performance by taking different structures. 4 Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. 5 Recommend various CMOS techniques and also other device technologies based of circuit constraints requirement. Course Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3 CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior	3	Know & tell differ	ent types of memories and compare performa	ance evaluation of		
4 Define, simplify & justify which dynamic logic circuit can be used investigate CMOS circuits. 5 Recommend various CMOS techniques and also other device technologies based of circuit constraints requirement. Course Year / semester Subject Name (Subject Code) Outcome I/I Sem CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior		each memory modules so they can be able to think & justify how to improve				
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From the parameters of MOS Devices & can predict the performance or behavior	4	Define, simplify & justify which dynamic logic circuit can be used investigate				
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Outcome I/I Sem CMOS ANALOG INTEGRATED CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior		circuit constraints requirement.				
CIRCUIT DESIGN (M18VL02) After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior	Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
After the completion of this course, the students should be able to 1 Define the parameters of MOS Devices & can predict the performance or behavior	Outcome	I/I Sem CMOS ANALOG INTEGRATED				
Define the parameters of MOS Devices & can predict the performance or behavior		CIRCUIT DESIGN (M18VL02)				
	After the comp	oletion of this cours	se, the students should be able to	L		
	1					
		of Analog VLSI circuit.				
	2	Use mathematical models of MOS transistors to evaluate their behavior in analog				
requirements		circuits & selects suitable design approaches while trading off conflicting requirements				
3 Analyze & characterize analog devices and systems & Designing CMOS analog	3	-	erize analog devices and systems & Designir	ng CMOS analog		
circuits to achieve performance specifications		circuits to achieve	performance specifications			



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4	Understand design issues related to analog VLSI system 7&working of MOS based			
	data converter circuits.			
5	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	DIGITAL SYSTEM DESIGN USING		
		HDL(M18VL03)		
After the comp	pletion of this cours	se, the students should be able to		
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 optimum layout for IC layout at VLSI backend design.			
4	Design, analyze & can predict the performance characteristics of logic gates using			
	NMOS, PMOS & CMOS technology at VLSI backend design.			
5	Tell an optimum trade with respect to three basic parameters of VLSI design for			
	VLSI circuit at frontend 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 comp	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			
3	noise computation 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	a broad range of	
	DSP applications			



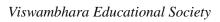
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5	Minimize the computational complexity using fast convolution algorithms & Make			
Course	the significant use of knowledge of subject in research or on project in VLSI domain Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3			
	I/I Sem		L.31.01.0C.3	
Outcome		VLSI TECHNOLOGY (M18VL05)		
After the comp		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 applic	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	cation and layout & Use of tools for efficient	designing.	
5	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	ALGORITHM FOR VLSI DESIGN		
		AUTOMATION(M18VL06)		
After the comp	oletion of this cours	se, the students should be able to		
1	Describe and form	ulate the flow of VLSI Design for any applic	ation.	
2	Explain the algorithms for partitioning, floor planning, placement and routing the			
	digital designs at frontend level & at backend VLSI Design level.			
3	Compare the various scheduling algorithms & Analyze & solve the issues related to			
4	logic synthesis & verification			
4	Explain the algorithms for partitioning, floor planning, placement and routing the MCM modules			
5		ontribution in the research in based on design	of CAD tool for	
	Make significant contribution in the research in based on design 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	oletion of this cours	se, the students should be able to		



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2 Interpret the difference between Microcontrollers and Microprocessors. 3 Apply the Software for Embedded System Design & concepts of Embedded OS. 4 Explain and apply the concept of Embedded Firmware, RTOS Based Embedded System Design and Task function. 5 Make significant contribution in the research in applications based on embedded system design. Course Year / semester DeVICE MODELING (M18VL08) After the completion of this course, the students should be able to 1 Understand the physics of and design elements of silicon MOSFETs. 2 Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory 3 Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) L: 2 T: 0 P: 0 C: 0 If Sem ENGLISH FOR RESEARCH PAPER WRITING (M18ACO1) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper 4 Enable the students to plan for original research papers without subjected to	1	Know the Basic Concept of Embedded Systems.			
Apply the Software for Embedded System Design & concepts of Embedded OS. 4 Explain and apply the concept of Embedded Firmware, RTOS Based Embedded System Design and Task function. 5 Make significant contribution in the research in applications based on embedded system design. Course Year / semester DEVICE MODELING (M18VL08) After the completion of this course, the students should be able to 1 Understand the physics of and design elements of silicon MOSFETs. 2 Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory 3 Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and 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 completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	2				
Explain and apply the concept of Embedded Firmware, RTOS Based Embedded System Design and Task function. Make significant contribution in the research in applications based on embedded system design. Course Year / semester Subject Name (Subject Code) It Sem DEVICE MODELING (M18VL08) After the completion of this course, the students should be able to Understand the physics of and design elements of silicon MOSFETs. Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) Utilize Semiconductor models to Subject Code) If Sem ENGLISH FOR RESEARCH PAPER WRITING (M18ACO1) After the completion of this course, the students should be able to Understand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper					
System Design and Task function. Make significant contribution in the research in applications based on embedded system design. Course Year / semester Outcome I/I Sem DEVICE MODELING (M18VL08) After the completion of this course, the students should be able to Understand the physics of and design elements of silicon MOSFETs. Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) Urderstand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper					
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System design. Course Outcome Vear / semester Outcome VI Sem DEVICE MODELING (M18VL08) After the completion of this course, the students should be able to 1 Understand the physics of and design elements of silicon MOSFETs. 2 Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory 3 Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Outcome Vear / semester Subject Name (Subject Code) Vear / semester WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper		System Design and Task function.			
Course Outcome I/I Sem DEVICE MODELING (M18VL08) L: 3 T: 0 P: 0 C: 3	5	Make significant contribution in the research in applications based on embedded			
After the completion of this course, the students should be able to 1		system design.			
After the completion of this course, the students should be able to 1	Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
1 Understand the physics of and design elements of silicon MOSFETs. 2 Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory 3 Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) L: 2 T: 0 P: 0 C: 0 ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	Outcome	I/I Sem	DEVICE MODELING (M18VL08)		
Explain the equations, approximations and techniques available for deriving a model with specified properties, for a general device characteristic with known qualitative theory Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year/semester Subject Name (Subject Code) L: 2 T: 0 P: 0 C: 0 ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to Understand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper	After the comp	pletion of this cours	se, the students should be able to		
with specified properties, for a general device characteristic with known qualitative theory 3 Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	1	Understand the physics of and design elements of silicon MOSFETs.			
Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	2	Explain the equations, approximations and techniques available for deriving a model			
Analyze the performance issues & inherent trade off involved in system design Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) Outcome I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper					
Offer clues to qualitative understanding of the physics of a new device and conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) Outcome I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	2	·			
conversion of this understanding into equations. 4 Utilize semiconductor models to analyze carrier densities and carrier transport & Simulate characteristics of a simple device using MATLAB, SPICE and SYNOPSYS 5 Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and 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 completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	3				
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SYNOPSYS Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Year / semester Subject Name (Subject Code) L: 2 T: 0 P: 0 C: 0 ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to Understand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper	4				
Understand and analyze the inner working of semiconductor p-n diodes, Schottky barrier diodes and advanced MOSFET technology Course Vear / semester Subject Name (Subject Code) L: 2 T: 0 P: 0 C: 0 ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to Understand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper		Simulate characteristics of a simple device using MATLAB, SPICE and			
Course Year / semester Subject Name (Subject Code) Outcome I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper					
Course Outcome I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to Understand the nuances of language and vocabulary in writing a Research Paper Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper	5				
Outcome I/I Sem ENGLISH FOR RESEARCH PAPER WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	Course	· ·			
WRITING (M18AC01) After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper					
After the completion of this course, the students should be able to 1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper	Outcome	1/1 Selli			
1 Understand the nuances of language and vocabulary in writing a Research Paper 2 Develop the content, structure and format of writing a research paper 3 Analyze and practice writing a Research Paper			`		
Develop the content, structure and format of writing a research paper Analyze and practice writing a Research Paper	After the comp		•		
3 Analyze and practice writing a Research Paper	1	Understand the nuances of language and vocabulary in writing a Research Paper			
	2	Develop the content, structure and format of writing a research paper			
4 Enable the students to plan for original research papers without subjected to	3	Analyze and practice writing a Research Paper			
	4	Enable the student	s to plan for original research papers without	subjected to	





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	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 com	pletion of this cours	se, the students should be able to	I	
1	Develop an und	erstanding of IPR/ research methodology in	n 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 com	pletion of this cours	se, the students should be able to		
1	Apply the knowled	dge in Simulation and Synthesis of Digital Ci	rcuits.	
2	Design Various Combinational and Sequential circuits using Verilog HDL & HDL			
3	Explain the System Modeling with Tasks and Functions.			
4	Design of digital circuits 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 com	pletion of this cours	se, the students should be able to		
1	Design CMOS inverters, logic circuits and transmission gates to specifications.			
2	Design latches and flip-flops asthe basic circuit for Random-Access- Memory			
	(RAM) and Read-Only-Memory (ROM) cells.			
3	Understand the Design of Bi-CMOS Inverter, logic circuits.			
4	Design post Layou	at of Different logic circuits.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0	



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Outcome	I/II Sem	CMOS Mixed Signal Circuit Design	C: 3	
		(M18VL11)		
After the comp	l Detion of this cours	se, the students should be able to		
1		<u> </u>	knowledge en filter	
1	Build mixed signal circuits like DAC, ADC, PLL etc &Gain knowledge on filter design in mixed signal mode &To acquire knowledge on design different			
	architectures in mixed signal mode.			
2	Analyze digital test and linear test engineers to the mixed signal world by teaching			
_	the basics of analog and mixed signal test methods. Sampling Theory, Frequency			
	Domain Testing, and Digital Signal Processing			
3		mental concepts to different test methods an	d data validation for	
	mixed signal par	ameters together with debugging, noise re-	eduction and device	
	interface technique	es.		
4	Deal with the theo	ry and design skills of CMOS op-amps, volta	ge reference circuits,	
	switched capacitor circuits, sample-and- hold circuits, and A/D & D/A converters			
	used in modern communication systems and consumer electronic products.			
5	Design of core mixed-signal IC blocks: comparators and data converters & System			
	level design flow: top-down and bottom-up design methodologies			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/II Sem VLSI Design Verification and Testing (M18VL12)			
After the comp	letion of this cours	se, the students should be able to		
After the comp	neudii di tilis cours	se, the students should be able to		
1	Gain knowledge o	on digital testing as applied to VLSI design A	& Acquire knowledge	
1	_	on digital testing as applied to VLSI design & ithms for digital circuits.	&Acquire knowledge	
2	on testing of algori	ithms for digital circuits.		
_	on testing of algori	ithms for digital circuits. Ing methods for digital circuits & process of r		
_	on testing of algorithms. Learn various testing verification, and te	ithms for digital circuits. Ing methods for digital circuits & process of r	modern VLSI design,	
2	on testing of algorithms. Learn various testiverification, and telephone and under the control of the control o	ithms for digital circuits. Ing methods for digital circuits & process of rest.	modern VLSI design, ots in modern VLSI	
2	on testing of algorithms. Learn various testing verification, and telephone and under technologies & Learn various testing technologies & Learn various testing technologies & Learn various testing technologies & Learn various testing t	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design conceptearn self-checking circuits where faults are design.	modern VLSI design, ots in modern VLSI etected by subcircuit	
2	on testing of algorithms. Learn various testing verification, and testing technologies & Learn various testing t	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design conceptarn self-checking circuits where faults are design of testing and verification in VLSI design.	modern VLSI design, ots in modern VLSI etected by subcircuit	
3	on testing of algorization various testing verification, and testing technologies & Les called checker Gain the knowled concepts for comb	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design concepters self-checking circuits where faults are designed of testing and verification in VLSI designational and sequential circuits	modern VLSI design, ots in modern VLSI etected by subcircuit sign process, ATPG	
3	on testing of algorization various testing verification, and testing technologies & Les called checker Gain the knowled concepts for comb	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design conceptarn self-checking circuits where faults are design of testing and verification in VLSI design.	modern VLSI design, ots in modern VLSI etected by subcircuit sign process, ATPG	
3	on testing of algorithms and testing of algorithms. Learn various testing verification, and testing technologies & Learn various testing technologies & Learn various testing	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design concepteran self-checking circuits where faults are designed of testing and verification in VLSI designational and sequential circuits are designing high-speed, low-power, and expect Name (Subject Code)	modern VLSI design, ots in modern VLSI etected by subcircuit sign process, ATPG	
2 3 4 5	on testing of algorization various testing verification, and testing verification v	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design conceptarn self-checking circuits where faults are design of testing and verification in VLSI designational and sequential circuits s for designing high-speed, low-power, and expressions.	modern VLSI design, ets in modern VLSI etected by subcircuit sign process, ATPG asily-testable circuits	
2 3 4 5 Course Outcome	on testing of algorization and testing of algorization and testing verification, and testing technologies & Lescalled checker Gain the knowled concepts for combourness for combourness for combourness for technique Year / semester I/II Sem	ithms for digital circuits. Ing methods for digital circuits & process of rest. erstanding for the advanced design concepteran self-checking circuits where faults are designed of testing and verification in VLSI designational and sequential circuits are designing high-speed, low-power, and expect Name (Subject Code)	modern VLSI design, ets in modern VLSI etected by subcircuit sign process, ATPG asily-testable circuits	



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1	Design Low powe	er CMOS designs, for digital circuits & Gain	ns knowledge on low	
	power circuit design styles for VLSI circuits.			
2	Understand power estimation and optimization methods for VLSI circuits & causes			
	of the power dissipation in digital ICs.			
3	Exploring the low power circuits and architectures for VLSI system.			
4	Understand the concept of VLSI circuit of low power operation & case study of low			
	power design			
5	Design various circ	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 comp	oletion of this cours	se, the students should be able to		
1	Gain knowledge on Optimization techniques involved in VLSI circuits.			
2	Analyze methods of optimization to engineering students, including linear			
	programming, nonlinear programming, and heuristic methods			
3	Understand balance between theory, numerical computation, problem setup for			
	solution by optimization software, and applications to engineering systems.			
4	Studies General optimization algorithm; necessary and sufficient conditions for			
	optimality			
5	Demonstrate the Concept of Genetic Algorithms and Routing Procedures			
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 on circuits and techniques involved in high speed VLSI circuits.			
2	Explore various design strategies to be followed for designing a high speed VLSI			
	circuits.			
3	Understand the logic styles for designing a high speed VLSI circuit & Learn the			
	basics of VLSI design for high speed processing			
4	Apply methods for logical efforts, logic styles, latching strategies, interface			
	techniques and rela			
5		e about High Speed VLSI Circuits Design &	& Learn the basics of	
	VLSI design for high speed processing			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	



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Outcome	I/II Sem	ASIC Design (M18VL16)		
After the comp	l Detion of this cour	rse, the students should be able to		
1	To learn the fund	amentals of ASIC and its design methods		
2	To gain knowled ASIC	ge on programmable architectures for ASICs	& physical design of	
3	To prepare the student to be an entry level industrial standard cell ASIC or FPGA designer			
4	To give the student an understanding of issues and tools related to ASIC/FPGA design.			
5	•	nt for implementation, including timing, performation and manufacturing test	rmance 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 completion of this course, the students should be able to				
1	Learn System on chip fundamentals, their applications			
2	Gain knowledge on SOC design & computation models of SOCs.			
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 role of system-level design and performance metrics in choosing a NoC design			
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	C: 3	
	I/II Sem	(M18VL18)		
After the comp	oletion of this cour	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,	voltage generators,	



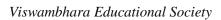
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	performance analy	sis and design issues of ultra-low voltage me	mory circuits	
3	Acquire knowledge about High-Performance Subsystem Memories & Analyse			
3	RAM and DRAM Design			
	Demonstrate Advanced Memory Technologies and High-density Memory Packing			
4	Technologies & Gains knowledge on various testing methods of semiconductor			
	memories			
5	Get an overview on reliability of semiconductors and their testing			
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0	
Outcome	I/II Sem	Stress Management (M18AC02)		
After the comp	oletion of this cours	se, the students should be able to	l	
1	Enhance of Ph	ysical strength and flexibility.		
2	Learn to relax and focus.			
3	Relieve physical and mental tension			
4	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)	C: 2	
After the comp	oletion of this cours	se, the students should be able to	1	
1	Design Various Ch	naracteristics of MOS Logic		
2	Design Various Amplifier circuits using CMOS Logic			
3	Design Various circuits 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 comp	oletion of this cours	se, the students should be able to		
1	Demonstrate a sound technical knowledge of their selected project topic.			
2	Identify and summ	narize an appropriate list of literature review,	analyze previous	
	researchers' work and relate them to current project.			



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Present the project outlining the approach and expected results using good oral and written presentation skills. Apply critical and creative thinking in the design of engineering projects not only limited to electronics and communication engineering domain but if possible to other interdisciplinary domains as well. Design and develop a functional product prototype while working in a team Communicate with engineers and the community at large in written and oral forms. Consider the business context and commercial positioning of designed devices or systems Course Outcome Vear / semester Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to Design Various Amplifier circuits using CMOS Logic Design Layout of Different logic circuits Digital/analog circuits are to be designed and implemented using CAD tools. Course Vear / semester Outcome Wear / semester Subject Name (Subject Code) High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Gain the idea of scaling and round off noise and about digital lattice filter structures Contribute the knowledge in the design of parallel recursive and adaptive filters Demonstrate variable description of digital filters and digital lattice filter structures	3	Present the project	outlining the approach and expected results	using good oral and	
Apply critical and creative thinking in the design of engineering projects not only limited to electronics and communication engineering domain but if possible to other interdisciplinary domains as well. 5 Design and develop a functional product prototype while working in a team 6 Communicate with engineers and the community at large in written and oral forms. 7 Consider the business context and commercial positioning of designed devices or systems Course Outcome Vear / semester Outcome I/II Sem Subject Name (Subject Code) Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to 1 Design Various Amplifier circuits using CMOS Logic 2 Design Various Complex circuits using Different Logic Styles 3 Design Layout of Different logic circuits 4 Digital/analog circuits are to be designed and implemented using CAD tools. Course Outcome Vear / semester Outcome High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to 1 Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters 2 Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters 3 Gain the idea of scaling and round off noise and about digital lattice filter structures 4 Contribute the knowledge in the design of parallel recursive and adaptive filters	3			using good orar and	
limited to electronics and communication engineering domain but if possible to other interdisciplinary domains as well. 5 Design and develop a functional product prototype while working in a team 6 Communicate with engineers and the community at large in written and oral forms. 7 Consider the business context and commercial positioning of designed devices or systems Course Outcome Vear / semester Outcome I/II Sem Subject Name (Subject Code) Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to 1 Design Various Amplifier circuits using CMOS Logic 2 Design Various Complex circuits using Different Logic Styles 3 Design Layout of Different logic circuits 4 Digital/analog circuits are to be designed and implemented using CAD tools. Course Outcome Vear / semester Subject Name (Subject Code) High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to 1 Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters 2 Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters 3 Gain the idea of scaling and round off noise and about digital lattice filter structures 4 Contribute the knowledge in the design of parallel recursive and adaptive filters					
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5 Design and develop a functional product prototype while working in a team 6 Communicate with engineers and the community at large in written and oral forms. 7 Consider the business context and commercial positioning of designed devices or systems Course Outcome Year / semester Outcome I/II Sem Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to 1 Design Various Amplifier circuits using CMOS Logic 2 Design Various Complex circuits using Different Logic Styles 3 Design Layout of Different logic circuits 4 Digital/analog circuits are to be designed and implemented using CAD tools. Course Outcome II/I Sem Subject Name (Subject Code) High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to 1 Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters 2 Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters 3 Gain the idea of scaling and round off noise and about digital lattice filter structures 4 Contribute the knowledge in the design of parallel recursive and adaptive filters		limited to electronics and communication engineering domain but if possible to			
Consider the business context and community at large in written and oral forms. Consider the business context and commercial positioning of designed devices or systems Course Outcome Vear / semester Outcome VII Sem Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to Design Various Amplifier circuits using CMOS Logic Design Various Complex circuits using Different Logic Styles Design Layout of Different logic circuits Design Layout of Different logic circuits Digital/analog circuits are to be designed and implemented using CAD tools. Course Vear / semester Outcome Vear / semester Subject Name (Subject Code) High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Contribute the knowledge in the design of parallel recursive and adaptive filters		other interdisciplinary domains as well.			
Course Outcome Vear / semester Subject Name (Subject Code) Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to Design Various Amplifier circuits using CMOS Logic Design Various Complex circuits using Different Logic Styles Design Layout of Different logic circuits Digital/analog circuits are to be designed and implemented using CAD tools. Course Vear / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3 High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Gain the idea of scaling and round off noise and about digital lattice filter structures Contribute the knowledge in the design of parallel recursive and adaptive filters	5	Design and develop a functional product prototype while working in a team			
Course Outcome Year / semester Mixed Signal VLSI Laboratory Mised Signal VLSI Complex Complex circuits using CMOS Logic	6	Communicate with	n engineers and the community at large in writing	itten and oral forms.	
Course Outcome Vear / semester Outcome I/II Sem Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to Design Various Amplifier circuits using CMOS Logic Design Various Complex circuits using Different Logic Styles Design Layout of Different logic circuits Digital/analog circuits are to be designed and implemented using CAD tools. Course Vear / semester Subject Name (Subject Code) High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Gain the idea of scaling and round off noise and about digital lattice filter structures Contribute the knowledge in the design of parallel recursive and adaptive filters	7	Consider the business context and commercial positioning of designed devices or			
Outcome I/II Sem Mixed Signal VLSI Laboratory (M18VL20) After the completion of this course, the students should be able to 1 Design Various Amplifier circuits using CMOS Logic 2 Design Various Complex circuits using Different Logic Styles 3 Design Layout of Different logic circuits 4 Digital/analog circuits are to be designed and implemented using CAD tools. Course Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C: 3 High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Image: Completion of this course in the students should be able to 1 Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters 2 Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters 3 Gain the idea of scaling and round off noise and about digital lattice filter structures 4 Contribute the knowledge in the design of parallel recursive and adaptive filters		systems			
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Course Outcome II/I Sem High Speed VLSI Architectures for DSP Applications (M18VL22) After the completion of this course, the students should be able to Know about the graph representations of DSP algorithms, Convolution algorithms and the concept of parallel recursive and adaptive filters Analyze The graph representations of DSP algorithms, Convolution algorithms & concept of parallel recursive and adaptive filters Gain the idea of scaling and round off noise and about digital lattice filter structures Contribute the knowledge in the design of parallel recursive and adaptive filters	3	Design Layout of	Different logic circuits		
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Gain the idea of scaling and round off noise and about digital lattice filter structures Contribute the knowledge in the design of parallel recursive and adaptive filters	2			ation algorithms &	
4 Contribute the knowledge in the design of parallel recursive and adaptive filters					
	3	Gain the idea of so	aling and round off noise and about digital la	ttice filter structures	
5 Demonstrate variable description of digital filters and digital lattice filter structures	4	Contribute the kno	wledge in the design of parallel recursive and	d adaptive filters	
	5	Demonstrate varia	ble description of digital filters and digital lat	tice filter structures	





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Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:3		
Outcom	e 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 & medicine.with				
	cells.				
2	Explain the process of self-assembly – from single molecules into nanoparticles				
3	Describe and explain how nanoparticles are fabricated and characterized & principles of				
	loading small molecule drugs, proteins or nucleic acids (DNA/RNA) into nanoparticles				
4	Describe and explain the scientific basis and medical benefits for using nanotechnology				
	for treating diseases				
5	Demonstrate how nanotechnology-based innovation can drive better 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 and millimeter wave				
	frequencies.				
2	Learn microwave network theory and the use of scattering matrix				
3	Learn design criteria for waveguide and coaxial microwave components.				
4	Learn the application of these components in the design of useful systems such as radars,				
	receivers, etc.				
5	Work in small teams and design, fabricate and test a useful microwave 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					
After the	completion of this cour	se, the students should be able to			
	=				



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1	Identify and describe soft computing techniques and their roles in building intelligent					
	machines					
2	Recognize the feasibility of applying a soft computing methodology for a particular					
	prob	problem				
3	App	ly fuzzy logic and	d reasoning to handle uncertainty and solve engin	neering problems.		
4	App	Apply genetic algorithms to combinatorial optimization problems & neural networks to				
	patte	ern classification	and regression problems			
5	Effe	Effectively use existing software tools to solve real problems using a soft computing				
	approach.					
Course	Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0					
Outcom	II/I Sem Graph Theory & Optimization Techniques C: 3					
e	(M18MA02)					
After the completion of this course, the students should be able to						
1		Understand the	concepts of probability & statics			
2		Identify the stre	ngth and weakness of different theories			
3		Design and emp	oloy appropriate method for solving computing p	roblems		
4		Analyze and con	mpare the methods.			
5		Solve computing	g problems independently.			
Cours	e	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3		
Outcon	Outcome II/I Sem Waste Management(M18CE27)					
After the completion of this course, the students should be able to						
1	Ac	Acquire the knowledge of waste management				
2	Ex	plain solid waste	disposal techniques			
3	Ac	equire the knowle	dge of Bio medical waste disposal techniques			
4	Ac	equire the knowle	dge of e- waste disposal techniques			



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5	Select the appropriate method for solid waste collection, transportation, redistribution and disposal				
Course	Year / semester Subject Name (Subject Code) L: 0 T: 0 P: 20 C:10				
Outcome	II/I Sem	Dissertation Phase-I (M18VL25)			
After the co	ompletion of this course, the students should be able to				
1	Demonstrate a sound technical knowledge of their selected project topic.				
2	Identify and summariz	e an appropriate list of literature review, ar	nalyze previous		
	researchers' work and relate them to current project.				
3	Formulate clearly a work plan and procedures.				
4	Present the project outlining the approach and expected results using good oral and				
	written presentation skills.				
5	Undertake problem identification, 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	completion of this course, the students should be able to				
1	Apply critical and creative thinking in the design of engineering projects not only				
	limited to electronics and communication engineering domain but if possible to other interdisciplinary domains as well.				
2	Demonstrate the knowledge, skills and attitudes of a professional engineer when				
	working in a team				
3	Design and develop a	functional product prototype while working	g in a team		
4		gineers and the community at large in writt			
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 the year 2015-16</u>

Comman	VaardCarraastar	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Cradita 1
Course	Year/Semester	Machine Modelling and		Credits: 4
Outcome	I/I Sem	Analysis(A943101)	Total: 4	
After the completion	on of this course, the students should be able to			
1	Identify the methods and assumptions in modeling of machines.			
2	Recognize the different frames for modeling of AC machines.			
3	Illustrate the volta	ge and torque equations in state space	e form for differe	nt machines
4		ematical models of various DC made		
	function of the DC			
5	Study various tran	sformations adopted in 3 phase macl	nines and explore	its starting
	methods	1 1	1	C
6	Analyze the devel	oped models in various reference fra	mes through simu	lation study
7	·	e dynamics in various operating con		
8		uits analysis with d-q model of mach		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Modern Control Theory	Total: 4	Createst 1
		(A943102)	10001	
	on of this course, the students should be able to			
1	Learn various terms of basic and modern control system for the real time analysis			
	and design of control systems.			
2	Learn the basic mathematical preliminaries for modeling a control system			
3	Perform state variables analysis for any real time system			
4		-linear system model using various to	echniques	
5		t of optimal control to any system.		
6		for its stability, controllability and o		
7	Implement basic principles and techniques in designing linear control systems.			
8	Formulate and solve deterministic optimal control problems in terms of			
	performance indices.			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Power Electronic Devices and	Total: 4	
After the consulation	Circuits (A943103) on of this course, the students should be able to			
1	Understand the characteristics and principle of operation of modern power			
1	electronics devices.			
2				
3	Compare the features of various power electronic devices Comprehend the concepts of different power converters and their application			
4	-	river circuits and its heat management		allOII
5		f source and load inductance on the		\n
6	•			
	· · · · · · · · · · · · · · · · · · ·	gn the switched mode regulator for v		ррпсаноп
7		ower factor improvement controllers		0.441.041
8	_	nic simulation packages for analysin	g and designing p	ower
Control	converters	Subject Name (Subject Code)	T . 4 T. A D. A	C 1'4 - 4
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	ion of this course, the students should be able to				
1	Learn the constructional features, principle of operation and methods of control of stepper motor.				
2	Realize the need for	or stepper motors and the various app	lications in indus	tries.	
		ybrid stepping motor			
2	Get a clear picture of the operational characteristics and the applications of Switched				
3	Reluctance Motor.				
4	Know the various types of PMBLDC motors, rotor position sensors, methods of				
4	control and their a	pplications			
5	Get a clear idea of the features, control and the applications of PMSM				
	Explore the conce	pt of linear induction motor and devel	lop a double side	d LIM from	
6	rotory induction n	=	•		
7	Study the construction	ctional details of permanent magnet ax	kial flux machine	s (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		
After the completion	n of this course, the students should be able to				
1	Study the basic power 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 filters for harmonic elimination in HVDC link				
5	Explore various c	ontrols adapted in HVDC converters			
6	Identify various in	nstability problems in HV AC and DC	System		
7	Study various over voltage problems in multi-terminal DC system				
8	Comprehend various converter faults and protection circuits.				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem Programmable Logic Controllers 0 Total: 4				
A 60 11 1 - 12 -	and their Applications (A943106) on of this course, the students should be able to				
1			trollers in measu	rement and	
1	Gain Comprehensive knowledge of using advanced controllers in measurement and control instrumentation.				
2	Illustrate about data acquisition - process of collecting information from field				
2	instruments.				
3	Analyze Programmable Logic Controller (PLC), IO Modules and internal features.				
4	· · · ·				
5	Comprehend Programming in Ladder Logic, addressing of I/O. Apply PID and its Tuning.				
6		gic programming for simple process			
7		nd test programs developed for digital	and analog one	rations	
8		liagram representation on industrial a			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Microcontrollers and Applications	0 Total: 4	Cicuits. 4	
		(A943107)	v Iviai. 7		
After the completio	n of this course, the student		•	•	

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Distinguish types of computers & microcontrollers and explain the principles of down design to microcontroller software development Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit Microcontroller , assembly language code for high-level language structures such IF-THENELSE and DO-WHILE Analyze a typical I/O interface and to discuss timing issues Develop Real time Applications of Microcontrollers & Demonstrate RTOS for Microcontrollers. Tanslate Hardware applications using Microcontrollers & Demonstrate RTOS for Microcontrollers. Tanslate Hardware applications using Microcontrollers. Real Introduce the need and use of interrupt structure, timers in respective application Understand the need and use of interrupt structure, timers in respective application Understand the basics of an embedded Systems (A943108) Learn the method of designing an embedded system Explore various issues in embedded system Explore various issues in embedded system for any type of applications Learn the method of designing an embedded system for any type of applications Understand the operating systems concepts, types and choosing RTOS Design, implement and test an embedded system Understand types of memory and interacting to external world Learn embedded firmware design approaches Use ICE and software tools to address the issues in embedded systems Course Outcome Year / semester Digital Control Systems (A943109) Learn embedded firmware design approaches Use ICE and software tools to address the issues in embedded systems Course Outcome Year / semester Digital Control Systems (A943109) After the completion of this course, the students should be able to Digital Control Systems (A943109) After the completion of this course, the students should be able to Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. Replace the conventional control system with Digital control systems.	1	D -1-4-41-1-1-1-	-1.'4 - 4 1 - 11' 1		
down design to microcontroller software development	1				:-1 of to-
Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit Microcontroller , assembly language code for high-level language structures such IF-THENELSE and DO-WHILE 4	2			explain the princ	iples of top
Microcontroller , assembly language code for high-level language structures such 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 application Veral / Semester Introduce (Subject Code) L: 4 T: 0 P: Credit L: 4 T: 0 P: Credit L: 4 T: 0 P: Discussion Line L: 4 T: 0 P: Discussion L: 4 T:	2				
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 application Very Sear / semester Embedded Systems (A943108) 1 Vear / semester Embedded Systems (A943108) 1 Understand the basics of an embedded system 2 Explore various issues in embedded software development and applications 3 Learn the method of designing an embedded system for any type of applications 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 Learn embedded firmware design approaches 8 Use ICE and software tools to address the issues in embedded systems Course Year / semester Digital Control Systems (A943109) After the completion of this course, the students should be able to 1 Deduce the control system to block diagram for various analysis 2 Acquire a strong foundation in sampling and reconstruction Z-transforms. 3 Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. 4 Know sampling and reconstruction, Z-transforms. 5 Replace the conventional control system with Digital control systems. 6 Evaluate to Apply Z-plane analysis of discrete time control systems. 7 Apply state feedback controllers and observers	3				
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 application Eulopication Course Year / semester Subject Name (Subject Code) Embedded Systems (A943108) Lt. 4 T: 0 P: Credit Embedded Systems (A943108) Total: 4 After the completion of this course, the students should be able to 1 Understand the basics of an embedded system 2 Explore various issues in embedded system for any type of applications 3 Learn the method of designing an embedded system for any type of applications 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 Learn embedded firmware design approaches 8 Use ICE and software tools to address the issues in embedded systems Course Year / semester Digital Control Systems (A943109) Lt. 4 T: 0 P: O Total: 4 After the completion of this course, the students should be able to 1 Deduce the control system to block diagram for various analysis 2 Acquire a strong foundation in sampling and reconstruction Z-transforms. 3 Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. 4 Know sampling and reconstruction, Z-transforms. 5 Replace the conventional control system with Digital control systems. 4 Know sampling and reconstruction systems of discrete time control systems. 5 Replace the conventional control system with Digital control systems. 6 Evaluate to Apply Z-plane analysis of discrete time control systems.					
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Solution Subject Name (Subject Code) Credit Course Outcome Vear / semester Subject Name (Subject Code) Embedded Systems (A943108) L: 4 T: 0 P: 0 Total: 4				•	
Course Outcome				·	1: 4:
Outcome I/I Sem Embedded Systems (A943108) 0 Total: 4 After the completion of this course, the students should be able to 1 Understand the basics of an embedded system 2 Explore various issues in embedded software development and applications 3 Learn the method of designing an embedded system for any type of applications 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 Learn embedded firmware design approaches 8 Use ICE and software tools to address the issues in embedded systems Course Outcome Year / semester I/I Sem Subject Name (Subject Code) Digital Control Systems (A943109) L: 4 T: 0 P: 0 Total: 4 Credit Ottoal: 4 After the completion of this course, the students should be able to 1 Deduce the control system to block diagram for various analysis 2 Acquire a strong foundation in sampling and reconstruction Z-transforms. 3 Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. 4 Know sampling and reconstruction, Z -transforms. 5 Replace the conventional control syste					
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Use ICE and software tools to address the issues in embedded systems Course Outcome				world	
Course OutcomeYear / semester I/I SemSubject Name (Subject Code) Digital Control Systems (A943109)L: 4 T: 0 P: 0 Total: 4Credit Otto P: 0 Total: 4After the completion of this course, the students should be able to1Deduce the control system to block diagram for various analysis2Acquire a strong foundation in sampling and reconstruction Z-transforms.3Apply knowledge of mathematics, Z-plane analysis to discrete time control systems.4Know sampling and reconstruction, Z -transforms.5Replace the conventional control system with Digital control system.6Evaluate to Apply Z-plane analysis of discrete time control systems7Apply state feedback controllers and observers				addad systams	
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6 Evaluate to Apply Z-plane analysis of discrete time control systems 7 Apply state feedback controllers and observers	4	Know sampling ar	nd reconstruction, Z -transforms.		
7 Apply state feedback controllers and observers	5				
Tr J	6				
	7	Apply state feedback controllers and observers			
	8	Analyse the system stability using root locus, bode and Nyquist plots			
Course Year / semester Subject Name (Subject Code) L: 4 T: 0 P: Credit	Course	Year / semester		L: 4 T: 0 P:	Credits: 4
Outcome I/I Sem Optimization Techniques 0 Total: 4		I/I Sem	÷ -		
(A943110)			` '		
After the completion of this course, the students should be able to Study the need of optimisation in electrical engineering problems	-			nrohleme	
1 Study the need of optimisation in electrical engineering problems 2 Learn the conventional or classical optimisation techniques		•	1 0	<u> </u>	
					a.
I gorn to formulate the problem with constrained and unconstrained access			1		<u> </u>
3 Learn to formulate the problem with constrained and unconstrained cases 4 Explore various modern intelligent entimisation techniques		-	<u> </u>		hlom
4 Explore various modern intelligent optimisation techniques	3		•	ransportation pro	obieiii,
4 Explore various modern intelligent optimisation techniques 5 Apply these techniques to real world problems such as transportation problem,	6		_		
4 Explore various modern intelligent optimisation techniques	n	i Study various iimi	tations in these techniques		

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7	Apply methods of sensitivity analysis and validate post processing results			
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	Cicuits. 4
	on of this course, the students should be able to			
1	Deduce the control 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 ar	nd reconstruction, Z -transforms.		
5		ntional control system with Digital co	ontrol system.	
6		Z-plane analysis of discrete time con		
7		ack controllers and observers	· ·	
8	11.	n stability using root locus, bode and	d 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)		
	n of this course, the student		1 4 2 1	
1	Explore various renewable energy sources to produce electrical energy			
2	Study the characteristics of PV cell- photo voltaic modules and its applications			
3	Learn the basics of wind energy conversion systems and bio-mass energy generation			
4	Explore various Wave energy conversion machines - Ocean Thermal Energy			
	conversion schemes Know the need of hybrid energy systems such as geothermal and fuel cells			11
5				IIS
6		of various renewable energy sources of		
7	Arrange storage energy and to avoid the environmental pollution			
8	Detect the environmental effects of energy conversion			
Course	Year / semester	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem n of this course, the student	,	0 Total: 4	
1		ower handling capabilities of HVDC	lines	
2	Explore various configurations and conversion principles of static power			
2	converters			
3	Learn the rectifier and inverter operations, commutation process at converter			
	stations.			
4	Apply AC/DC filters for harmonic elimination in HVDC link			
5	11 4			
6	Explore various controls adapted in HVDC converters Identify various instability problems in HV AC and DC system			
7		r voltage problems in multi-terminal		
8		ous converter faults and protection cin		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Analysis of Power Electronic	Total: 4	Cicuits. 4
		Converters (A943114)	I Julii T	
After the completio	n of this course, the student			
1		characteristics and principle of o	peration of mo	dern power
	semiconductor de	vices.		

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2	Comprehend the c	oncepts of different power converter	rs and their applica	ations	
3		ortance of AC voltage controllers and	**		
	industrial applications				
4	Analyze and design switched mode power electronic converters for various				
	industrial applicat				
5	Analyze pulse width modulated inverters which are used in variable speed drives				
6		e device for a particular converter to			
7		conic simulation packages for ana	1 0,	ning power	
	converters.	1 6	, ,	0 1	
8	Choose appropria	te power converter topologies and	design the power	r stage and	
	feedback controllers for various applications				
Course	Year / semester Subject Name (Subject Code) L: 4 T: 0 P: 0 Credits: 4				
Outcome	I/I Sem	Embedded Systems (A943115)	Total: 4		
After the completio	n of this course, the student			•	
1	Understand the basics of an embedded system				
2	Explore various issues in embedded software development and applications				
3	Learn the method of designing an embedded system for any type of applications				
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	Learn embedded firmware design approaches				
8	Use ICE and software tools to address the issues in embedded systems				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4	
Outcome	I/I Sem Power Converters Simulation Lab (A943116) Total:4				
After the completio	n of this course, the student	,	1	1	
1	Able to simulate f	ull converter circuits for various type	es of loading		
2	Acquire programming knowledge to study the systems dynamics in state space			space	
	model				
3	Able to assess the frequency response of the system				
4	Analyse the system	n stability and PID controller applica	ation for steady sta	ate system	
	operation.				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4	
Outcome	I/I Sem	Seminar-I (A943117)	Total:4		
Course	Year/Semester	Subject Name (Subject Code)	L: 4 7	Γ: 0 P: 0 C:	
Outcome	I/II Sem Power Electronic Converters (A943201) 4				
After the completio	on of this course, the students should be able to				
1	Understand various advanced power electronics devices.				
2		dvanced modulation techniques and i			
3		ration of multi-level inverters with	switching strateg	gies for high	
	power application				
4	Comprehend the d	lesign of resonant converters and swi	tched mode powe	r supplies.	
5		n various topologies converter circui	its		
6	Develop and analy	ze various converter topologies.			
	Develop and analyze various converter topologies.				
7 8	Design AC or DC	switched mode power supplies.			

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Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Electronic Control of DC Drives	4
Outcome	1/11 Selli	(A943202)	4
After the completion	on of this course, the student		
1	Learn basic preliminary requirements for operating DC drives		
2		ectifier fed DC drives	
3		ous and discontinuous modes of operation of si	ingle phase semi
	and full converter		0 1
4	Study the continuo	ous and discontinuous modes of operation of the	nree phase semi and
	full converter for DC drives		
5	Perform steady state analysis of three phase converter controlled DC motor drive		
6	Explore various current and speed controllers		
7	-	ate analysis of chopper controlled DC motor dri	ive
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 completion	on of this course, the student		1 C
1	Learn the speed torque characteristics variable voltage and variable frequency		
2	operation Study the operation of induction motor in constant torque and field weakening		
2	regions		
2			
3		ator side controls employed for induction drives	8
4		flux control in current fed inverter drive	
5		ency of the drive by applying optimization con	
6	<u> </u>	es of vector control methods in rotor of induction	
7		s speed control schemes in synchronous motor	
8	Study the characteristics and control of variable reluctance motor drive		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Quality (A943204)	4
After the completion	on of this course, the student		· · · · · · · · · · · · · · · · · · ·
1		t terms and concepts of electric power quality i	in power systems.
2	Learn about the applications of non-linear load.		
3	Identify and study the difference between system failures, outage and interruptions		
4	Predict various short and long interruptions		
5	Characterize and calculate the magnitude the single and three phases Voltage sag in		
(the system		
6	Learn how to mitigate the power quality problems		
7		opplication of FACTS device on DG side.	
8		t characteristics of electric power quality in po	1
Course	Year / semester	Subject Name (Subject Code) Advanced Digital Signal Processing	L: 3 T: 0 P: 0
Outcome	I/II Sem	(A943205)	C:3
After the completion	 on of this course, the student		
1		ital knowledge of analysing and processing of c	ligital systems
2		ship between continuous time and discrete time	
	systems	1	<i>O</i>
	1 2		

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3	Study the fundame	entals of time, frequency and Z-Plane analysis	and their
	interrelationships.		
4	Study and design digital filters form analysis to synthesis		
5	Explore few real world signal processing applications		
6	Get acquainted wi	th FFT algorithms, multi-rate signal processing	techniques.
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Switched Mode Power Supplies (SMPS)	3
		(A943206)	
After the completio	n of this course, the student	oncepts of power electronics for designing conv	vartars
2		esign considerations.	erters.
3	Explore various de Explore various co		
4		ment practical circuits for UPS, SMPS.	
5		fect of Electromagnetic interference (EMI).	
6 Course	Year / semester	rious protection aspects for the converters. Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Flexible AC Transmission Systems	3
Outcome	1/11 Sem	(A943207)	3
After the completio	n of this course, the student	,	
1	Know the concept	s and types of FACTS controllers	
2	Learn various converters employed for FACTS controllers		
3	Study the impact of FACTS devices in the power flow in the AC system		
4	Learn various shunt compensation using SVC and STATCOM		
5	Learn various seri	es compensators such as TCSC, TSSC	
6	Explore the conce	pt of UPFC and its application.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	High-Frequency Magnetic Components	3
After the completion	n of this course, the student	(A943208)	
1		entals of magnetic devices	
2		rties of magnetic core materials	
3			AC currents
4	Study the various effects that exists the round conductor carrying AC currents Evaluate the energy stored in coupled inductors of transformers		
5	Design of transformers for fly-back converters in CCM		
6	Design the integrated inductors and self capacitance for high frequency applications		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)	3
	n of this course, the student	s should be able to	
1	Basics of machine	e theory of all types of machines	
2		modeling of all electrical machines	
3	Apply of Lagrange	e's equation solution of Electro dynamical equa	ations.
4	Understand the	basic mathematical analysis of electrical	machines and its
	characteristics.	-	
5	Understand behav	ior of electrical machines under steady state an	d transient state.
6		nic modeling of electrical machines	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Instrumentation & Control (A943210)	3
•	*	•	•

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After the completio	n of this course, the student			
1		ethods of power generation		
2		portance of instrumentation in power generation		
3	Explore various measuring and supervising systems involved in thermal power plant			
	processes such as boiler and turbine units			
4	Understand various controls employed in boiler			
5		rature and pressure controls in turbine		
6	•	power plant instrumentation	T	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Intelligent Control (A943211)	3	
After the completio	n of this course, the student			
1		ture of Intelligent control		
2		ificial neural network and its mathematical mo	odel	
3		neural network with various configurations.		
4		orithm for various optimisation problems		
5		different system with fuzzy logic controller		
6	Explore various power system problem and apply GA, NN and Fuzzy controller			
Course	Year / semester Subject Name (Subject Code) L: 3 T: 0 P: 0 C			
Outcome	I/II Sem Smart grid technologies (A943212)			
	on of this course, the students should be able to			
1	Recite the structure of an electricity market in either regulated or deregulated market			
	conditions.			
2	Understand the advantages of DC distribution and developing technologies in			
	distribution			
3	Discriminate the trade-off between economics and reliability of an electric power			
	system.			
4	Differentiate various investment options (e.g. generation capacities, transmission,			
		d-side resources, etc) in electricity markets.		
5	·	opment of smart and intelligent domestic syste		
6	Recite the structur	e of an electricity market in either regulated or	deregulated market	
	conditions.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3	
.6		(A943213)		
After the completio	on of this course, the student		neural networks	
1	Gain knowledge on soft computing techniques such as artificial neural networks,			
2	Fuzzy logic and genetic Algorithms. Learn the concepts of feed forward neural networks and feedback neural networks.			
2	Learn the concepts of feed forward neural networks and feedback neural networks.			
3		fuzziness involved in various systems and cor	iiprenensive	
		y logic control and to design the fuzzy rules		
4	-	knowledge on genetic algorithm including th	ree genetic	
	operators		A.T	
5		ower system problems which can utilize these	AI techniques	
6		pility using AI techniques	T	
Course	Year / semester	Subject Name (Subject Code) Poliobility Engineering (A042214)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Reliability Engineering (A943214)	3	
After the completion	n of this course, the student	s should be able to		

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1	T- :14:6-41		f	
1	building	neration system model and recursive relation	for capacitive model	
2		valent transitional rates cumulative probabilis	ty and cumulative	
2	calculate the equivalent transitional rates, cumulative probability and cumulative			
	·	frequency		
3		Evaluate cumulative probability and cumulative frequency of non-identical		
		nd merging generation and load		
4		is approaches to evaluate operating reserves a	and bulk power	
	generation reserve			
5	Analyse the reliab	ility indices on radial and weakly meshed dis	tribution networks	
6	Study the effect of	f short circuits in substation and switching sta	ations.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Energy Auditing, Conservation &	3	
		Management (A943215)		
After the completion	n of this course, the student			
1	Know the necessity of conservation of energy			
2		thods of energy management		
3	Illustrate the facto	rs to increase the efficiency of electrical equi	pment	
4	Detect the benefits	s of carrying out energy audits.		
5	Analyze the powe	r factor and to design a good illumination sys	tem	
6	Determine pay bac	ck periods for energy saving equipment.		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:	
Outcome	I/II Sem	Power Converters and Drives Lab	2	
		(A943216)		
After the completion	n of this course, the student			
1	_	measurement and implement closed loop con		
2		proved control of thyristor drive for PMDC r	notor over	
	conventional cont			
3	Learn to generate	PWM signals using DSP		
4	Explore the invert	er controls for solar PV systems		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	
Outcome	I/II Sem	Seminar-II (A943217)	C:2	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 0	
Outcome	II/I Sem	Comprehensive Viva-Voce (A943301)	C:4	
3 44404440			1 = 7 -	

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem	LINEAR ALGEBRA AND CALCULUS (B20MA01)	L:3 T:1 P:0	
On successf	ul completion of th	is course, students will be able to:		
1	Understand the principles of matrix to calculate the characteristics of system of linear equations using multiple methods.			
2	Determine Eigen va	alues, Eigenvectors of matrices.		
3	·	of sequence and series to identify the converge		
4		ingle-variable functions graphically and compute and Gamma functions.	itationally. Analys	se improper
5	Calculate Partial de	rivatives, extreme of functions of multiple vari		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0	Credits:3
Outcome	I Sem	MODERN PHYSICS (B20PH01)	L.3 1.01.0	
On success	sful completion of	f this course, students are able to:		
1	Understands the base	sic concepts and hypothesis of quantum mecha	nics	
2	Describes the chara	cteristics and working of lasers and their use in	various fields.	
3	Analyze and apply	the concepts of wave optics for accurate determination	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 evaluate	uates the carrierco	ncentration of
	given semiconducto	ors for device applications		
5	Apply the concepts	of the light propagation in optical fibres in opt	icalcommunicatio	n systems
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING(B20EE01)	L:3 T:0 P:0	
After the o	completion of this c	ourse, the students should be able to		
1	Analyze circuit the	orems, mesh and nodal analysis, series and par	allel networks, Ele	ectricalpower.
2	Gain knowledge on Factor	AC circuits, reactance, Impedance, Susceptance	e and Admittance	andPower
3	Learn the working	principle of DC motors, Transformers		
4	Study the character	istics of PN Junction diode and zener diode		
5	Learn the basic of A	Amplifiers and Rectifiers.		
Course	Year / 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 o	completion of this c	ourse, the students should be able to		
1	Understanding how	problems are posed and how they can be analy	zed for obtainings	solutions.
2		cing, branching, looping and decision making s		
3		rent operations on arrays and creating and using	g of functionsto so	olve problems
4		exploring the various methods of memory allo	-	- Problems
5		ad implement different types of file structures u		nodology.
L				

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
		Subject Name (Subject Code) ENGINEERING DRAWING		Credits: 2	
Outcome	I Sem	(B20ME01)	L:0 T:0 P:4		
After the	completion of this o	course, the students should be able to			
1		commands, modify the applications and objec	t properties in AU	TOCAD	
2	Analyse the Projec	tions of Points and solids			
3	Estimate the use of	drawings, dimensioning, scales and conic sect	ions		
4	Compare the Conve	ersion of Isometric views to Orthographic view			
Course	Year / semester	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	completion of this o	course, the students should be able to			
1		ency of tuning for and AC supply with the help	of stretched string	S	
2	_	s compare the intensity distribution of interf			
3		ristics of electrical and electronic circuits and e		_	
	parameter		1		
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	Toem	SOLVING LAB(B20CS02)	2.0 1.01.5		
After the	completion of this o	course, the students should be able to			
1		tructure of the C Programming, data types, dec	laration and usage	of variables,	
		nd all related concepts.			
2	•	nd any algorithm and Write the C programming			
3	Implement Program time problems	ns using functions, pointers and arrays, and use	the pre-processors	s to solvereal	
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 VECTOR CALCULUS(B20MA02)	L:3 T:1 P:0		
After the a	completion of this (course, the students should be able to			
1		ntal concepts of ordinary differential equations	to real time proble	ems	
2		solution of a non homogeneous differential equ			
	inEngineering prob				
3	0 0 1	ole integrals in various coordinate systems.			
4	Apply the concepts	of gradient, divergence and curl to formulate I	Engineering proble	em	
5	Analyse line, surface	ce and volume integrals using fundamental theorem	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	completion of this o	course, the students should be able to			
1		electro chemical cells, different batteries			
2	The knowledge of	principles and concepts in corrosion & it's con-	trol methods.		
3	The knowledge of	Water treatment.			
4	_	Amino acids, Proteins and Nucleic acids			
5	_	principles and concepts in Forensic drug chem	istry and it's analy	vsis.	
,	The knowledge of principles and concepts in Potensie drug elicinistry and it's analysis.				

Course Outcome	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4	
	TT C	DATA CEDITOTIBLE AND		Creatist 1	
	II Sem	DATA STRUCTURES AND ALGORITHMS(B20CS04)	L:4 T:0 P:0		
After the c	completion of this c	ourse, the students should be able to			
	Define the basic techniques of algorithm analysis				
2	Examine the linear and non linear data structures.				
3	Develop Priority Queues and Balanced Trees				
4	Understand Hashing	g Techniques and Graph applications			
5	Apply suitable algor	rithms for sorting Technique			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4	
Outcome	II Sem	PYTHON PROGRAMMING(B20CS03)	L:4 T:0 P:0		
After the c	completion of this c	ourse, the students should be able to	I		
1		mentals of writing Python scripts.			
2	Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.	
3	Apply Python funct	ions to facilitate code reuse.			
		vork with lists and sequence data.			
5	Implement file oper	rations such as read and write and Adapting the	code robust byha	ndling errors	
	and exceptions prop		·	· ·	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	II Sem	DATA STRUCTURES AND	L:0 T:0 P:3		
		ALGORITHMS LAB(B20CS08)			
After the c	completion of this c	ourse, the students should be able to			
		ar data structures such as List, Stack, Queue an			
2	Implement non-line	ear data structure such as Trees, Graphs and its	sapplications		
3	Apply suitable algor	rithms for sorting Techniques			
4	Choose appropriate	algorithm for Searching and Hashing			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	II Sem	PYTHON PROGRAMMING LAB(B20CS07)	L:0 T:0 P:3		
After the c	completion of this c	ourse, the students should be able to			
		e Python scripting elements such as variables a	and flow control st	ructures.	
2	Apply Python funct	ions to facilitate code reuse			
3	Extending how to v	work with lists and sequence data.			
4	Implement file ope	rations such as read and write and Adapting the	e code robust byha	andling errors	
	and exceptions prop	perly.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5	
Outcome	II Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:3		
		INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02)			
After the c	completion of this c	course, the students should be able to			
		nces of English language through audio-visual	experience and gr	roupactivities.	
1				_	
	Speak with clarity and confidence which in turn enhances their employability skills.				
2	-	Develop their listening skills so that they may appreciate its role in developing LSRW skills			
2 3	Develop their listen	ing skills so that they may appreciate its role in ove their pronunciation.	n developing LSR	W skills	
3	Develop their listen		n developing LSR	W skills	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5		
Outcome	II Sem	ENGINEERING & IT	L:0 T:0 P:3	Creuits. 1.3		
Outcome	II Selli	WORKSHOP LAB(B20ME03)	L:0 1:0 F:3			
After the o		course, the students should be able to				
1		ntal knowledge of House wiring and soldering	and their usage in	real time		
2	Applications.	1				
3	-	n electronic components and measuring instrum of computer hardware for assembly and disasse				
	•	•	eiiibiy.			
4	Use Microsoft tool	s for exercise.	T	T		
Course	Year / semester	` ' '				
Outcome	III Sem	DESIGN AND ANALYSIS OF ALGORITHMS(B20CS10)	L:3 T:0 P:0			
After the o	completion of this c	course, the students should be able to	l			
1		o few known methods of solution processes, bu	ild new solution a	lgorithms,		
	_	otic performance of algorithms and to write rig		-		
	algorithms.					
2		e data structures and algorithm design methods	for specified class	ses of		
	applications;					
3		hoice of data structures and algorithm design n	nethods would imp	pact the		
4		grams and how to compare them.		:		
4	backtracking and b	ch as the greedy method, divide and conquer, d	ynamic programii	ing,		
5		o deal with logarithmic type, polynomial type a	and non-nolynomi	al type of		
3		and Synthesis of efficient algorithms in comm				
	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				
I	Understand the bas algebra.	ic concepts of different Number systems and b	asic theorems usir	ig inBoolean		
2	· ·	cuits using basic logic gates by reducing the Bo	oolean expression	s with thehelp		
	of Karnaugh Map.		-	-		
3	Analyze various ty	pes of combinational and sequential circuits.				
4		pes of sequential circuits.				
5	Understand the inte	ernal organization of popular8086 microprocess	sors	r		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE(B20CS11)	L:3 T:0 P:0			
		COMI OTER SCIENCE(B20CS11)				
After the o	completion of this o	course, the students should be able to				
1	Evaluate the notion	s of propositions, predicate formulae, Rules of	inference.			
2	Illustrate and descr	ibe various types of Relations and Functions.				
3	Apply knowledge of	of Mathematics, Combinations & Permutations	, Binomial Multin	omial		
	theorems, Pigeon h	ole principles				
4	Develop to solve th	ne recurrence relations by using various method	ls			
5	-	concepts of graph theory and apply for real time				
	2 STOCK O THE OUSIG	refreelve the basic concepts of graph theory and apply for real time examples.				

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Course	Year / semester	Subject Name (Subject Code) JAVA PROGRAMMING	No. of Hours	Credits: 3			
Outcome	III Sem	(B20CS12)	L:3 T:0 P:0				
After the	completion of this	course, the students should be able to					
1	Understand the use	e of OOP concepts and solve real world problem	ns using OOP tecl	nniques.			
2	Solve the inter-disc	Solve the inter-disciplinary applications using the concept of inheritance.					
3	Develop robust and	Develop robust and faster applications by applying different exception handling mechanisms.					
4	Understand the mu	ltithreading concepts and develop efficient app	lications.				
5	Design GUI based	applications and develops applets for web appl	ications.				
Course	Year / semester Subject Name (Subject Code) No. of Hours Credi						
Outcome	III Sem	ENGLISH FOR EFFECTIVE COMMUNICATIONS(B20EN01)	L:2 T:0 P:0				
After the	completion of this	course, the students should be able to					
1		digital text to summarize it for future reference	•				
2	Read the text to ma	ke notes according to their needs.					
3	Use English langua	age effectively in spoken and written forms.					
4	Communicate conf	idently in various contexts and different culture	es				
5	Acquire basic prof	Acquire basic proficiency in English including reading and listening comprehension, writing and					
	speaking skills.						
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5			
Outcome	TIT Cores	DIGITAL LOGIC DESIGN & MICRO PROCESSORS LAB(B20EC10)	L:0 T:0 P:3				
After the	completion of this	course, the students should be able to					
1	Demonstrate various flops.	us types of logic gates (AND, OR, NOT, NAN	D, NOR, XOR,X	NOR) and flip			
2	_	n various types of combinational and sequential	circuits.				
3	Develop microproc	cessor based programs for Arithmetic and Logic	cal Operations				
4	Develop microprod	cessor based programs for various problems.					
Course	Year / semester	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		course, the students should be able to					
1	*	ppropriate algorithm design techniques for solv	ing problems.				
2		m in an effective manner					
3		terative and recursive algorithms					
4		the performance of algorithms.	F	T			
Course		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	completion of this	course, the students should be able to					
1	Use the Java SDK	environment to create, debug and run simple Ja	va programs.				
2	Write Java program	ms to implement error handling techniques usin	g exception handl	ing			
3	Develop multithre	aded applications with synchronization.					
4	Design simple Gra	phical User Interface applications and event dri	iven programming	Ţ.			

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Course		Subject Name (Subject Code) OPERATING SYSTEMS	No. of Hours	Credits:3		
Outcome	IV Sem	(B20CS16)	L:3 T:0 P:0			
After the a	rompletion of this	course, the students should be able to	<u> </u>			
1		Operating Systems architectures, IO structures,	Network Structure	:		
2	_	Analyze the virtual memory, paging and memory allocation techniques for variousapplications				
3		revention and Deadlock Detection algorithms a	_			
		operating system as a File manager, I/O manager, Process manager.				
4		erview of Disk Storage Structure.				
5		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	l		
1		epts in formal language theory, grammars, auto	omata theory(DFA	&NFA).		
_	_	ry, and complexity theory.				
2		on rules of regular expressions and grammars, i	including context:	free and		
	context: sensitive	-	C			
3		own automata and context free, regular, normal	form grammars to	odesign		
	computer language	_	C	C		
4		or various problems using a theoretical comput	er (Turing machin	ne)for a		
	computer language		_			
5	Explain the relation	nship among language classes and grammars wi	ith the help of			
	Chomsky Hierarch	y, and Distinguish between decidability and und	decidability.			
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	0.2 0.0.25		
After the o	rompletion of this	course, the students should be able to				
		ucture, function of various functional units of co	omputer.			
2		sic design of Computer, and its organization				
3	Perceive control ur	it operations and Micro Program example.				
4	Understand differen	ent computer arithmetic algorithms for various a	arithmetic operation	on		
5	Identity and compa	are different methods of input-output.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS(B20CS19)	L:3 T:0 P:0			
After the	completion of this	course, the students should be able to				
1		mental concepts of database management.				
2	Analyze database ı	models & Entity Relationship models and to dra	w the E-R diagram	n forthe given		
	case study.					
3		atabase Theory, and be able to write relational	algebra expression	ns forqueries		
4	Apply Normalizati	on Process to construct the database and explain	n Basic Issues of T	ransaction		
	processing	•				
5	Compare the basic	Database storage structures and access technique	ıes: File			
	_	ing methods including B- Tree and Hashing				
	1					

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	PROBABILITY AND	L:3 T:0 P:3	
1.07		STATISTICS(B20MA07)		
_		course, the students should be able to	1 (701	1 1 11 6
1	real world events.	ory and deals with modeling uncertainty in order		
2	Develop discrete probability distributions and its applications, and use the techniques togenerate data from Binomial and Poisson Distributions.			
3	Use the techniques Distributions.	of continuous probability distributions to gener	ate data from Nor	rmal
4	linear relationship	n and regression analysis, in order to estimate the between two variables.		_
5	Construct confiden	ce interval to estimates population parameters t	o test the hypothe	sis.
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	IV Sem	OPERATING SYSTEMS LAB(B20CS20)	L:0 T:0 P:3	
After the o	completion of this	course, the students should be able to		
1		ling algorithms, Page replacement algorithms.		
2	Explain Bankers A	Algorithm for Dead Lock Avoidance & Dead Lo	ock Prevention	
3	Describe the conce	pts of paging and segmentation.		
4	Make use of Linux	commands		
Course	+	Subject Name (Subject Code)	No. of Hours	Credits: 1.5
		DATABASE MANAGEMENT SYSTEMS		Credits: 1.5
Outcome	IV Sem	LAB(B20CS21)	L:0 T:0 P:3	
After the o		course, the students should be able to		
1		hema for given Application.		
2		lel to Relational Model.		
3	Apply the normalize	zation techniques for development of application	n software to real	isticproblems.
4	Construct SQL que	ries to retrieve information from database		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	IV Sem	WEB TECHNOLOGIES LAB(B20CS22)	L:0 T:0 P:3	
After the co	ompletion of this co	ourse, the students should be able to		
1	Design and implent technical know-how	nent dynamic websites with good aesthetic sens	e of designing an	d latest
2		te and apply the role of languages like HTML, of	CSS, XML, JavaS	Script, PHPand
		orkings of the web and web applications		1 /
3	Î.	b pages using JavaScript		
4	Build web applicat	1 0 1		
		Subject Name (Subject Code)	NI CII	G 114 2
Course	Teal / 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	Define Software Envarious process mo	ngineering and list core principles of software e	ngineering and ur	nderstand
2		tanding of software requirements and be able to	prepare SRS doc	ument.
3		re design engineering process using structural a		
4		chniques of verification and validation in the pr	rocess of software	edevelopment,
	Apply the testing s	trategies on different level of implementation (unit, integration,	.)
5	Understand and ab for a software deve	le to compute quality measures and develop a selopment.	oftware quality as	ssurance plan
	•	-		

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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 fton the co	mmlation of this or	COMPUTER NETWORKS(B20CS30)		
		ourse, the students should be able to		
1	Illustrate basic cor reference model.	mputer network technology, functions of each	layer in the OSI	and TCP/IP
2		e on error control and flow control mechanisms	J.	
3		subnetting and routing mechanisms.		
4		es and Operations of TCP/UDP, congestion cor	ntrol and OoS Tec	hniques.
5		he essential protocols of application layer, a		
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 c	completion of this	course, the students should be able to		
		tanding of data warehouse, designing and using	g data in data ware	chouse using
		ing concepts and develops understanding of dat		
	_	k of Association rule mining, association rule m e sample data sets, evaluate these methods base	•	d their
4	Develop an unders application on som	standing of classification and prediction, class e sample data sets, evaluate these methods base	sification methoded ed on need	
5		al understanding of clustering, various clustering ta sets, evaluate these methods based on need.	ng methods and the	neir application
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	mpletion of this co	ourse, the students should be able to	1	
		to formulate an efficient problem space for a pr	ohlem expressed	in Fnolish
2	·	to select a search algorithm for a problem.	objetii enpresseu	211511911.
3	•	r representing knowledge using the appropriate	technique	
		to apply AI techniques to solve problems of Ga		
	•	Systems, Machine Learning and Natural Langu		
Course	İ	Subject Name (Subject Code)	No. of Hours	Credits:3
		COMPILER DESIGN(B20CS31)		Ci cuits.5
Outcome	VSem	(PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0	
After the co	empletion of this co	ourse, the students should be able to		
1	Apply the knowled	ge 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	analysis in the context of the compilation process	SS.	
4	•	ble format for the language defined by a gramn		
5		generation algorithm		
	1) T	No. of Hours	Cnodita:2
Course		Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING		Credits:3
Outcome	V Sem	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	<u>I</u>
1	Able to analyze syr	ntax-related concepts including context-free gravith function implementations.	ammars, parse tree	es, semantic
2		ign issues of various reference types and its im	plementation relat	ed to these
3	Able to understand	the concepts of Abstraction and Encapsulation s Language Examples.	constructs of class	ses, interfaces,
4		nd the nature and implementation of object-orie	ented languages.	
5		he Functional Programming Languages and Log		Languages.
	r - 212 to Compare ti		5	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	V Sem	NETWORK PROGRAMMING (B20CS33) (PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0	
After the co	mpletion of this co	Durse, the students should be able to		
1	Demonstrate advar	aced knowledge of OSI layers, TCP & UDP cor	ncepts	
2		narize the TCP socket functions and Byte Order		
3	ŭ	lient server applications and analyze I/O Multip		t options.
4		Elementary UDP sockets and Address conversion		
		er networking information, Pseudo -Terminals		s Control
3	Terminals.	r networking information, 1 seedo - 1 criminais	, reminar mode.	s, control
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	V Sem	DATA COMMUNICATIONS AND COMPUTER NETWORKS LAB(B20CS34)	L:0 T:0 P: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 detec	ction and error correction codes.		
3	Implement and ana	alyze routing and congestion issues in network	design.	
4	Implement Encodin	ng and Decoding techniques used in presentation	n layer.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	V Sem	ARTIFICIAL INTELLIGENCE LAB (B20AI04)	L:0 T:0 P:3	
After the co	ompletion of this co	ourse, the students should be able to		
1	Demonstrate Know	rledge 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	ign heuristics	
	Develop intelligent systemsfor game p	algorithms for constraint satisfaction problems laying.	and also design ir	ntelligent
4	• •	y to represent various real life problem domains	using logicbased	techniques
		orm inference or planning.	8 18 11 11	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	V Sem	INDIAN CONSTITUTION(B20MC03)	L:2 T:0 P:0	Creatis.
After the co	 	ourse, the students should be able to		
		ndamental rights and duties of a citizen		
2		strative structure of the Indian union		
3	· ·	of state government and make use of positions		
4	• •	ous department and local administrations respo	neihilitiee	
5	_	ous department and local administrations responsible commission and its roles	onsionities	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	W Sem	MACHINE LEARNING (B20AI06)	L:3 T:0 P:0	
After the co	empletion of this co	ourse the students should be able to :		
1	Explain the theory	underlying machine learning		
2	Learn beyond bina	ry classification.		
3	Recognize and imp	lement various genetic algorithms.		
4		ns to learn tree, to learn linear, non-linear model	s and Probabilisti	c models.
5		data using R Programming		
	J	<i>C O O</i>		

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	CLOUD COMPUTING (B20CS36)	L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to		
1		nd various service delivery models of a cloud co	omputing architect	ture.
2	<u> </u>	nd the ways in which the cloud can be program		
3	<u> </u>	ud Computing Architecture and Management	1 2	
4	Understanding clou	ad service Models		
5		nd 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	 	ourse, the students should be able to		
1	•	n of IoT from global context.		
2		blocks of Internet of Things and its characterist	ics	
3		cepts of Python. Implement the python program		berry.
4		eation areas of IoT. Realize the revolution of Ir		
	Cloud &Sensor Ne			20,1008,
5	Determine the Mar	rket perspective of IoT. Develop Python web a	pplications and cle	oud servers
	for IoT.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	SOFTWARE PROJECT MANAGEMENT	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-II)		
After the co	 	(B20CS38) Durse, the students should be able to		
1		software economics, phases in the life cycle o	f software develor	ment project
1	•	project control and process instrumentation.	i software develop	ment, project
2	-	re economics, software development life cycle,	artifacts of the pr	ocess.
_		oints, project organization and responsibilities,		
	instrumentation	1		•
3	Choose the right so responsibilities.	oftware development approach. Compare various	us project organiza	ations and
4	Analyze the major	and minor milestones, artifacts and metrics for	management and	technical
	perspective.			
5	Design software	product using conventional and modern]	principles of sof	tware project
	management.			T
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	NETWORK SECURITY AND	L:3 T:0 P:0	
		CRYPTOGRAPHY (B20CS39) (PROFESSIONAL ELECTIVE-II)		
After the o	completion of this o	course, the students should be able to		
1	Identifies various t	ypes of vulnerabilities, attacks, mechanisms and	d security services	
2	Compare and contr	rast symmetric and asymmetric encryption algo-	orithms.	
3	Implementation of message authentication, hashing algorithms and able to understand kerberos.			
4	Explore the attacks	and controls associated with IP, transport level	, web and E-mail	security.
5	Develop intrusion of	detection system, solutions for wireless network	ks and designing of	of varioustypes
	of firewalls.	f firewalls.		

	1	_			
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	, <u> </u>	course, the students should be able to			
1	•	Implement Web service client and server with interoperable systems like core distributed computing, J2EE, SOA, WSDL, UDDI and EBXML			
2		Perceive and analyze the principles of SOAP.			
3		ment Web Services life cycle, Anatomy of WSI	DL definition docu	ıment.	
4	•	semantics of web services. Working with UDDI			
_	UDDIdata structur	· · · · · · · · · · · · · · · · · · ·	, programming wi	ttii ODDI,	
5		bility between different frameworks. Design we	eb based application	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		
Outcome	VI SCIII		L.0 1.01.3		
After the o	completion of this	course, the students should be able to			
1	Discuss different a	pplication on Machine Learning problems.			
2		Igorithms on Machine Learning mentioning its			
3		mance of Machine Learning algorithms with di	fferent parameters	\$	
4	Understand the late	est issues raised by current researchers.	1	1	
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		
	112011				
After the co		ourse, the students should be able to			
1		mputing fundamentals, technologies, application Oracle VM Virtual box.	ons and implement	ation of	
2	Development knov	vledge of cloud computing using Amazon Web	Services like Cor	npute, Storage	
	and Networking.				
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	ıvailable systems ı	ısingAmazon	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
		INTERNET OF THINGS LAB(B20CS42)	L:0 T:0 P:3	Creatis-1.2	
Outcome	VI Sem	,	L:0 1:0 P:3		
After the co	ompletion of this co	ourse, the students should be able to			
1		y of life of humans through IoT technology for t	hat student closer	interaction	
	between the experi	ment and the society.			
2	Identify the Compo	onents that forms part of IoT specific Application			
3		t appropriate IoT Devices and Sensors based on	* *		
4	Improve the Pythor	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 QUANTITATIVE APTITUDE(B20MC05)	L:2 T:0 P:0		
After the c	completion of this	course, the students should be able to	1	I	
1		reasoning and mathematical analysis methodol	ogies to understar	nd and solve	
	problems.		<u> </u>		
2	•	e correctly arrive at meaningful conclusions	regarding their a	nswers and	
_	* * * *	ons and formulas in order to solve for the desire			
3		ormation correctly, determine which mathemat		escribes the	
	data, and apply the	•	iicui inodei best u	cocinoca the	
4		·		Irrin o. 41- al-	
4	• • • •	athematical language and notation to explain the	•	lying their	
		solving problems using mathematical or statisti			
5	Improve their math	nematical skills in various general aspects to sol	ve real time proble	ems.	

				1
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 o	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.			
4	Develop different parameters for Regularization for Deep Learning.			
5	Design Optimized 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 o	completion of this	course, the students should be able to		
1	Understand the nature, scope and importance of Managerial Economics.			
2	Know what demand is, analyze demand and how elasticity of demand is used for pricing decisions and to evaluate methods for forecasting demand.			
3	Know how production function is carried out to achieve least cost combination of			
	Inputsand how to analyze cost.			
4	Understand the characteristics of different kinds of markets and outline different form ofbusiness organization and analyze how capital budgeting techniques are used for investment decisions.			
5	Know how to prepare final accounts and how to interpret them, analyze and interpretfinancial statements using ratio analysis.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SOFTWARE TESTING(B20CS44) (PROFESSIONAL ELECTIVE – III)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	Design test cases suitable for a software development for different domains.			
2	Prepare test planning based on the document.			
3	Identify suitable tests to be carried out.			
4	Validate test plan and test cases designed.			
5	Use of automatic testing tools.			
Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) SOFTWARE ORIENTED ARCHITECTURE (PROFESSIONAL ELECTIVE – III) (B20CS45)	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 Design various service layers				
2	Model service candidate derived from existing business documentation.			
3	Design the composition of SOA.			
4	Design application services for technology abstraction.			
5	Principles of Service-Orientation.			
Course	•	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III)	L:3 T:0 P:0	Credits:3
After the c	completion of this	course, the students should be able to		1
_	Perceive of scripting and the contributions of scripting languages.			
2	Develop simple scripts to automate system administration.			
3	Gain knowledge of the strengths and weakness of Perl, TCL and Ruby; and select an			
	appropriate language for solving a given problem.			
4	Acquire programming skills in scripting language			
5	Develop simple applications by various tools and expose to create advanced applications			
	on web applications.			

	T		T	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	BUSINESS INTELLIGENCE & BIG DATA (PROFESSIONAL ELECTIVE – IV) (B20CS47)	L:3 T:0 P:0	
A Cton the e	ommintion of this			
		course, the students should be able to tions, definitions and capabilities of Bigdata.		
1 2	_	, concepts, architectures and challenges in Big of	data anvironment	Outling the
2		ts, and enabling technologies of big data analyt		. Outline the
3		ts on Handoop Ecosystem in Big data.	105.	
4	3	educe programming in Big data Analytics.		
5		data technologies in business intelligence using cial networking, Web 2.0, reality mining, and c		a, location-
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	REINFORCEMENT LEARNING (B20AI15) (PROFESSIONAL ELECTIVE – IV)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1		reatures of Reinforcement Learning.		
2	Apply the different	algorithms and define the policy.		
3	Analyze multiple c metrics.	riteria for analyzing RL algorithms and evaluat	e algorithms on tl	nese
4		ility traces, Eligibility traces used for sampling.		
5	Create Function Ap	pproximation Methods.		1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	CYBER SECURITY & ETHICAL	L:3 T:0 P:0	
0 0.000	, , ,	HACKING (B20CS48)		
		(PROFESSIONAL ELECTIVE – IV)		
After the o	completion of this o	course, the students should be able to		
1	Outline key terms cybercrimes.	s and concepts in cyber law, intellectual pro	perty and	
2		erabilities, threats and cybercrimes posed by	criminals.	
3	_	curity challenges phased by mobile devices.		
4	Identify various typ	pes of tools and methods used in cybercrime, de n security protection	evelops the secure	counter
5		* *		
		r security risk management policies in order tical information and assets.	r to adequately p	orotect an
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	VII Sem	MINI PROJECT & INTERNSHIP	L:0 T:0 P:0	
		(B20CS49)		
1	Enhance students	'knowledge in current technology		
2	Develop leadersh	ip ability and responsibility to execute the g	given task	
3	Enhance their em	ployability skills along with real corporate	exposure	
4		appleted task and compile the report.		
Course		Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)	No. of Hours	Credits:1.5
Outcome	VII Sem	DECEMBER (DECEMBER)	L:0 T:0 P:3	
After the o		course, the students should be able to		
1		ics of Artificial Neural Networks.		
2	Describe the variou	s Learning Networks and Special Networks		
3	Understand the Dec	ep Neural Network.		
4	Develop different r	parameters for Regularization for Deep Learnin	g.	
		*	-	

Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE-I (B20CS50)	No. of Hours L:0 T:0 P:8	Credits:4
1	Identify the proble	em by applying acquired knowledge.	ı	
2	· · · · ·	gorize executable project modules.		
3	`	ools for designing project modules.		
4		nodules through effective team work after e	officient testing	
		apleted task and compile the project report.	Therefore testing	
		1 1 0 1		
Course Outcome	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	ompletion of this c	ourse, the students should be able to		
		ance of ethics and values in life and society.		
2	Develop moral resp	onsibility and mould them as best professionals	5.	
3	Create ethical vision	n and achieve harmony in life.		
4	Provide a critical pe	erspective on the socialization of men and women	en	
		ant issues related to gender in contemporary In		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome		DESIGN PATTERNS (B20CS51)	L:3 T:0 P:0	
Outcome	VIII SCIII	(PROFESSIONAL ELECTIVE – V)	L.3 1.01.0	
After the c	completion of this c	ourse, the students should be able to		
1	Identify the appropr	riate design patterns to solve object oriented de	sign problems.	
	, ,	nent appropriate solutions to recurring program		
		ation and specifications, including design patte	ern catalogs and e	xisting
	source code.			
		lements of structural patterns and their implement		
4		ements of creational patterns and their implem		
		lements of behavioral patterns and their implen	nentation along w	ith growth in
	the field of using de			<u> </u>
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Selli	BLOCK CHAIN TECHNOLOGIES (B20CS52)	L:3 T:0 P:0	
A 64 47		(PROFESSIONAL ELECTIVE – V)		
		ourse, the students should be able to	l dogontuoli-atia	
2		mentals of blockchain, history, technology and ic concepts and its use in blockchain.	uecentranzation.	
		understand structure of blockchain, alternatives	to proof of work	
				•
4		ntracts, solidity and Web3 to implement blockc	hain	
5	1.	tions of blockchain and its challenges		1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	vill seili	PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	L:3 T:0 P:0	
		ourse, the students should be able to		
1		e Process Automation & Bot Creation.		
2	***	Bots Upload and Credentials.		
3	Analyze devices to	Develop and Runtime Clients and Device Pool	ls.	
	Develop Bot creato	r using XML commands.		
5	Create work flow d	esigner		

	1		T	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	COMPUTER VISION (B20AI26)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE – VI)		
		course, the students should be able to		
1		ment of algorithms and techniques.	1.1	
3	<u> </u>	ret the visible world around us with real time p		tuantian
3		ental concepts on multi-dimensional signal procual geometric modeling, stochastic optimizatio		traction,
4		up and contribute in research developments in the		er vision.
5		applications ranging from Biometrics, Me		
		of visual content, to surveillance, advanced ren		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	DATA PRIVACY & SECURITY(B20DS21) (PROFESSIONAL ELECTIVE – VI)	L:3 T:0 P:0	
After the a	completion of this	course, the students should be able to		L
1		us types of Substitution ciphers.		
2		techniques to break the ciphers and unde	rstands transposi	tion
	techniques.	1	1	
3	•	rast block cipher and stream cipher algorithms		
4	Implementation of public key cryptog	asymmetric key cryptographic algorithms and raphy.	understand key m	anagement in
5		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	
0 4400 0 1110	, 111 S 111	(PROFESSIONAL ELECTIVE – VI)		
		(B20AI19)		
		course, the students should be able to		
1	Show sensitivity to grammars.	linguistic phenomena and an ability to model t	them with formal	
2	0	rry out proper experimental methodology for tra	aining and evalua	ting empirical
	NLP systems		C	
3		probabilities, construct statistical models over		and
	•	s using supervised and unsupervised training m	ethods.	
5		olement, and analyze NLP algorithms		
		erent language modelling Techniques.	T	
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 o	completion of this	course, the students should be able to		
1	•	chnical topics from interested domains.		
2	· · · · · · · · · · · · · · · · · · ·	icability of modern tools and technology.		
3		fy the technical aspects of the chosen topic	in a systematic a	pproach
4	Develop Presenta	tion and Communication skills.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:8
Outcome	VIII Sem	MAJOR PROJECT PHASE-II(B20CS54)	L:0 T:0P:16	
After the o	completion of this	course, the students should be able to		
1	_	em by applying acquired knowledge.		
2		gorize executable project modules.		
3	·	tools for designing project modules.		
4		modules through effective team work after	efficient testing	
5		npleted task and compile the project report.		
	madorate the con	upicieu task and compne the project report.		

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.	Business Environment	L:4 T:0 P:0	4
		(M20MB01)		
On successfu	ul completion of this	s course, student should be able to:		
1	Explains the concep	ot of BE and different techniques of er	vironmental scann	ing process.
2	Describes economic	c systems, GATT, WTO, Fiscal and n	nonitory policies	
3	Emphasizes on Indi	ustrial Policy and regulatory structure		
4	Explains socio poli	tical environment.		
5	Interprets India trac	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	
		(M20MB02)		
On successfu		s course, student should be able to:		
1	<u> </u>	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	T .	T
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 (M20MB03)		
		s course, student should be able to:	4.5	
1		nce of fundamentals of Management and		
2		g process and types of plans in dynam		velop the
3		yles in various situations in organization		at 1- at
3		ganization structures with its merits ar		
4		d influence, Asses the significance of		
5		and group behavior in an organization		
3	organization.	gers apply different leadership styles a	na mouvation theo	ries in an
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	Cicuits.4
Come	I/I Sciii.	(M20MB04)	1.4 1.0 1.0	
On successfi	ıl completion of this	s course, student should be able to:		1
1		ance of Accounting.		
2	_ · · · · ·	g cycle in preparing financial statemen	ts of the company	
		5 - J - 13 m proparing initialization bratchion	or the company.	

3	Plan the process of	issue of shares and debentures for rais	sing capital by the	company.
4	Analyze and interpr	ret financial position of the company u	ising ratio analysis	, Vertical
	and Horizontal anal	lysis.		
5	Make use of funds	flow statements in the company.		
Course out	Year/semester:	Subject name code:	No. of Hours	Credits: 4
come	I/I Sem.	Statistics for Management	L:4 T:0 P:0	
		(M20MB05)		
On successfu		s course, student should be able to:		
1		statistics and statistical techniques in		ision making
		riate measures of central tendency and		
2		and also measure the degree of corr		
		nship between independent and depen	ident variables usii	ng regression
2	lines.			
3		n parametric and non-parametric test.	1 1 1 1 1 1 1	C 1:
4		oothesis and alternative Hypothesis,	nypotnesis testing	f for making
5	decisions using stud		7 A and avanina a	du
3	by using Chi-square	y and two-way classification of ANOV	A and examine go	dodness of the
Course out	Year/ semester:		No. of Hours	Credits:4
come	I/I sem	Subject name code: Business Communication	L:4 T:0 P:0	Credits:4
Come	1/1 SCIII	(M20MB06)	L.4 1.0 1.0	
On successfi	ıl completion of this	s course, student should be able to:		
1		ance of written communication skills a	innropriate for bus	iness
1	situations.	ance of written communication skins t	ippropriate for ous	
2		udent effectively deliver on oral presen	ntations.	
3		nts report writing skills and develop the		skills.
4		s of communication	<u> </u>	
5		nt negative attitudes towards the verba	al and nonverbal	
	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	
		(M20MB07)		
On successfu		s course, student should be able to:		
1		about MS-word, creation of document and		
2		adsheets and data analysis with statistical	tools.	
3	_	Oatabase & data mining.		
4	*	e of mail merge and build the presentation	n graphics through p	ower point
	creation			
		I/II Sem		
Course	Year/ semester:	Subject name code:	No. of Hours	Credits:4
out come	I/II Sem.	Marketing Management	L:4 T:0 P:0	
		(M20MB08)		
On successfu	_	s course, student should be able to:		
1		d functions of marketing.		
2	Identity and demon	strate the nature of marketing environ	ment.	

3	Explain the Market	research project/process.		
4	-	or framing marketing strategies and ap	praise the importa	ance of
	promotion mix.		1	
5	Utilize the different	pricing strategies for profit maximiza	ation.	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 4
come	I/II Sem.	Human Resource Management	L:4 T:0 P:0	
		(M20MB09)		
On successfu	al completion of this	s course, student should be able to:	•	•
1	Define the basic co	ncepts of HRM, Its model.		
2	Demonstrate HRP	process and Job Analysis.		
3	Illustrate the technic	ques and tools for training and Develo	pment, performan	ce appraisal.
4		ations System Grievance redressal me		
	settlements.	•	-	
5	Recommend and ap	praise 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	Financial Management	L:4 T:0 P:0	
		(M20MB10)		
On successfu		s course, student should be able to:		
1	• •	ance of profit maximization and wealt		
2		nniques for investment decision proce	ss and measuring	the cost of
	capital			
3	Analyze the capital			
4		s determining dividend and its valuation	on	
5		d planning of working capital		
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II sem	Business Research Methods	L:4 T:0 P:0	
	0 61	(M20MB11)		
		mpletion of this course, student sho	uld be able to:	
1		ethodology and why it is useful.		
2	1	h problem and research design		
3		onnaire and methods of data collection	1	
4	Importance of resea			
5	Influence of research		N. CII	0 124 4
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	I/II Sem.	Quantitative Analysis for	L:4 T:0 P:0	
O	-11-4:£41::	Business Decisions (M20MB12)		
On successit	Define OR and OR	s course, student should be able to:		
2	Construct the struct			
3				
		se method and Big-M method.		
5		cical model of transportation problem.		
5	now to solve the A	ssignment problem.		
	<u> </u>			

Course out come	Year/ semester: I/II sem	Subject name code: Cost & Management Accounting (M20MB13)	No. of Hours L:4 T:0 P:0	Credits:4
On successfu	ıl completion of this	s course, student should be able to:	•	1
1		al Accounting, Cost accounting & Ma	nagement Accoun	ting
2		r specific industries.		
3		analysis for various business problems	3	
4	Classify and evalua			
5		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 (M20MB14)	L:0 T:0 P:4	
		s course, student should be able to:	1 200 200 200	
1		ome fear of facing interviews		
2		ation skills and able to convince their	view point to the s	superior.
_	peers and subordina		, io , point to the .	oup error,
3	L	ement skills to efficiently manage time	e in meeting deadl	ines.
4	-	positive thinking and high achievers		
5		nowledge and current information.		
		II/I Sem		
Course out	Year/ semester:	Subject name code: Strategic	No. of Hours	Credits: 4
come	II/I Sem.	Management (M20MB15)	L:4 T:0 P:0	
On successfu	al completion of this	s course, student should be able to:	•	•
1		tional objectives, policies, vision and	mission and outlin	e the
	concepts in strategi	<u> </u>		
2		trategist in an organization.		
3		mance by using qualitative and quanti	tative benchmarkii	ng technique.
4		g strategies and define why firms dive		<u> </u>
5		or competing in global markets.	J	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:4
come	II/I sem	Entrepreneurship (M20MB16)	L:4 T:0 P:0	
		s course, student should be able to:		
1		stics, Qualities, Skill and Functions of	Entrepreneur.	
2	-	itutions assistance to promote Entrepr		
3		cal competitiveness, legal regulatory s		ademarks
	_	perty rights to Entrepreneurship.	, j steriis, paterits, tr	adomanis
4		ity for business ethics and ethical guid	lelines in business	
5		overnance and its History and theoretic		
	Governance.	overnance and its initiary and incore	car oasis or corpor	acc
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits: 3
come	II/I sem	Intellectual Property Rights (M20MB17A)	L:4 T:0 P:0	
On successfu	al completion of this	s course, student should be able to:	l .	
1	-	ng importance of intellectual property	rights	
2		ation procedures and trade mark regist		
3		tht principles and rights	1	
		L		

		ning, and Simulation	licai Measures, Fre	EUICTIVE
		visualization tools, Descriptive Statist	tical Measures, Pre	edictive
2		o solve simple tasks using data analyti	ics techniques with	n computer
_	(MS Excel).	o sorve simple tasks using data unary.	ies teemiques with	reompater
3	Identify the advanta	ages and disadvantages of simulation,	risk analysis and c	lecision tree
	analysis		•	
4	Measure the data ar	nalytics parameters (descriptive analyt	ics, diagnostic ana	lytics,
	predictive analytics	and prescriptive analytics).		
5	Choose the data and	alytics techniques for solving practical	l problems in busir	ness.
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	
		(M20MB17D)		
On successfu	al completion of this	s course, student should be able to:	•	•
1	List out the differer	nt concepts of Tourism management		
2		affecting hospitality and tourism indu	stry	
3		yment opportunities in Hospitality	•	
4		stem and ecotourism activities		
5		roblems in tourism and Hospitality ma	anagement	
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
		s course, student should be able to:	1 200 200	1 30
1		titution and constitutional history		
2		and centre-state relationship		
3		ecretariat and it structure		
4	1	ortance of election commission		
5	improve the welfar	e of SC/ST/BC and women		

On successfu	ıl completion of this	s course, student should be able to:		
1		ner behavior research process and rura	l consumer behavio	or.
2		vironmental influences on consumer b		
		ultural adaptation of consumer behavi		TT
3		al personality and self-concept, co		n. changing
		ers, consumer learning and information		,
4		nce of consumer behavior models in consumer behavior model		
5		onsumerism, consumer safety, and co		n at market
3	place.	msumerism, consumer sarcty, and ec	msumer information	on at market
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
Conic	II/I Sem	(M20MB19M2)	2.4 1.0 1.0	0.5
On successfu	ıl completion of this	s course, student should be able to:		I
1		entals of sales management.		
2	Define and formula	te the strategies to effectively manage	company's sales of	perations
		es and responsibilities of the sales man		•
3	Develop the sales for	orce productivity and control.		
4	Analyze and implei	ment distribution channel strategy.		
5	Examine the channe	els efficiency and effectiveness in who	olesaling and retail	ing.
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
		(M20MB20M3)		
On successfu	ıl completion of this	s course, student should be able to:	•	
1	Conceptual framew	ork and essentials of Supply Chain M	anagement.	
2	Emerging trends in	logistics management.		
			•	.4
3	Factors influencing	selection of transportation and wareh	ousing managemer	ll.
		selection of transportation and warehoupply chain management.	ousing managemer	ιι.
3			No. of Hours	Credits:
3 4	Strategic issues in s	supply chain management. Subject name code: Security Analysis and Portfolio		
3 4 Course out come	Strategic issues in s Year/ semester: II/I Sem	Subject name code: Security Analysis and Portfolio Management (M20MB18F1)	No. of Hours	Credits:
3 4 Course out come	Strategic issues in s Year/ semester: II/I Sem Il completion of this	Supply chain management. Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to:	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmen	Subject name code: Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Security course, student should be able to: It alternatives and make investment po	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come On successfu	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of	Supply chain management. Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Securse, student should be able to: It alternatives and make investment pof an optimal asset allocation.	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come On successfu	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty	Subject name code: Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Security Student should be able to: It alternatives and make investment pof an optimal asset allocation. The person of bonds in the stock markets	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come On successful 2 3	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity an	Subject name code: Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment pof an optimal asset allocation. pes of bonds in the stock markets alysis and valuation	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come On successfu 1 2 3 4	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmen the determination of Examine various ty To define equity an Construct optimal p	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Security Student should be able to: It alternatives and make investment pof an optimal asset allocation. The period of bonds in the stock markets allysis and valuation Cortfolios following the tenets of modes	No. of Hours L:4 T:0 P:0	Credits: 03
3 4 Course out come On successful 2 3 4 5	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal process various type	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Securse, student should be able to: It alternatives and make investment pof an optimal asset allocation. The pes of bonds in the stock markets allysis and valuation The portfolios following the tenets of mode pes of mutual funds schemes	No. of Hours L:4 T:0 P:0 licy recommendation	Credits: 03
3 4 Course out come On successful 2 3 4 5 Course out	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal publicuss various typ Year/ semester:	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) Security Student should be able to: It alternatives and make investment portfan optimal asset allocation. The periodic periodic portfolios following the tenets of mode periodic following	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours	Credits: 03 on including Credits:
3 4 Course out come On successful 2 3 4 5	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal process various type	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment po f an optimal asset allocation. pes of bonds in the stock markets alysis and valuation cortfolios following the tenets of mode es of mutual funds schemes Subject name code: Financial Institutions, Markets	No. of Hours L:4 T:0 P:0 licy recommendation	Credits: 03
3 4 Course out come On successful 2 3 4 5 Course out come	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal process various typ Year/ semester: II/I Sem	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment pof an optimal asset allocation. pes of bonds in the stock markets alysis and valuation cortfolios following the tenets of mode es of mutual funds schemes Subject name code: Financial Institutions, Markets and Services (M20MB19F2)	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours	Credits: 03 on including Credits:
3 4 Course out come On successful 2 3 4 5 Course out come On successful	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal processing various type Year/ semester: II/I Sem Il completion of this	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment po f an optimal asset allocation. pes of bonds in the stock markets alysis and valuation cortfolios following the tenets of mode res of mutual funds schemes Subject name code: Financial Institutions, Markets and Services (M20MB19F2) s course, student should be able to:	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours L:4 T:0 P:0	Credits: 03 Credits: 03
3 4 Course out come On successful 2 3 4 5 Course out come	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmen the determination of Examine various ty To define equity an Construct optimal p Discuss various typ Year/ semester: II/I Sem Il completion of this Define the financia	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment po f an optimal asset allocation. pes of bonds in the stock markets alysis and valuation cortfolios following the tenets of mode es of mutual funds schemes Subject name code: Financial Institutions, Markets and Services (M20MB19F2) s course, student should be able to: I Institutions markets and services, Ex	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours L:4 T:0 P:0	Credits: 03 Credits: 03
3 4 Course out come On successful 2 3 4 5 Course out come On successful	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal process various type Year/ semester: II/I Sem Il completion of this Define the financia after 1991, Regulat	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment pof an optimal asset allocation. The pes of bonds in the stock markets alysis and valuation Tortfolios following the tenets of mode tes of mutual funds schemes Subject name code: Financial Institutions, Markets and Services (M20MB19F2) s course, student should be able to: I Institutions markets and services, Extions and promotional Institutions.	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours L:4 T:0 P:0	Credits: 03 Credits: 03
3 4 Course out come On successful 2 3 4 5 Course out come On successful	Strategic issues in s Year/ semester: II/I Sem Il completion of this Analyze investmenthe determination of Examine various ty To define equity and Construct optimal process various typ Year/ semester: II/I Sem Il completion of this Define the financia after 1991, Regulat Outline the Banking	Subject name code: Security Analysis and Portfolio Management (M20MB18F1) s course, student should be able to: t alternatives and make investment po f an optimal asset allocation. pes of bonds in the stock markets alysis and valuation cortfolios following the tenets of mode es of mutual funds schemes Subject name code: Financial Institutions, Markets and Services (M20MB19F2) s course, student should be able to: I Institutions markets and services, Ex	No. of Hours L:4 T:0 P:0 licy recommendation ern portfolio theory No. of Hours L:4 T:0 P:0 explain the financial	Credits: 03 Credits: 03 Reforms

4	Evaluate of lease fin	nance and Hire Purchase.		
5	Elaborate functions	and activities of Investment bankers.		
Course out	Year/ semester:	Subject name code: International	No. of Hours	Credits:
come	II/I Sem	Financial Management	L:4 T:0 P:0	03
		(M20MB20F3)		
On successfu	ll completion of this	s course, student should be able to:		
1	To determine differ	rent international Business Methods		
2	To evaluate Balance	e of payments and International Mone	tary system	
3	To Make use of for	eign exchange market movements.		
4		nt with exchange rate movements		
5	To find the opportu	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		s course, student should be able to:		
1	Define leadership re			
2		effective leader and his/her leadership	· ·	
3		styles in organizational work settings		
4		roblems while inviting change in orga		
5		tionship between power, politics and o		
Course out	Year/ semester:	Subject name code: Management		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		rial relation and Indian IR system		
2		nion, types and their recognition		
3		ttlement missionary and its instrument	S	
4	Develop grievance	<u> </u>		
5	Analyze collective	bargaining levels and legal framework	CS .	
Course out	Year/ semester:	Subject name code:	No. of Hours	Credits:
come	II/I Sem	Compensation Management	L:4 T:0 P:0	03
Come	II/I Sciii	(M20`MB20H3)	2.4 1.0 1.0	0.5
On successfu	ıl completion of this	s course, student should be able to:		
1		sation management and its objectives		
2		models of executive compensation		
3		nents of pay structure and its strategy		
4		onal compensation system and manag	ing variations in in	nternational
	pay	omponium by been und manug	,	
5	1 7	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
l l				i .
On successfu		s course, student should be able to:		
On successfu	l completion of this	s course, student should be able to: ical knowledge by working in any org	anization	
On successfu	l completion of this		onization	

3	List out organizatio	nal working teams and dynamics of or	rganization	
4	Develop his compe	tencies for future job requirement		
		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 pr	rocedure for
	incorporation and v	vinding up of company		
2		ts and define essential elements o		
		ch. Explain the general principles,	conditions and w	arranties in
	contract of sale.			
3		priate negotiable instrument under t	the negotiable ins	trument act.
		and regulations of GST in India.		
4	Asses the ethical is			
5		and challenges in cybercrime and its no		
Course out	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 guagage	l completion of this	(M20MB23)		
1		s course, student should be able to: n production methods. Compare and co	antrast production	mathada
2	*	et and process design.	ontrast production	methous
3		riate facilities location and Plant layou	<u> </u>	
4		he techniques of sequencing and sched		n control
	Asses the concepts		iding in productio	ii control.
5		nagement techniques for inventory co	ntrolling	
	FF - J	,	8	
Course out	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	ıl completion of this	s course, student should be able to:		
1	Identify the prevail	ing health care system in India		
2		ovided by the health policies		
3		from different programs introduced by		
4		althcare schemes and funds offered by	WHO and UNICE	F
5		n the health insurance sector	T	
Course out	Year/ semester:	Subject name code: Disaster	No. of Hours	Credits:
come	II/II sem	Management (M20MB24C)	L:4 T:0 P:0	03
On successfu		s course, student should be able to:		
1		Environmental Hazards & Disasters.		
2	Identify causes of e	<u> </u>		
3		isasters and their impact on the enviro	nment.	
4		tion & Environmental problems		
5		re measures of Erosion & Sedimentation		0.14.2
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
	<u> </u>	(1712U171D27D)		<u> </u>

On successfu	ıl completion of this	s course, student should be able to:		
1	_	griculture in economic development		
2		ting of agriculture produce and agenci	es through which a	griculture
	produce is marketed		C	
3	Identify and elimin	ate the defects of agricultural marketir	ng	
4	-	ural prices and price policy	<u> </u>	
5		responsibilities of marketing function	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
Collic		(M20MB24F)	200 200	
On successfu	ıl completion of this	s course, student should be able to:		
1		and emergence of sustainable develop	pment	
2		Judiciary system and Sustainability of		
3		of life, equation of poverty population		
4		ity conservation and ecosystem integri		
5		ble development strategies		
3	Design the sustaina	sole de velopinent 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
Collic		(M20MB25M4)	200 200	
On successfu	ll completion of this	s course, student should be able to:	1	
1		concepts in customer relationship man	agement	
^				
2	Determine the impo	ortance of customer relationship manage	gement	
3		ortance of customer relationship managerends in customer relationship manage	-	
	Explain the recent t	rends in customer relationship managerelations and customer profile	-	
3	Explain the recent to Build the customer	rends in customer relationship manage	ement	
3 4	Explain the recent to Build the customer	rends in customer relationship managerelations and customer profile	ement	Credits:
3 4 5	Explain the recent t Build the customer Develop strategies	rends in customer relationship manage relations and customer profile for customer, retention and developme	ement	Credits: 03
3 4 5 Course out come	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem	rends in customer relationship managerelations and customer profile for customer, retention and developme Subject name code: Services	ement ent No. of Hours	
3 4 5 Course out come	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5)	ement No. of Hours L:4 T:0 P:0	03
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) s course, student should be able to: eting services Vs. Physical services, a	ement No. of Hours L:4 T:0 P:0	03
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) s course, student should be able to: eting services Vs. Physical services, a	ement No. of Hours L:4 T:0 P:0 analyze services manalyze services	03 arketing mix
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices.	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality.	ement No. of Hours L:4 T:0 P:0 Analyze services mater relationships with	arketing mix th regard to
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices.	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) s course, student should be able to: eting services Vs. Physical services, a service quality.	ement No. of Hours L:4 T:0 P:0 Analyze services mater relationships with	arketing mix th regard to
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices. Identify critical is development proces	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards.	No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan	arketing mix th regard to
3 4 5 Course out come On successfu 1 2 3	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marko and Gaps model of Understand consumservices. Identify critical is development procest.	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards. The service of the se	ement No. of Hours L:4 T:0 P:0 analyze services mater relationships with the printing, plan delivery.	arketing mix th regard to new service
3 4 5 Course out come On successfu	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marko and Gaps model of Understand consumservices. Identify critical is development procest.	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards.	ement No. of Hours L:4 T:0 P:0 analyze services mater relationships with the printing, plan delivery.	arketing mix th regard to new service
3 4 5 Course out come On successfu 1 2 3	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices. Identify critical is development procest Explain the Employ Integrate services	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards. The service of the se	No. of Hours L:4 T:0 P:0 Analyze services manalyze services manalyze services manalyze printing, plan delivery. e categories of str	arketing mix oth regard to new service rategies, and
3 4 5 Course out come On successfu 1 2 3	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices. Identify critical is development procest Explain the Employ Integrate services	rends in customer relationship manage relations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customer sand service standards. The service design, service blues and service standards. The service design is service of the service of th	ement No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. e categories of structure service. Descriptions	arketing mix oth regard to new service rategies, and
3 4 5 Course out come On successfu 1 2 3	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consumservices. Identify critical is development procest Explain the Employ Integrate services creates an environt issues in pricing of Year/ semester:	rends in customer relationship manage relations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) s course, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customer sand service standards. Suee's and Customer's roles in service of marketing communications and five ment that achieves excellence in customer that achieves excellence in customer services. Subject name code: International	No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. Example categories of stratomer service. Design of Hours	arketing mix oth regard to new service rategies, and sign the key Credits:
3 4 5 Course out come On successfu 1 2 3 4 5 Course out come	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consums services. Identify critical is development procede Explain the Employ Integrate services creates an environt issues in pricing of Year/ semester: II/II Sem	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards. The review of the service of the services of the service of the services and Customer's roles in service of marketing communications and five ment that achieves excellence in customer that achieves excellence in customer services. Subject name code: International Marketing (M20MB27M6)	ement No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. e categories of structure service. Descriptions	arketing mix th regard to new service rategies, and sign the key
3 4 5 Course out come On successfu 1 2 3 4 5 Course out come	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consums services. Identify critical is development procest Explain the Employ Integrate services creates an environi issues in pricing of Year/ semester: II/II Sem Il completion of this	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards. The service design, service blues and service standards. The service design is service of the service of the service of the service standards. The service design is service of the services. The service design is service of the service of the service of the service of the services. Subject name code: International Marketing (M20MB27M6) is course, student should be able to:	No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. Example categories of stratomer service. Design of Hours	arketing mix oth regard to new service rategies, and sign the key Credits:
3 4 5 Course out come On successful 3 4 5 Course out come On successful	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marke and Gaps model of Understand consums services. Identify critical is development procedevelopment procedevelopment procedes creates an environg issues in pricing of Year/ semester: II/II Sem Il completion of this Define international	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) s course, student should be able to: eting services Vs. Physical services, a service quality. mer requirements and extend customer requirements and extend customers and service standards. see's and Customer's roles in service of marketing communications and five ment that achieves excellence in customer that achieves excellence in customers. Subject name code: International Marketing (M20MB27M6) s course, student should be able to: I marketing and its environment	No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. Example categories of stratomer service. Design of Hours	arketing mix oth regard to new service rategies, and sign the key Credits:
3 4 5 Course out come On successful 2 3 4 5 Course out come On successful	Explain the recent to Build the customer Develop strategies Year/ semester: II/II Sem Il completion of this Differentiate Marko and Gaps model of Understand consums services. Identify critical is development procede Explain the Employ Integrate services creates an environt issues in pricing of Year/ semester: II/II Sem Il completion of this Define international Understand world to	rends in customer relationship managerelations and customer profile for customer, retention and developmed Subject name code: Services Marketing (M20MB26M5) secourse, student should be able to: eting services Vs. Physical services, a service quality. The requirements and extend customer requirements and extend customers and service standards. The service design, service blues and service standards. The service design is service of the service of the service of the service standards. The service design is service of the services. The service design is service of the service of the service of the service of the services. Subject name code: International Marketing (M20MB27M6) is course, student should be able to:	No. of Hours L:4 T:0 P:0 Analyze services mater relationships with the printing, plan delivery. Example categories of stratomer service. Design of Hours	arketing mix oth regard to new service rategies, and sign the key Credits:

4	Discuss the various	factors influencing pricing decisions		
5	Develop the global	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	ıl completion of this	s course, student should be able to:		
1	Define significance	of derivatives in stock in commodity	market.	
2	Explain players in I	Derivative market		
3	Differentiate forwar	rd and future contract		
4	Analyze Trading w			
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	ll completion of this	s course, student should be able to:		1
1		decisions under conditions of risk and	uncertainty	
2		nted payback, post payback, return on		rplus
	payback	, , , , , , , , , , , , , , , , , , , ,		r
3	Maximize the adva	ntages of leasing and leasing decisions	.	
4		s strategies for financing decisions		
5	Solve various probl	ems 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	al completion of this	s course, student should be able to:	I	1
1		epts of direct & Indirect taxes and able	e to compute Resid	lential Status
	_	Income of a Company and exempted 1	-	
2	Compute total Inco	me of corporate.		
3	Identify the importa	ance of Tax planning, Tax Managemen	nt and able to use	Tax planning
	techniques towards	Capital Structure decisions.		
4	Use the tax plannin	g with reference to setting up of a new	business.	
6	Perform tax plannir	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	ıl completion of this	s course, student should be able to:		
1		e and components of IHRM.		
2	Compare IHRM an	d domestic HRM		
3	Tell transfer policie	s and compensation management		
4	Identify IHRM prac	ctices in selected countries		
5	Classify workers an	nd cadres		
Course out	Year/ semester:	Subject name code: Performance	No. of Hours	Credits:
come	II/II Sem	Management Systems (M20MB26H5)	L:4 T:0 P:0	03
On successfu	al completion of this	s course, student should be able to:	•	•
1		e management and methods of perforn	nance appraisal	
2		yee performance towards the predeteri		
-		, 1 : :::::::::::::::::::::::::::::::::		

3	Examine the perfor	mance management system and appra	isal practices in As	sian
	countries			
4		yee performance through performance		
5	Identify the Legal i	ssues involved in performance manage	ement and reward	systems
Course out	Year/ semester:	Subject name code: Strategic	No. of Hours	Credits:
come	II/II Sem	HRM (M20MB27H6)	L:4 T:0 P:0	03
On successfu	ul completion of this	s course, student should be able to:		
1	Find linkage between	en strategic business planning (SBP)	and strategic HR d	evelopment
	(SHRD)			
2	Discuss about trend	s in utilization of HR and relocation of	of work	
3	Identify managerial	issues in strategic formulation.		
4	Compare Results O	riented vs Process oriented measures.		
5	Evaluate strategic c	ontribution of traditional areas such as	s selection, trainin	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
		Voce (M20MB28)		
On successfu		s course, student should be able to:		
1		gthen the students' conceptual knowledge	dge in all the subje	ects of the
	semester.			
2	Maximize the comp	petencies regarding subjects.		
Course out	Year/ semester:	Subject name code: Main project	No. of Hours	Credits:
come	II/II sem	and viva-voce (M20MB29)	L:0 T:0 P:0	04
On successfu		s course, student should be able to:		
1		real time working environment.		
2		port writing through data collection, d	lata analysis, data d	extraction,
	presentation and int	•		
3		ces, system, processes, procedures and	l policies of a	
		n different functional areas.		
4		nowledge on business problems		
5	Recommend sugges	stions in scope of the organization		

VAAGDEVI COLLEGE OF ENGINEERING

(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
		Complex Variable			
After learn	ing the conte	ents of this subject, the studer	nt must be able to		
1	Understand	the principles of matrix to ca	alculate the charac	cteristics of syster	n of
	linear equa	tions using multiple methods			
2	Determine	Eigen values, Eigenvectors o	f matrices		
3	Calculate P	artial derivatives, extreme of	functions of mult	iple 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	Programming For	B20CS01	L/T/P: 3/1/0	4
		Problem Solving			
After learn	ing the conte	ents of this subject, the studer	t must be able to		
1	Understand	ling how problems are posed	and how they can	be analyzed for o	btaining
	solutions				
2		ling the fundamentals of C pr			
3		f sequencing, branching, loop	ing and decision-	making statement	s to solve
_		nd engineering problems.			
4	_	ing different operations on ar	rays and creating	and using of func	tions to
	solve probl				
5		implement different types of			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Fundamentals of	B20ME06	L/T/P : 3/0 /0	3
		Mechanical Engineering			
By the end		e, students will be able to			
1		and the various sources of end	ergy and basic ter	minology of Mecl	nanical
_	systems				
2		and the various types of autor			
3		and and appreciate significan	ce of mechanical	engineering in di	fferent
	fields of en				
4	To understa materials	and power transmission element	ents, and applicati	ons of various en	gineering
	materials				

5	To understa	and various manufacturing prod	cesses.		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Chemistry	B20CH02	L/T/P :3/0 /0	3
The basic of	concepts incl	uded in this course will help th	e student to gain:		
1	The knowle	edge of electrochemical cells, o	lifferent batteries		
2	The require	ed principles and concepts of co	orrosion, control	methods.	
3	The knowl	edge of water treatment.			
4	The knowle	edge of polymers and their imp	ortance 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	Credits:
Outcome	I Sem	English Language and	B20EN02	L/T/P:0/0/3	1.5
		Interactive			
		Communication Skills Lab			
After learn	ing the conte	ents of this subject, the student	must be able to		
1	Understand	the nuances of English langua	ge through audio	-visual experien	ce and
	group activ	ities.			
2	speak with	clarity and confidence which is	n turn enhances tl	heir employabili	ty skills
3	develop the	ir listening skills so that they n	nay appreciate its	role in developi	ng
	LSRW skil	ls language and improve their p	pronunciation		
4	Involve the	students in speaking activities	in various contex	cts.	
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			
After learn		ents of this subject, the student			
1		l basic structure of the C Progra		es, declaration a	nd usage
_		s, control structures and all rela			
2		l any algorithm and Write the C		ode in executable	e form
3		Programs using functions, point			
4	-	e-processors to solve real time p	•		
5 Comman		uctures and implement program		No of House	Cuadita:
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	I Sem	Engineering and IT Workshop	B20ME03	L/T/P :0/0 /3	1.5
After learn	ing the cente	ents of this subject, the student	must be able to		
1		undamental knowledge of Hou		daring and their	usogo in
1		pplications.	ise withig and sol	idering and men	usage III
2		pplications. ledge on electronic component	s and measuring	instruments	
3		concepts of computer hardware			
			101 assembly and	i disassellibly.	
4	Use Micros	soft tools for exercise			

Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Differential Calculus and	B20MA05	L/T/P:3/1/0	4
		Numerical Methods			
After learn	ing the conte	ents of this subject, the student	must be able to		
1	Apply the f	fundamental concepts of ordina	ry differential eq	uations to real ti	me
	problems.				
2		mplete solution of a non-homo	· ·	-	d
		s concepts in solving physical p			
3	-	e, surface and volume integral		ntal theorems.	
4		er approximate root of a given			
5	Compute the	ne differential equation using n	umerical techniq	ues.	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Electrical Circuits-I	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	tion and network	
	reduction to	*			
2		e basic principles and concepts	involved in AC	circuits and analy	yze 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
_	laws of ele	ctromagnetic induction.			T
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Basic Electronic devices	B20EC01	L/T/P :3/1 /0	4
After learn		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
	_	ons of transistor			
4		analyze the different biasing of			
5	_	owledge about the construction	n, theory and char	racteristics of FE	ET and
	MOSFET			T	T
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Physics	B20PH02	L/T/P :3/0 /0	3
After learn	ing the conte	ents of this subject, the student	must be able to		
1		ls the materials on the basis of	energy band gap	and its device	
	application				
2		he characteristics and working			
3	Analyse an	d apply the concepts of Electri	c Fields for accur	rate determination	n of

4		x, Electric flux density, energeoncepts of the light propagate			
'		ation systems	ion in optical fior	os in optical	
5	Classify an	d enumerate the properties of	f magnetic and Die	electric materials	and
	identifies tl	neir role in specific engineeri	ng applications		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Electrical Engineering	B20EE05	L/T/P:0/0/3	1.5
		Practice Lab			
After learn		ents of this subject, the studer			
1	_	d find the various component	s and equipment u	sed for electrical	
	Ŭ,	g applications			
2		I the staircase wiring and ceil			
3		e simple electric circuits on b			
4		I 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		
1	Estimate th	e frequency of tuning for and	l AC supply with t	he help of stretcl	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	-			
4		d understand the applications			
5		he wavelength and radius of	curvature of Plano	convex lens by	Newton's
	rings	C 1. ANT		NI GII	G 114
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	II Sem	Engineering Drawing	B20ME01	L/T/P :0/0 /4	2
	1	ents of this subject, the studer			
1		l various commands, object p	roperties in AUTC	DCAD	
2		e Projections of Points.			
3		I the projections of solids			
4		e use of drawings, dimension			
5		applications of this knowled			
6	_	ne Conversion of Isometric vi			Q 11:
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 Semicono	ductor diodes.	
2	Analyze di	fferent rectifier circuits			

3		te V-I characteristics of BJT, F	FET and UJT				
4		ple electronic circuits	T =	T	T		
Course	Semester	Subject Name	Subject Code				
Outcome	III Sem	Electrical Circuits – II	B20EE05	L/T/P :3/0 /0	3		
After learni	ing the conte	ents of this subject, the student	must be able to				
1	Understand	I the basics of network represe	ntation, method o	f analyzing the r	network		
	and duality	of network.					
2	Analyze ba	lanced and unbalanced three p	hase circuits and	measure voltage	, current		
	and power	in three phase star and delta co	onnections				
3	Study the t	ransient response of series and	parallel RLC circ	cuits for DC and			
	sinusoidal	excitations. Analyze the respon	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	etwork using transformed varia	bles				
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 learni	ing the conte	ents of this subject, the student	must be able to				
1	Analyze the spectral characteristics of continuous-time periodic signals using						
	Fourier ser	ies					
2	Demonstra	te and apply Fourier transform	on various signa	ls.			
3	Apply the l	Laplace transform and Fourier	transform for the	analysis of cont	inuous-		
	time signal						
4	Analyse sy	stems based on their properties	s and determine th	ne response of L'	ΤΙ		
	system.						
5	Understand	I the concepts of convolution a	and correlation of	signals.			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	III Sem	Electrical Machines-I	B20EE07	L/T/P :3/0 /0	3		
After learni	ing the conte	ents of this subject, the student	must be able to				
1	Evaluate th	e stored and converted energy	and also exerted	force in			
	electromec	hanical energy conversion dev	ices.				
2	Able to ana	alyze and design the types of d	c generators				
3	Able to sel	ect appropriate D.C Generator	to meet the requi	rements of the ap	plication		
	in industry						
4	To understa	and the characteristics and con	cept s of speed co	ontrol.			
5	Able to Tes	st the performance and select a	ppropriate D.C m	achine to meet t	he		
	requiremen	its of the application in industr	y.				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:		
			+		1		
Outcome	III Sem	Electromagnetic Fields	B20EE08	L/T/P :3/0 /0	3		

1		e relation between the electric	_		t the	
		vs such as EFI, Potential and o				
2		Understand the behavior of conductors and dielectrics, their boundary conditions,				
		equations with respect to elec-				
3	Understand	the magnetic field concepts	using Biot-Savart	law and Ampere	's law	
4	Analyze th	e relation between two or mo	re conductors when	n subjected to m	agnetic	
	fields					
5	Understand	I the concepts of time varying	fields in both elec	tric and magneti	ic fields	
	and their re	elationship in evaluating powe	er			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Python Programming	B20CS03	L/T/P :2/0 /0	2	
After learn	ing the conte	ents of this subject, the studen	t must be able to			
1	Defining th	e fundamentals of writing Py	thon scripts.			
2	Expressing	the Core Python scripting ele	ments such as vari	ables and flow c	ontrol	
	structures.					
3	Apply Pyth	on functions to facilitate code	e reuse.			
4	Extending	how to work with lists and see	quence data			
5	Implement	file operations such as read a	and write and Adap	oting the code ro	bust by	
	handling er	rors and exceptions properly				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	English for Effective	B20EN01	L/T/P :2/0 /0	2	
		Communication				
After learn	ing the conte	ents of this subject, the studen	t must be able to	1	l	
1	Skim and s	can the digital text to summa	rize it for future re	ference.		
2	Read the te	ext to make notes according to	their needs			
3	Use Englis	h language effectively in spol	en and written for	ms.		
4	Communic	ate confidently in various cor	texts and different	cultures.		
5		sic proficiency in English inc			ehension,	
		l speaking skills.		2 1		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	III Sem	Electrical Circuits Lab	B20EE09	L/T/P:0/0/2	1	
After learn	ing the conte	ents of this subject, the studen	t must be able to	1	L	
1	Explain the	e concept of circuit laws				
2	Verify netv	vork theorems				
3		Z, Y and ABCD parameters f	or a given two por	t network.		
4					series	
	Evaluate the time response and frequency response characteristics of RLC series					
	circuit and	their resonance conditions.				
Course	circuit and Semester	their resonance conditions. Subject Name	Subject Code	No. of Hours	Credits:	
Course Outcome			Subject Code B20CS07	No. of Hours L/T/P :0/0 /2	Credits:	

		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	non functions to facilitate code	reuse		
3	Extending	how to work with lists and seq	uence data.		
4	Implement	file operations such as read an	nd write and Adap	ting the code rol	oust by
		rrors 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 ki	nowledge on operation of Hydr	ro Electric genera	tion.	
2	Acquire an	d interpret fundamental conce	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	d design of underground cables	S		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	IV Sem	Electrical Machines-II	B20EE12	L/T/P :3/0 /0	3
After learn	ing the conte	ents of this subject, the student	must be able to	1	
1	Understand	the concepts and performance	e of single phase t	ransformer.	
2	Test the pe	rformance of single phase Trai	nsformer		
3	Choose a s	uitable three phase transformer	r based on its app	lication and also	convert
	three phase	e to two phases or vice versa.			
4	Understand	the concepts of Construction,	operation charac	teristics, testing	(concept
	of circle di	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	Electrical Measurements	B20EE13	L/T/P :3/0 /0	3
		and Instrumentation			
After learn	ing the conte	ents of this subject, the student	must be able to		
1	Different ty	ypes of measuring instruments	their construction	operation and	
	characteris	tics			
2	Resistance	voltage current measurements	through potention	meters, voltage o	current
	measureme	ents through instruments transf	ormers.		
3	Power and	energy measurements through	watt and energy	meters with exar	nples
4	Dagistanaa	measurements through DC bri	idges canacitance	and inductance	
-τ	Resistance	measurements unough DC on	ages, capacitance		
		ents through AC bridges, differ			
5	measureme	=	ent types of trans	ducers.	asuring

	instruments	S.			
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 learni	ng the conte	ents of this subject, the studen	t must be able to		
1	Understand	I the use of OOP concepts and	l solve real world	problems using (OOP
	techniques.				
2	Solve the in	nter-disciplinary applications	using the concept	of inheritance.	
3		bust and faster applications by	y applying differen	nt exception han	dling
	mechanism				
4		I the multithreading concepts			
5		I based applications and deve			1
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 learni		ents of this subject, the studen			
1		and analyze the single stage tra			
2	•	construct the negative feedba	ack amplifiers and	oscillators accor	rding to
		d specifications.			
3		I the Op Amp and its application			
4		Ferent combinational circuits u			
5		sic sequential circuits and also	o able to understar	nd various ADC	and DAC
	techniques.		T	T.	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
		Electronics Lab			
1		ents of this subject, the studen			
1		I the applications of diode as i	ntegrator, differen	itiator, clipper ar	nd
	clamper cir		· ·	1'	
2		cuits using operational amplifi	ers for various ap	plications.	
3		e VCO circuit.		. m	
4		l and implement DAC convers			G 11
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits
Outcome	IV Sem	Electrical Machines Lab-I		L/T/P:0/0/3	: 1.5
		ents of this subject, the studen			
1	_	e of apparatus based on the ra			
2		Characteristics of DC machin			
3		e efficiency of the machine by		sults.	
4		d control methods for dc macl		N. 6	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:

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 studen	t must be able to		
1		a SDK environment to create		mple Java progra	ams.
2		programs to implement error			
	handling			C 1	
3	Develop mu	ultithreaded applications with	synchronization.		
4		ole Graphical User Interface		vent driven prog	ramming
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits
Outcome	V Sem	Electrical Machines-III	B20EE15	L/T/P :3/0/0	:3
After learni	ng the conter	nts of this subject, the studen	t must be able to		l
1	_	te basic concepts of AC mac			
2	Analyze th	e concepts of regulation of sy	ynchronous genera	ntors	
3	-	erformance characteristics of	_		
4		e operating characteristics of			
5	_	e Construction, operation and			otor and
	special mad				
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 studen	t must be able to		
1	_	d the differences between sign		er level devices	
2	Examine si	ingle phase-controlled rectific	er circuits.		
3	Understand	d three phase-controlled recti	fier circuits.		
4	Learn the c	operation of DC-DC choppers	S		
5	Study the o	operation of DC-AC converte	ers and AC-AC vo	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 studen	t must be able to		1
1	Understand	the concept of feedback and	l analyze the contr	ol system compo	onents by
	their Mathe	ematical modeling			
2	Estimate th	ne time domain specifications	and steady state	error	
3	Apply varie	ous time domain and frequen	cy domain technic	ques to assess the	system
	performance	ce.			
4	Improve th	e system performance by des	signing a suitable of	controller and/or	a
	compensate	or for a specific application			
5	Test systen	n Controllability and Observa	ability using state	space representa	tion and
	application	s of state space representatio	n to various syster	ns.	
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	Semester .	Subject Name	Subject Code	140. Of Hours	Creams:	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
5	communica	the concepts of parallel proc	essing, pipelining	and inter proces	SSOF	
4	_	I/O and memory organization		and into manage	200	
3		the concepts of Hardwired c		programmed cor	itrol.	
2		the concepts of register trans				
1		e fundamental organization of				
	_	ts of this subject, the student				
Outcome	V Sem	Computer Organization	B20EC16	L/T/P :3/0 /0	3	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:	
5		rledge on digital acquisition s	<u>*</u>	I	T	
4		the temperature measuremen				
3		isplacement measurement tec				
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	B20EE20	L/T/P :3/0 /0	3	
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits	
5	-	direct energy sources.		I	T	
4	_	fact that the conventional en	ergy resources ar	e depleted.		
3		ne use of conventional energy			rgy.	
2		nt renewable energy sources				
		, biomass, geothermal.				
1		echnology to capture the ener	rgy from the rene	wable sources lil	ke sun,	
After learning		ts of this subject, the student				
		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 knowl	edge on power factor and vo	ltage control in tr	ansmission syste	m	
	transmission	n system				
4	Describe va	rious effects on transmission	system and comp	oute sag on overl	nead	
	transients in	n power system				
3	Evaluate pe	rformance of long transmissi	on lines and desc	ribe travelling w	ave and	
2	•	rformance of short, medium	transmission lines	<u> </u>		
	capacitance	Gain knowledge on computing transmission line parameters like inductance and capacitance				
1	Gain knowi	edge on computing transmiss	sion line paramete	ers like inductan	ce and	

		II							
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Select rang	e of apparatus based on the ra	tings.						
2	Draw the E	Equivalent circuits and analyze	various AC mach	nines					
3	Determine	Determine performance and Characteristics of AC machinery							
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 Cre						
Outcome	V Sem Electrical Measurements B20EE22 L/T/P:0/0/2								
		and Instrumentation Lab							
After learn	ing the conte	ents of this subject, the student	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	I the performance of industrial	instruments.						
5	Determine	the LVDT characteristics							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	V Sem	Electrical Simulation Lab	B20EE23	L/T/P:0/0/2	1				
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Get the kno	owledge simulation of electric	al circuits						
2	Observe the	e time response analysis in sin	nulation						
3	Know the t	ransmission line parameters u	sing Simulink						
4	Know the s	simulation power electronic co	onverters						
5	Get the kno	owledge on different simulation	n 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				
		Professional Ethics							
After learn	ing the conte	ents of this subject, the student	must be able to						
1	It ensures s	tudents sustained happiness th	nrough identifying	the essentials of	human				
	values and	skills.							
2		s a correct understanding betw							
3	It helps stu	dents understand practically th	ne importance of t	rust, mutually sa	tisfying				
	human beh	avior and enriching interaction	n with nature						
4	Ability to c	levelop appropriate technologi	ies and manageme	ent patterns to cre	eate				
	harmony in	professional and personal life	e						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VI Sem	Computer Methods in	B20EE25	L/T/P :3/0 /0	3				
		Power Systems							

	ing the conte	ents of this subject, the student	t must be able to						
1	Determine	Determine the bus impedance and admittance matrices for power system network							
2	Calculate various parameters at different buses using load flow studies								
3	Discuss per unit system representation and symmetrical component theory.								
4		Discuss fault analysis on power system							
5		Understand the steady state stability of power system and analyse the transient							
		power system.	.						
Course	Semester	Semester Subject Name Subject Code No. of Hours Credits:							
Outcome	VI Sem	Power Semiconductor	B20EE26	L/T/P :3/0 /0	3				
		Drives							
After learn	ing the conte	ents of this subject, the student	t must be able to						
1	Analyze the	e operation of converter fed do	c motors and four	quadrant operati	ons of dc				
	motors usir	ng dual converters							
2	Describe th	ne chopper fed dc motors in va	rious quadrants of	foperation					
3	Know the c	concept of speed control of inc	duction motor by u	ısing AC voltage	;				
	controllers	and voltage source inverters.							
4	Differentia	te the stator side control and re	otor side control o	f three phase ind	uction				
	motor.								
5	Explain the	e speed control mechanism of	synchronous moto	ors.					
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VI Sem	Managerial Economics	B20MB01	L/T/P :3/0 /0	3				
		and Financial Analysis							
After learn	ing the conte	ents of this subject, the student	must be able to						
1	Understand	the nature, scope and importa	ance of Manageria	al Economics.					
2	Know what	t is demand, analyze demand a	and how elasticity	of demand is us	ed for				
	pricing dec	Know what is demand, analyze demand and how elasticity of demand is used for							
	pricing decisions and to evaluate methods for forecasting demand								
3		production function is carried			tion of				
3	Know how				tion of				
3	Know how Inputs and	production function is carried	l out to achieve le	ast cost combina					
	Know how Inputs and Understand	production function is carried how to analyze cost.	l out to achieve leant kinds of markets	ast cost combina s and outline diff	erent				
	Know how Inputs and Understand form of bus	production function is carried how to analyze cost. I the characteristics of different	l out to achieve leant kinds of markets	ast cost combina s and outline diff	erent				
	Know how Inputs and Understand form of bus used for inv	production function is carried how to analyze cost. I the characteristics of differentiations organization and analyze	l out to achieve leant kinds of markets to how capital bud	ast cost combina s and outline diff geting technique	erent s are				
4	Know how Inputs and Understand form of bus used for inv Know how	production function is carried how to analyze cost. I the characteristics of different siness organization and analyze vestment decisions.	l out to achieve leant kinds of markets to how capital bud	ast cost combina s and outline diff geting technique	erent s are				
4	Know how Inputs and Understand form of bus used for inv Know how	production function is carried how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. If to prepare final accounts and	I out to achieve lead that kinds of markets the how capital bud how to interpret the	ast cost combina s and outline diff geting technique	erent s are				
5	Know how Inputs and Understand form of bus used for inv Know how financial st	production function is carried how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. If to prepare final accounts and attements using ratio analysis	l out to achieve leant kinds of markets to how capital bud	ast cost combinates and outline difference geting technique them, analyze and	erent s are l interpret				
4 5 Course	Know how Inputs and Understand form of bus used for inv Know how financial st Semester	production function is carried how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. It to prepare final accounts and attements using ratio analysis Subject Name	t kinds of markets te how capital bud how to interpret the	ast cost combinates and outline difference geting technique them, analyze and No. of Hours	Terent s are l interpret Credits:				
5 Course Outcome	Know how Inputs and Understand form of bus used for inv Know how financial st Semester VI Sem	production function is carried how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. It to prepare final accounts and attements using ratio analysis Subject Name Electrical Distribution	t kinds of markets the how capital bud how to interpret the Subject Code B20EE27	ast cost combinates and outline difference geting technique them, analyze and No. of Hours	Terent s are l interpret Credits:				
5 Course Outcome	Know how Inputs and Understand form of bus used for inv Know how financial st Semester VI Sem	how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. It to prepare final accounts and attements using ratio analysis Subject Name Electrical Distribution Systems	t kinds of markets the how capital bud how to interpret the Subject Code B20EE27	ast cost combinates and outline difference geting technique them, analyze and No. of Hours	Terent s are l interpret Credits:				
5 Course Outcome	Know how Inputs and Understand form of bus used for inv Know how financial st Semester VI Sem ing the conte	how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. It to prepare final accounts and attements using ratio analysis Subject Name Electrical Distribution Systems ents of this subject, the student	t kinds of markets the how capital bud how to interpret the Subject Code B20EE27	ast cost combinates and outline difference geting technique them, analyze and No. of Hours L/T/P:3/0/0	Terent s are l interpret Credits:				
5 Course Outcome After learns	Know how Inputs and Understand form of bus used for inv Know how financial st Semester VI Sem ing the conte	how to analyze cost. If the characteristics of different siness organization and analyze vestment decisions. It to prepare final accounts and attements using ratio analysis Subject Name Electrical Distribution Systems ents of this subject, the student design of various load	t kinds of markets the how capital bud how to interpret the Subject Code B20EE27 the must be able to	ast cost combinates and outline difference geting technique them, analyze and No. of Hours L/T/P:3/0/0	Terent s are l interpret Credits:				

4	Acquire kn	owledge of power factor impr	ovement.		
5	Calculate th	ne distribution voltage drop ca	alculations		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
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	must be able to		
1	Impart the application	knowledge on electrical engin s	eering materials c	lassification and	their
2		erformance characteristics of	various semicond	ucting, dielectric	and
		naterials and their application		•	
	devices.	• • • • • • • • • • • • • • • • • • • •	C		
3	Identify var	rious magnetic materials and t	heir classification	l	
4	Learn vario	ous special purpose of materia	ls		
5		ious electronic components			
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
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	must be able to	1	l
1	Identify the	e different types of the discrete	e signals and syste	ems	
2	Understand	the inter relationship between	n DFT and various	s transforms and	fast
	computatio	n of DFT and appreciate the F	FT processing		
3	Understand	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 spo	ecifications and A	pply the knowle	dge to
	real world p	processing applications.			
5	Understand	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	must be able to	ı	L
1	Study Char	racteristics of various Power S	emiconductor dev	vices	
2	Analyze A	C/AC and AC/DC Converters			
3	Analyze the	e behavior of various DC/DC	and DC/AC conve	erters	
4	Understand	types of Power Electronic co	nverters and ident	tify their applica	tions
5	Know the F	PWM techniques used for pow	er converters		
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:
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	must be able to		
1	Analyze the	e time & Frequency response	of control systems	S	
2	Evaluate th	e performance of feedback co	ntrol systems		
3	Examine th	e response of PID controllers	•		

4		e Performance of AC & DC se	ervo motors					
5	Know the	nagnetic amplifier						
Course	Semester	Subject Name	Subject Code	ode No. of Hours C				
Outcome	VI Sem	Electronics Design Lab	B20EE31	L/T/P:0/0/2	1			
After learni	ing the conte	ents of this subject, the student	must be able to					
1	Design the	various regulated power supp	lies for control bo	ards				
2	Gain know	ledge on designing of various	triggering circuits	s for SCR.				
3	Develop scaling and conditioning circuits for various sensors.							
4	Develop P	WM control and gate driver ci	rcuits for various	power electronic	;			
	application	S						
5	Develop th	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						
After learn	ing the conte	ents of this subject, the student	must be able to		I.			
1	Apply quai	ntitative reasoning and mather	natical analysis m	ethodologies to				
	understand	and solve problems.	-	_				
2	Apply quai	ntitative correctly arrive at me	aningful conclusion	ons regarding the	eir			
	answers and manipulate equations and formulas in order to solve for the desired							
	variable							
3	Interpret gi	ven information correctly, det	ermine which ma	thematical mode	l best			
	describes th	he data, and apply the model o	correctly					
4	Correctly apply mathematical language and notation to explain the reasoning							
	underlying their conclusions when solving problems using mathematical or							
	statistical to	echniques						
5	Improve th	eir mathematical skills in vari	ous general aspec	ts to solve real ti	me			
	problems.							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	VII Sem	Power System Operation	B20EE33	L/T/P :3/0 /0	3			
		And Control						
After learn	ing the conte	ents of this subject, the student	must be able to					
1	Analyse ec	onomic operation of power sy	stem.					
2	Understand	l the working of hydrothermal	coordination.					
3	Analyse lo	ad frequency control of Single	area and 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	Power System Protection	B20EE35	L/T/P :3/0 /0	3			
After learni		ents of this subject, the student	must be able to	1	ı			

Outcome	VII Sem	Advanced Control	B20EE37	L/T/P :3/0 /0	3				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
5		ledge on the operation of mul	1	Γ					
4		differences between VSI and C							
3		the operation of resonant cor							
2		e operation of multi-pulse con							
1	_	iver circuits for various power		evices.					
		ents of this subject, the student							
		Electronics							
Outcome	VII Sem	Advanced Power	B20EE36	L/T/P :3/0 /0	3				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
5		ower apparatus and insulation							
4		e measurement of high voltage							
3		the generation of high voltag							
2		e knowledge on breakdown in		gaseous dielectr	ics				
1		l Transients in power system.							
After learn		ents of this subject, the student	must be able to						
Outcome	VII Sem	High Voltage Engineering		L/T/P :3/0 /0	3				
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
	external wo			_					
5	_	gramming, interfacing etc of v			ors and				
4		e Memory organization, classic		applications and					
3		l microcontroller 8051 and its							
		oller based systems for real time		r					
2	Ŭ	croprocessors and microcontro	ollers-based systen	ns and develop					
	integration								
*		essors/microcontrollers. Contra		software interacti	ion and				
1		ne internal organization of pop							
After learn	ing the conte	ents of this subject, the student	must be able to						
Outcome	VII Sem	VII Sem Microprocessors and B20EC32 L/T/P :3/0 /0 3 Microcontrollers							
Course	Semester	ů ů							
5		ceessity of neutral grounding and protection against overvoltage. Subject Name Subject Code No. of Hours Credits:							
4	Explore various relaying operation in protecting the transmission line and bus bar.								
3	Explore the various schemes of protecting generator and transformers.								
	• •	types to different applications.							
2		Understand the basic principle of electromagnetic Relay Operation and its various							
	Breaker an	Breaker and its types.							
1	Understand the basic construction and principle of arc interruptions in Circuit								

After learn		ents of this subject, the student								
1	Understand	Understand different non linearities and their describing functions.								
2	Describe th	Describe the methods of Phase-plane trajectory of nonlinear control systems.								
3	Apply various theorems for stability analysis of linear and nonlinear systems.									
4	Implement modal control and calculus of variations									
5	Formulate	and solve optimal control prol	blems							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:					
Outcome	VII Sem Electrical Machine B20EE38 L/T/P :3/0 /0 3									
		Design								
After learn		ents of this subject, the student								
1		I the basic design consideration		-						
		aracteristics and electrical char								
2		I the design, choice of materia			nes					
3		l and design the main dimensi								
4	_	constructional features of ind	uction motors and	estimate their cu	ırrents					
	and reactan									
5		constructional features of syn	chronous motors							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:					
Outcome	VII Sem	Advanced Electrical	B20EE39	L/T/P :3/0 /0	3					
		Drives								
After learn		ents of this subject, the student								
1		e operation of three phase con		ors						
2		e VSI and CSI fed induction								
2	Know the concept of vector control of induction motor drive.									
3		•								
4	Understand	I the concept of direct torque of	control for three pl	nase induction m						
	Understand Gain know	•	control for three pl	nase induction m						
4	Understand	I the concept of direct torque of	control for three pl	nase induction m						
4	Understand Gain know	I the concept of direct torque of ledge on vector control of PM Subject Name	control for three pl	nase induction maroduction to BL	DC Credits:					
5	Understand Gain know drives.	I the concept of direct torque of ledge on vector control of PM Subject Name AI Techniques in	control for three pl ISM drives and int	nase induction m roduction to BL	DC					
4 5 Course	Understand Gain know drives. Semester	I the concept of direct torque of ledge on vector control of PM Subject Name	Subject Code	nase induction maroduction to BL	DC Credits:					
4 5 Course Outcome	Understand Gain know drives. Semester VII Sem	Subject Name AI Techniques in Electrical Engineering	Subject Code B20EE40 t must be able to	No. of Hours L/T/P:3/0/0	Credits:					
4 5 Course Outcome	Understand Gain know drives. Semester VII Sem	I the concept of direct torque of ledge on vector control of PM Subject Name AI Techniques in Electrical Engineering	Subject Code B20EE40 t must be able to	No. of Hours L/T/P:3/0/0	Credits:					
4 5 Course Outcome	Understand Gain know drives. Semester VII Sem ing the conte	Subject Name AI Techniques in Electrical Engineering	Subject Code B20EE40 t must be able to their roles in build	No. of Hours L/T/P:3/0/0	Credits:					
4 5 Course Outcome After learn	Understand Gain know drives. Semester VII Sem ing the conte	Subject Name AI Techniques in Electrical Engineering ents of this subject, the student and describe AI techniques and	Subject Code B20EE40 t must be able to their roles in build	No. of Hours L/T/P:3/0/0	Credits:					
4 5 Course Outcome After learning	Understand Gain know drives. Semester VII Sem ing the contellidentify and Understand Explore fuz	Subject Name AI Techniques in Electrical Engineering ents of this subject, the student ad describe AI techniques and the working of multilayer ne	Subject Code B20EE40 t must be able to their roles in build ural networks.	No. of Hours L/T/P:3/0/0	Credits:					
4 5 Course Outcome After learn 1 2 3	Understand Gain know drives. Semester VII Sem ing the conted Identify and Understand Explore fuz Learn gene	Subject Name AI Techniques in Electrical Engineering ents of this subject, the student ad describe AI techniques and the working of multilayer next places and reasoning.	Subject Code B20EE40 t must be able to their roles in build ural networks.	No. of Hours L/T/P:3/0/0	Credits: 3 nachines.					

Outcome	VII Sem	Utilization of Electrical Energy	B20EE41	L/T/P :3/0 /0	3				
After learn	ing the conte	nts of this subject, the studen	t must be able to	<u> </u>					
1		ght drive for a particular appl							
2	Identify Heating and welding schemes for given application.								
3	Explain the basics of lighting and methods of illumination and its parameters								
4	_	the different schemes of trac							
5	-	lyze electrical energy consumption for 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				
Outcome	VII SCIII	Transmission	DZ0EE42	2/1/1 .5/0/0					
After learn	ing the conte	nts of this subject, the studen	t must be able to						
1		asic concepts of HVDC trans							
2		the complete operation of H		ations					
3		the power flow control on H							
4		the Operation of the control							
	operations		ei ioi ii vide iii w	orst and normal					
5		Various filters.							
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VII Sem	Microprocessors and	B20EC42	L/T/P:0/0/2	1				
A.C. 1	• .•	Microcontrollers Lab							
		nts of this subject, the studen							
1		e experimentally basic progra							
2		nicroprocessor interfacing wi	th various periphe	rals for various					
	applications								
3		pasic programming of microco							
4		icroprocessor interfacing with	n various peripher	als for various					
	applications		1						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VII Sem	Power Systems Lab	B20EE43	L/T/P :0/0 /2	1				
After learn	ing the conte	nts of this subject, the studen	t must be able to						
1		ransmission line parameters,	•						
2	Evaluate the	e Performance analysis of Ov	er/Under Voltage	Relay.					
3	Understand	the Analysis and performance	e testing of Feede	r Protection Syst	em				
4	Calculate S	equence Reactance of 3-Ф Tr	ransformer						
Course	Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	VII Sem	Mini Project &	B20EE44	L/T/P :0/0 /0	2				
		Internship	I	1	Ì				

Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Appry state	and ous						
Apply state feedback controllers and observers							
Evaluate ar	nd apply Z-plane analysis of d	iscrete time contro	ol systems				
Replace the	e conventional control system	with Digital contr	ol system.				
Apply know	wledge of Mathematics, Z-pla	ne analysis to disc	rete time control	systems.			
Acquire a s	strong foundation in sampling	and reconstruction	n Z-transforms				
ing the conte	ents of this subject, the student	must be able to					
Sem	2 give Control by Stellis		21212 101010				
	•			3			
,		Subject Code	No of Hours	Credits:			
	_	omputing techniq	acs for a given p	100iciii III			
			ues for a given n	roblem in			
		ce Systems					
		c optimization pro	Joienis (MOOPS	<i>)</i> and			
		a ontimization pro	oblams (MOODs) and			
		ay come across dis	sseriaiion/researc	JI WOIK			
			oh oro usoful for	colvina			
	•	t must be able to					
		B20EE46	L/T/P :3/0 /0	3			
				Credits:			
& Conduct research the	an extended independent inve esis.	estigation that resu	ılts in the produc	tion of a			
-	•		*	oral form			
			nental project.				
	0			<u> </u>			
	9						
			projects & Commi	umcate			
_	<u> </u>						
-							
Students will be able to practice acquired knowledge within the chosen area of technology							
	for project de Identify, discomprehens Reproduce, Work as an and report et Semester VII Sem ing the contest Identify the Ability to pure In-depth sk Ability to pure Escarch the Semester VIII Sem ing the contest Indentify the Conduct research the Semester VIII Sem ing the contest Indentify the Conduct research the Indentify the Conduct research the Indentify Ind	for project development Identify, discuss and justify the technical asp comprehensive and systematic approach. Reproduce, improve and refine technical asp Work as an individual or in a team in develo and report effectively project related activities. Semester Subject Name VII Sem Major Project Phase-1 ing the contents of this subject, the student Identify the problem by applying acquire Ability to plan and implement an investig In-depth skill to use some laboratory, more Ability to communicate results, concepts & Conduct an extended independent inversearch thesis. Semester Subject Name VIII Soft Computing Sem Techniques ing the contents of this subject, the student To know basic idea of modern engineerin non-linear and complex functions that may To understand optimization problem Understand the concept of multi-objective issues of solving it. Knowing Adaptive Neuro-Fuzzy Inferente Evaluate and compare solutions by soft comatlab Simulink Semester Subject Name VIII Digital Control Systems Sem ing the contents of this subject, the studented Acquire a strong foundation in sampling Apply knowledge of Mathematics, Z-pla Replace the conventional control system	Identify, discuss and justify the technical aspects of the chosen promprehensive and systematic approach. Reproduce, improve and refine technical aspects for engineering Work as an individual or in a team in development of technical and report effectively project related activities and findings. Semester Subject Name Subject Code VII Sem Major Project Phase-1 Identify the problem by applying acquired knowledge. Ability to plan and implement an investigative or developm In-depth skill to use some laboratory, modern tools and technical contents of this subject. Name Ability to communicate results, concepts, analyses and idea & Conduct an extended independent investigation that resursearch thesis. Semester Subject Name Subject Code VIII Soft Computing B20EE46 Techniques Ing the contents of this subject, the student must be able to To know basic idea of modern engineering techniques whin non-linear and complex functions that may come across distributed to individual optimization problem Understand optimization problem Understand the concept of multi-objective optimization profissues of solving it. Knowing Adaptive Neuro-Fuzzy Inference Systems Evaluate and compare solutions by soft computing technique matlab Simulink Semester Subject Name Subject Code VIII Digital Control Systems Evaluate and contents of this subject, the student must be able to Acquire a strong foundation in sampling and reconstruction Apply knowledge of Mathematics, Z-plane analysis to discarded analysis to discarded accounter of the conventional control system with Digital control system w	for project development Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach. Reproduce, improve and refine technical aspects for engineering projects Work as an individual or in a team in development of technical projects & Command report effectively project related activities and findings. Semester Subject Name Subject Code No. of Hours VII Sem Major Project Phase-1 B20EE45 L/T/P:0/0/8 ing the contents of this subject, the student must be able to Identify the problem by applying acquired knowledge. Ability to plan and implement an investigative or developmental project. In-depth skill to use some laboratory, modern tools and techniques Ability to communicate results, concepts, analyses and ideas in written and & Conduct an extended independent investigation that results in the product research thesis. Semester Subject Name Subject Code No. of Hours VIII Soft Computing B20EE46 L/T/P:3/0/0 Sem Techniques ing the contents of this subject, the student must be able to To know basic idea of modern engineering techniques which are useful for non-linear and complex functions that may come across dissertation/research to understand optimization problem Understand the concept of multi-objective optimization problems (MOOPs issues of solving it. Knowing Adaptive Neuro-Fuzzy Inference Systems Evaluate and compare solutions by soft computing techniques for a given p matlab Simulink Semester Subject Name Subject Code No. of Hours VIII Digital Control Systems B20EE47 L/T/P:3/0/0			

		Transmission Sys	tems							
After learn	ing the conte	nts of this subject, the		must be	able to					
1		oncept of flexible AC								
2		the voltage source co								
3		Get the exposure on static shunt compensation.								
4		Jnderstand the SVC and STATCOM.								
5	Get the exp	Get the exposure on static series compensation.								
Course	Semester	Subject Name		Subject	t Code	No. of 1	Hours	Credits:		
Outcome	VIII Sem	VLSI Design		B20E		L/T/P:	3/0 /0	3		
	ing the conte	nts of this subject, the		must be	able to					
1		tal applications using								
2		IC technology and ba			perties o	of MOS ar	nd BiC	MOS		
3		layout of circuits usin								
	level circui	•	_	J		1	υ	C		
4	Gain the kn	owledge to design da	ta path s	ubsystem	s like A	dders, Sh	ifters, a	nd ALUs		
	etc.		-	-						
5	Illustrate di	fferent programmable	e logic d	evices and	d CMOS	S testing.				
Course	Semester	Subject Name)	Subject	Code	No. of H	ours	Credits:		
Outcome	VIII Sem	Power Quality	y	B20EI	E49	L/T/P :3/	0 /0	3		
After learn	ing the conte	nts of this subject, the	e student	must be	able to					
1	Know the to	erminology, definition	ns, cause	es, effects	and ana	lysis of v	arious _l	ower		
	quality prob	olems								
2	Define and	understand the compo	onents o	f current/	power in	n sinusoid	al/non-	sinusoidal		
	singlephase	supply/load systems								
3	Define and	understand the compo	onents o	f current/	power in	n sinusoid	al/non-	sinusoidal		
	three phase	supply/load systems								
4	Know design	gn, operation and Ana	lysis of	passive sl	nunt and	series co	mpensa	ators		
5	Know design	gn, operation and anal	ysis of p	bassive sh	unt/serie	es power i	filters			
Course	Semester	Subject Name	Subje	ct Code	No. of	Hours	Cr	edits: 3		
Outcome	VII Sem	Electric and	B20EE	250	L/T/P	:3/0 /0				
A ft an la amai	ina tha aonta	Hybrid Vehicles	atudani	must he	abla ta					
		nts of this subject, the undamentals of Electr			able to					
2					EMa					
3		owledge on battery to								
4		the AC DC motor red		iits for E V	. 8					
5		drive train components osure on fundamental		orid EVs	dacian					
Course	Semester	Subject Name		Subject		No. of 1	Нопра	Credits:		
Outcome	VIII Sem	Subject Name Smart Grids		Subjec B20F				3		
						L/T/P:	3/0/0	3		
Alter learn	ing the conte	nts of this subject, the	studeni	must be	aoie to					

1	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 various Smart Distribution Technologies								
5	Clarify the regulations and market models for smart grid and various tariffs								
Course	Semester	Subject Name		Subject				Credits:	
Outcome	VIII Sem	Embedded Syste		B20E		L/T/P:		3	
		nts of this subject, the							
1		and design embedded							
2		the architecture of A							
3		system using IO device	_		to exte	ernal world	1		
4		types of memory	es ana i		o cat	- VOII			
5		embedded firmware	design :	nnroache	c				
Course	Semester	Subject Name		Subje		No. of Ho	nire	Credits:	
Outcome	Schiester	Subject Name	,	Code		110. 01 110	Juis	1	
Outcome	VIII Som	Technical Seminar		B20EE5		L/T/P :0/0) /2	1	
1	l l	d analyze the real time	Electri				12		
2		areness on latest tech					ld of E	lectrical	
_	Engineering		10108)		10 01 0110	J 111 VII 110	01	20012002	
3		in discussions for enh	anceme	nt of knov	vledge				
4	Apply com	munication skills & D	ocume	nt and pres	sent tec	hnical repo	orts fol	lowing	
	professiona								
Course	Semester	Subject Name	Subje	ct Code	No. o	f Hours	Cr	edits: 8	
Outcome	VII Sem	Project Stage – II	B20EI	E53	L/T/P	:0/0 /16			
1		problem by applying							
2		lan and implement an					oject.		
3	-	ill to use some laborat				-			
4		ommunicate results, c an extended independ esis.	-	•					

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

			T	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				
On successf	ful completion of t	his course, students are able to:		
1	Understand the fuz	zzy logic, concepts of fuzziness involved in fuz	zv settheorv	
2		ots of fuzzy sets, knowledge representation using		
	approximate reason	ning, fuzzy inference systems, and fuzzy logic.		
3		ntal theory, concepts of neuralnetworks		
4	•	eural network architectures, algorithms, applic		
5	Classify different l with itsapplication	earning rules, architectures to learn several neus.	ıral network parad	igms along
6	Deploy different ap	pplications of these models to solve engineering	g	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	Cloud computing (M20CS03)	L:3 T:0 P:0	
After the o	completion of this	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 cloucloud, private cloud, hybrid cloud, etc.	ud computing, incl	uding SaaS,
3		on cloud computing along with security, privac	cy, and interoperat	oility
4	Choose and use the	e appropriate technology, methods on these issu	ies	
5	Identify problems,	and explain, analyze, and evaluate various clou	ud computing solu	tions
6	Provide the approp	oriate solutions on cloud computing based on the	e 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	

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

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 I)		
On successf		is course, students will be able to:	unnlications	
	Describe the basic terminology, latest technology along with its applications			
2	Discuss the protocols based on the concepts such as machine to machine.			
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			
5	Implement it widely that can be used in many applications of IoT devices			
6	Design a web application 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	ful completion of tl	nis course, students are able to:		<u> </u>
1	Fundamentals and introduction concepts of genetic algorithms			
2	Basic Concepts and aspects of evolutionary algorithms (EAs), in particular GA, GP, ES			
3	It also concentrates on the basic concepts of representation of operators and overall control. Many examples and applications are dealt on the concepts of genetic programming using 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 o	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 services			
2	Compare and contrast symmetric and asymmetric encryption algorithms			
3	Implementation of message authentication, hashing algorithms and able to understand kerberos			
4	Explore the attacks and controls associated with IP, transport level, web and E-mail security			
5	. Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls.			

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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		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		
	Implement file operand exceptions prop	rations such as read and write and Adapting the perly	e code robust by h	andling errors
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Sem	Cloud computing Lab(M20CS10)	L:0 T:0	
			P:04	
On successf	ful completion of th	is course, students are able to:		
1	Develop the archit	ecture along with specific infrastructure on clo	oud computing,	
	including SaaS, Pag	aS, IaaS, public cloud, private cloud, hybrid clo	oud,etc	
2		on cloud computing along with security, privac		ility.
3		and explain, analyze, and evaluate various clou		
	· · ·	riate solutions on cloud computing based on th		
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 o	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 imple	ement the different types of motors and sensors dur	ring designing of rob	ootics system.
3		Actuators and Grippers and their design consi		
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 starting of Raspberry Pi and practice Linux commands in command terminal window			
2	Develop and run all 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: 2	
Outcome	I Sem	Research Methodology & IPR(M20MC01)	L:2 T:0 P:0		
On successi	_	nis course, students will be able to:			
1	. Acquire knowled	ge on Research Design and statistical methods	in research		
2	Data Representation		on and different ap	oproaches of	
3	Understand all the	basic concepts required to prepare			
	a. Research synop	sis			
	b. Dissertation				
	c. Writing a good r	research proposal			
4	Interpret the Scope	of Patent Rights and Administration of Patent	System.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:0	
Outcome	I Sem	Audit Course-I English for Research Paper	L:2 T:0 P:0		
Outcome	1 Sem	Writing(M20AC01)			
On success	 ful completion of tl	his course, students are able to:			
1	Obtain complete k	nowledge on Definition of a research paper, Pu	rpose of writing a	nv	
	*	Scope and Benefits	-F	5	
2	* *	ndard English formats .for scripting the best res	search naner		
3		alitative and Quantitative Research Methodological		s of	
	plagiarism		6		
4	Explain the detaile study on paper wri	d process of writing and publishing any researching.	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		
	completion of this	course, the students should be able to			
1	_	nd the concepts of NeuralNetworks			
2	•	e Learning Networks in modeling real worldsys	stoms		
3	•	ficient algorithm for DeepModels	Stems		
4	<u> </u>	timization strategies for large scaleapplications	,		
•	Admity to apply op		1		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	II Sem	Data Science (M20CS20)	L:3 T:0 P:0		
1	Describe a Data Sc	rience, skill sets available for a data scientist			
2		Statistical Inference, its significance to explore	data analysis	1	
3		cience 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		sualization on given data.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
		Sasjeer (Subject Soute)			
Outcome	II Sem	Data Pre-processing and	L:3 T:0 P:0		
		Analysis(M20AI06)			

1 2 3 3	On successf	ful completion of th	nis course, students will be able to:		
Course Outcome II Sem					
Course Outcome It Sem On successful completion of this course, students are able to: 1	2				
Outcome II Sem Al and Speech Processing(M20Al07) L:3 T:0 P:0 On successful completion of this course, students are able to: 1	3				
On successful completion of this course, students are able to: 1 2 3 4 5 6 Course Year / semester Digital Forensics (M20CS17) It.3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year / semester Subject Name (Subject Code) No. of Hours Credits: 3 To promote Til Sem 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Year/Semester Subject Name (Subject Code) No. of Hours Images and the course of the processing techniques (Subject Code) No. of Hours Images (Subject Name (Subject Name (Subject Code) No. of Hours Images (Subject Name (Subject Code) No. of Hours Images (Subject Name (Subject Code) No. of Hours Images (Subject Code)	Course	Year /Semester	Subject Name (Subject Code)		Credits:3
1	Outcome	II Sem	AI and Speech Processing(M20AI07)	L:3 T:0 P:0	
2 3 4 5 6 Course Outcome I Sem Subject Name (Subject Code) Digital Forensics (M20CS17) L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Outcome II Sem Computer Vision(M20A108) L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome Vear/Semester Subject Name (Subject Code) II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) L:3 T:0 P:0 On successful completion of this course, students will be able to:	On successi	ful completion of t	his course, students are able to:		
3 4 5 6 Course Outcome I Sem Subject Name (Subject Code) Digital Forensics (M20CS17) After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Computer Vision(M20Al08) 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Digital Forensics (M20CS18) No. of Hours Credits: 3	1				
4 5 6 Course Outcome I Sem Digital Forensics (M20CS17) No. of Hours L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year / semester Outcome II Sem Subject Name (Subject Code) Computer Vision(M20Al08) No. of Hours L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) No. of Hours Credits: 3	2				
Course Vear/semester Digital Forensics (M20CS17) After the completion of this course, the students should be able to I Discuss digital forensics related to investigative process. Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. Demonstrate the techniques, usage of digital forensics tools. Elaborate digital forensics in detail Analyze the state of the practice, gaps in technology, policy, and legal issues Develop techniques used on Data Analysis, cybercrime. Course Vear/semester Subject Name (Subject Code) Computer Vision(M20A108) I To implement fundamental image processing techniques required for computer vision Understand Image formation process To perform shape analysis Extract features form Images and do analysis of Images To develop applications using computer vision techniques Understand video processing, motion computation and 3D vision and geometry Vear/Semester Subject Name (Subject Code) Understand video processing, motion computation and 3D vision and geometry Vear/Semester Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	3				
Course Outcome I Sem Digital Forensics (M20CS17) L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year/semester Subject Name (Subject Code) Computer Vision(M20A108) L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Year/Semester Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	4				
Course Outcome Year / semester I Sem Subject Name (Subject Code) Digital Forensics (M20CS17) No. of Hours L:3 T:0 P:0 Credits:3 After the completion of this course, the students should be able to 1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 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 I Sement Seme	5				
Digital Forensics (M20CS17) L:3 T:0 P:0	6				
Dutcome I Sem Digital Forensics (M20CS17) L:3 T:0 P:0	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Computer Vision(M20AI08) Credits: 3 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) No. of Hours L:3 T:0 P:0 On successful completion of this course, students will be able to:	Outcome	I Sem		L:3 T:0 P:0	
1 Discuss digital forensics related to investigative process. 2 Explain the legal issues to prepare, perform digital forensic analysis based on theinvestigator's position. 3 Demonstrate the techniques, usage of digital forensics tools. 4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Computer Vision(M20AI08) Credits: 3 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) No. of Hours L:3 T:0 P:0 On successful completion of this course, students will be able to:	After the	completion of this	course, the students should be able to	l	
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4 Elaborate digital forensics in detail 5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Year / semester Outcome II Sem 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) No. of Hours L:3 T:0 P:0 On successful completion of this course, students will be able to:		position.			
5 Analyze the state of the practice, gaps in technology, policy, and legal issues 6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Computer Vision(M20AI08) L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	3	Demonstrate the te	chniques, usage of digital forensics tools.		
6 Develop techniques used on Data Analysis, cybercrime. Course Outcome II Sem Subject Name (Subject Code) Computer Vision(M20AI08) L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) L:3 T:0 P:0 On successful completion of this course, students will be able to:	4	Elaborate digital fo	orensics in detail		
Course Outcome Year / semester II Sem Subject Name (Subject Code) Computer Vision(M20Al08) No. of Hours L:3 T:0 P:0 Credits: 3 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision 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 On successful completion of this course, students will be able to: L:3 T:0 P:0	5	Analyze the state of	of the practice, gaps in technology, policy, and l	egal issues	
Outcome II Sem Computer Vision(M20AI08) L:3 T:0 P:0 1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision 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 On successful completion of this course, students will be able to:	6	. Develop techniqu	es used on Data Analysis, cybercrime.		
1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Vear/Semester Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
1 To implement fundamental image processing techniques required for computer vision 2 Understand Image formation process 3 To perform shape analysis 4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Vear/Semester Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	Outcome	II Sem	Computer Vision(M20AI08)	L:3 T:0 P:0	
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4 Extract features form Images and do analysis of Images 5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) Credits: 3 L:3 T:0 P:0 On successful completion of this course, students will be able to:	2				
5 Generate 3D model from images 6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to:	3				
6 To develop applications using computer vision techniques 7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) On successful completion of this course, students will be able to: Credits: 3 L:3 T:0 P:0	4	Extract features for	rm Images and do analysis of Images		
7 Understand video processing, motion computation and 3D vision and geometry Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) Credits: 3 L:3 T:0 P:0 On successful completion of this course, students will be able to:	5	Generate 3D mode	l from images		
Course Outcome II Sem Subject Name (Subject Code) Block Chain Technology(M20CS18) No. of Hours L:3 T:0 P:0 Credits: 3 Credits: 3	6	To develop applica	ations using computer vision techniques		
Outcome II Sem Block Chain Technology(M20CS18) Con successful completion of this course, students will be able to:	7	Understand video p	processing, motion computation and 3D vision	and geometry	
On successful completion of this course, students will be able to:	Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
	Outcome	II Sem	Block Chain Technology(M20CS18)	L:3 T:0 P:0	
	On successi	tul completion of th	is course, students will be able to:	<u> </u>	
				d decentralization.	

2	Revise cryptographic concepts and its use in blockchain				
3	Revise cryptographic concepts and its use in blockchain				
4	Understand alterna	tives to proof of work			
5	Introduce smart co	ntracts, solidity and Web3 to implement blocks	chain		
6	Understand applica	tions of blockchain and its challenges			
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) Software Process and Project Management(M20CS02)	No. of Hours L:3 T:0 P:0	Credits:3	
On successf	ul completion of th	nis course, students are able to:			
1	Discuss and plan to	execute projects based on required standards			
2	Understand the ran	ge of tools used on project management			
3	Analyze the concep	ots related on project governance and methodol	ogies.		
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 assu	irance		
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 o	course, the students should be able to			
1	understand comple	xity of Machine Learning algorithms and their	limitations;		
2	understand modern	notions in data analysis-oriented computing;			
3	be capable of confi implementing their	dently applying common Machine Learning allown;	gorithms in practi	ce and	
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		thods available for retrieving the lost data.		1	
2	Classify the various	s mobile forensic techniques and how to handle	e them		
3	Identify the different Open-source intelligence techniques				
4	Demonstrate how t	o 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					

	1			
2				
3				
4				
-		T	T	T
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				
C				
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		, , , , , , , , , , , , , , , , , , ,		I.
2				
3				
4				T
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0
Outcome	I I Sem	Audit Course-II Stress	L:2 T:0 P:0	
		Management(M20AC02)		
1	Burnout the causes o	f stress		
2	Control the time man	nagement		
3	Identify the right o	aroor nath		
3	Identify the right c	areer paur		
4	Handle the difficult v	work situation		
5	Manage the career life	fe without stress		
	<u> </u>			

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

	T		T	Credits: 3			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	Ⅲ Sem	Natural Language Processing Techniques (M20CS26)	L:3 T:0 P:0				
On successf	ul completion of th	is course, students will be able to:					
1	_	ches to syntax and semantics in NLP					
2	Understand approa	nderstand approaches to discourse, generation, dialogue and summarization within NLP					
3	Understand current	methods for statistical approaches to machine	translation.				
4	Understand machir	ne learning techniques used in NLP, including	hidden Markov me	odels			
5		nguage model and probabilistic context-free groots, log-linear and discriminative models	ammars, clustering	g and			
6	Understand the Ma summerization.	chine Translation, multilingual information, m	nulti 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 successf	ful completion of th	nis course, students are able to:	1	1			
1	Outline key terms a	and concepts in cyber law, intellectual property	y and cyber crimes				
2	Explore the vulner	rabilities, threats and cybercrimes posed by cri	minals.				
3	Identify various sec	curity challenges phased by mobile devices.					
4		pes of tools and methods used in cybercrime, d in security protection	evelops the secure	counter			
5	Analyze and evalua	ate the cyber security needs of an organization					
6		and strategic cyber security risk management tion's critical information and assets	policies in order to	adequately			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	III Sem	Deep Learning (M20CS28)	L:3 T:0 P:0				
After the o	completion of this o	course, the students should be able to	•				
1	Ability to understa	and the concepts of Neural Networks					
2	Ability to understa	nd the concepts of Deep Learning					
3	Ability to select the	e Learning Networks in modeling real world sy	ystems				
4	Ability to use an ef	ficient algorithm for Deep Models					
5	Ability to apply op	timization strategies for large scale application	ıs				
6	Ability to apply the	e Deep Learning models for Speech Recognition	on, NLP and Other	Applications			
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0				
On successf	ul completion of th	is course, students will be able to:					
1	Describe problem of	clearly, identify and analyzetheindividual func	tions.				
2	Analyze study on s	olving optimization problem.					

3	Translate verbal fo	rmula on optimization problem				
4	Design algorithms, reliably to find an approximate solution					
5	Compare the performance of an algorithm					
6	Discovery, study, u	inderstandand solve optimization techniques u	sing 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 tl	nis course, students are able to:				
1	Compare the subject	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 incinera					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	III Sem	Embedded System Design (M20VL07)	L:3 T:0 P:0			
After the o	completion of this o	course, the students should be able to				
1	Describe embedded	d systems, design, technology to explain its me	etrics or challenges			
2		e-purposeprocessorsusingcombinationalaswel				
3		mizing single – purpose processors. Discuss ab al purpose processors.	oout the basic archi	tecture and		
4	Define and distingu	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.				
2	Analyze and categorize executable project modules.					
3	Choose efficient tools for designing project modules.					
4	Combine all the mo	Combine all the modules through effective team work after efficient 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 to	ols for designing project modules.		
4	Combine all the modules through effective team work after efficient 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	
		Subject Name (Subject Code)			
Outcome	I Sem	Data Structures and Algorithms(M20CS01)	L:3 T:0 P:0		
		· · · · · · · · · · · · · · · · · · ·			
		is course, students will be able to:			
	9	basic on data structures to store and retrieve an	ordered or unorde	ered data. Such	
		sts, trees, heaps, and hash tables.			
		e on applications of data structures having the n as create, insert, delete, search, and sorting.	ability to impleme	ent algorithms	
3	Learn to analyze an	nd to compare efficiency of an algorithm.			
4	Understand the basi	ic concepts of latest techniques.			
5	Ability to have con	ncepts on tree and graphs.			
6		projects on these data structures and plan B-T	rees to implement	different	
	various operations	1 3	1		
	Year /Semester	Cubicat Nama (Cubicat Code)	No. of Hours	Credits:3	
Course		Subject Name (Subject Code) Software Process and Project Management	L:3 T:0 P:0	010010	
Outcom	I Sem	(M20CS02)			
e		(M20C302)			
On successf	ful completion of tl	his 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		Risk and issues management			
6		natic planning service delivery and quality ass	urance		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
		Cloud computing (M20CS03)		Credits:5	
Outcome	I Sem	Cloud computing (W120CB03)	L:3 T:0 P:0		
After the o	completion of this o	course, the students should be able to			
1	Discuss main conce	epts, key strengths, and limitations for cloud co	omputing.		
2		ecture along with specific infrastructure on cloud, private cloud, hybrid cloud, etc.	ud computing, inc	luding SaaS,	
3		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	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.				
6	Provide the approp	riate solutions on cloud computing based on th	ne application.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
	I Sem	Python Programming(M20CS04)	L:3 T:0 P:0		
Outcome			L:3 1:0 F:0		
1	Defining the fund	damentals 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	ful completion of th	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 devices	ation with Raspberry PI platform which can be	widely used in ma	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) Mathematical Foundations of Computer Science (M20CS06)	No. of Hours L:3 T:0 P:0	Credits:3	
On successf	ful completion of tl	his course, students are able to:			
1	Evaluate the notion	ns of propositions, predicate formulae, Rules of	f inference.		
2	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 o	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 me	odels, there under	lying	
2	Understand the concepts of AI search techniques				
3	Apply knowledge Representation techniques.				
4	Analyze different s	structures of representation			
5	Evaluate AI search	techniques			

6	Understand the con	cepts of Natural Language Processing.		
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 a	and security service	ees.
2	Compare and cor	ntrast symmetric and asymmetric encryption alg	gorithms.	
3	Implementation of	f message authentication, hashing algorithms a	nd able to underst	and 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 imphiniques to improve wireless network security.	olements different	types of
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem	Research Methodology & IPR (M20MC01)	L:2 T:0 P:0	
On successf	_	is course, students will be able to:		l
1	•	e on Research Design and statistical methods in		1 0
2	_	s methods in Data Collection, Data Organizatio	on and different ap	proaches of
3	Data Representatio Understand all the	basic concepts required to prepare		
	a. Research synops			
	b. Dissertation			
	c. Writing a good	research proposa		
4	Interpret the Scope	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 (M20AC01)	L:2 T:0 P:0	
On successf	ful completion of th	nis course, students are able to:		
1	Obtain complete kr	nowledge on Definition of a research paper, Pu	rnose of writing a	nv
1	_	Scope and Benefits.	ipose of writing a	ily.
2	* *	ndard English formats .for scripting the best res	search paper	
3		alitative and Quantitative Research Methodological		of
	plagiarism			
4		d process of writing and publishing any researching	ch paper and perfo	rm a case
Course	Year / semester		No. of Hours	Credits:2
Outcome	I Sem	Subject Name (Subject Code) Data Structures and Algorithms Lab (M20CS09)	L:0 T:0 P:4	Creans:2
After the o	completion of this (course, the students should be able to	l	I
	1	,		

1	Analyze algorithms efficiency .			
2	Summarize and imp	olement various searching and sorting technique	ies.	
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	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 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	Laction of the completion of the	is course, students will be able to:		
1		re Python scripting elements such as variables a	and flow control st	tructures.
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	rations such as read and write and Adapting the perly.	e code robust by h	andling errors
Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) Internet of Things Lab (M20CS12)	No. of Hours L:0 T:0 P:4	Credits:2
On successi	ful completion of tl	nis course, students are able to:	ı	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	olications on Light an LED using Python progra	amming	
4	Experiment with in humidity, smoke.	nplementation of intruder system and various s	ensors 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	completion of this	course, the students should be able to		
1	Apply three-tier are	chitecture concepts and advanced database tech	nniques in web app	olications.
2	Use object-oriented techniques in Web programming.			
3		Develop rich interactive environments for the Web.		
4	Create sites that uti	lize data validation techniques and secure code		
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		
1	Understand the fuz	zy logic, concepts of fuzziness involved in fuz	zv set theory.		
2		its of fuzzy sets, knowledge representation using	· · · · · · · · · · · · · · · · · · ·	L	
	approximate reason	ning, fuzzy inference systems, and fuzzy logic.			
3		d the fundamental theory, concepts of neural networks			
4	Identify different n limitations.	ntify different neural network architectures, algorithms, applications along their itations.			
5	Classify different le with its application	assify different learning rules, architectures to learn several neural network paradigms along ith its applications			
6	Deploy different ap	oplications of these models to solve engineering	g.		
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 successi	ful completion of th	nis course, students will be able to:			
1	Determine Linux u				
2		ing techniques and signals.			
3	Explain what is IP	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 tl	nis course, students are able to:	l .		
1	Discuss different a	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.			
4		mance of Machine Learning algorithms with d	ifferent parameter	S.	
5	Analyze current res				
6	<u> </u>	est 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		
			1.3 1.01.0		
After the o	_	course, the students should be able to			
2		ensics related to investigative process.			
2	1	sues to prepare, perform digital forensic analys	sis based on the in	vestigator's	
	position				
2	Demonstrate the techniques, usage of digital forensics tools.				
3					
3 4 5	Elaborate digital fo				

6	Develop technique	s used on Data Analysis, cybercrime.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	II Sem	Block Chain Technology(M20CS18)	L:3 T:0 P:0		
1	Introduce the fund	troduce the fundamentals of blockchain, history, technology and decentralization.			
2	, , , , , , , , , , , , , , , , , , ,	evise cryptographic concepts and its use in blockchain.			
3		understand structure of blockchain			
4		tives to proof of work			
5		ntracts, solidity and Web3 to implement block	chain		
6	Understand applica	ations 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 successf	ful completion of th	nis course, students will be able to:	1	I	
1		oles of Evolutionary Computation and Genetic	Algorithms.		
2	Apply the concepts problems.	Apply the concepts of Evolutionary Computation Methods to find solutions for complex problems			
3	ц	Describe the applications of Genetic Programming			
4	Analyze with diffe	Analyze with different parameters on Evolutionary Algorithms			
5	Understand the dif	ferent methods in Machine Learning and Gene	tic Algorithms		
6	Summarize the cur and Computing	rent scenario of research and application in Ev	olutionary Genetic	Algorithms	
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 successf	ful completion of t	his course, students are able to:			
1	Describe a Data Sc	sience, 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	sualization on given data.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0	
Outcome	II Sem	Stress Management (M20AC02)	L:2 T:0 P:0		
After the o	completion of this	course, the students should be able to			
1		wareness log. Include identification of causes,	symptoms, and an	alysis of	
	effects				
	Gather information on current stress management techniques and evaluate personal relevance.				
2	Gather information	on current stress management techniques and	evaluate personal	relevance.	

4	Choose an adaptab techniques.	le stress management plan for academic succe	ess incorporating se	lected	
Course Outcome	Year / semester I I Sem	Subject Name (Subject Code) Advanced Web Programming Lab (M20CS21)	No. of Hours L:0 T:0 P:4	Credits: 2	
1	Design and develop latest technical known	p static and dynamic web pages with good aesow-how's.	sthetic sense of desi	gning and	
2	Understand the We	b Application Terminologies, Internet Tools	and other web servi	ces.	
3	Learn how to link a	and publish web sites.			
4	Learn Database Co	nnectivity 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	ncepts of Socket commands.			
2	Implement Connec	Implement Connection-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 Co	ommand 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 a	pplication on Machine Learning problems.			
2	Describe various al	gorithms on Machine Learning mentioning it	s strengths and wea	knesses.	
3	Improve the perfor	mance of Machine Learning algorithms with	different parameter	S.	
4	Understand the late	est 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 me	thods available for retrieving the lost data.			
2	Classify the variou	s mobile forensic techniques and how to hand	lle them.		
3	Identify the differe	nt Open-source intelligence techniques			
4					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Mini Project with seminar (M20CS25)	L:0 T:0 P:2		
1					

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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	ful completion of th	is course, students will be able to:			
1	Understand approa	ches to syntax and semantics in NLP.			
2	Understand approa	ches to discourse, generation, dialogue and sur	nmarization within	n NLP.	
3	Understand current	methods for statistical approaches to machine	translation.		
4	Understand machin	ne learning techniques used in NLP, including l	hidden Markov me	odels	
5	Understand the Lar	Understand the Language model and probabilistic context-free grammars, clustering and unsupervised methods, log-linear and discriminative models.			
6	Understand the Machine Translation, multilingual information, multi lingual automatic summerization				
Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Cyber Security (M20CS27)	No. of Hours L:3 T:0 P:0	Credits: 3	
On successi	ful completion of th	nis course, students are able to:	1		
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 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 and evaluate the cyber security needs of an organization				
6		and strategic cyber security risk management partition's critical information and assets.	policies in order to	o 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	completion of this	course, the students should be able to		
1		nd the concepts of Neural Networks		
2	Ability to understa	Ability to understand the concepts of Deep Learning		
3		e Learning Networks in modeling real world sy	rstems	
4	· ·	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	n, NLP and Other	Applications
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0	
On successf	ful completion of th	is course, students will be able to:	1	l
1		clearly, identify and analyzethe individual func	tions.	
2	Analyze study on s	olving optimization problem.		
3	Translate verbal fo	rmula on optimization problem.		
4	Design algorithms,	reliably to find an approximate solution		
5	Compare the perfo	rmance of an algorithm.		
6	Discovery, study, understand and solve optimization techniques using 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	
On successi	ful completion of tl	nis course, students are able to:		
1	Compare the subje	ct from the technical, legal and economical poi	nts.	
2	Learn solid waste r	management.		
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 incinera	tion facility.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	Embedded System Design (M20VL07)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to	l	
1		d systems, design, technology to explain its me	trics or challenges	S.
2		e-purposeprocessorsusingcombinationalaswell		
3	Discuss about optimizing single – purpose processors. Discuss about the basic architecture and operation of general purpose processors.			
4		uish between a timer and a counter, various typonousReceiver/Transmitter.Explaincontrollersfo		d Stepper
5	Discuss common n	nemory types ROM, RAM, advanced RAM. Expitration methods, various protocols like serial,		ssor
6		nterrupts, architectures like Round Robin, Real		g 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				
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5				

IV-SEMESTER

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

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

Nathematical Foundation for Cyber Security (M20CY01)	Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Define the concepts related to the basics of group theory. Develop understanding of number theory algorithms. Develop understanding of number theory algorithms. Develop understanding of Bayesian framework. Develop understanding of Bayesian framework. Course Outcom I Sem Subject Name (Subject Code) No. of Hours L:3 T:0 P:0 Network Security and Cryptography (M20CS08) Don successful completion of this course, students are able to: I Identifies various types of vulnerabilities, attacks, mechanisms and security services Compare and contrast symmetric and asymmetric encryption algorithms. Implementation of message authentication, hashing algorithms and able to understand kerberos Explore the attacks and controls associated with IP, transport level, web and E-mail security Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. Onderstand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Course Year / semester Outcome I Sem Cloud computing (M20CS03) After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Explain the issues on cloud computing based on the application. Course Year / semester Subject Name (Subject Code)	Outcome	I Sem	Mathematical Foundation for Cyber	L:3 T:0 P:0	
Develop understanding of number theory algorithms. Discover different operations on algebraic structure Derive the probability density function of transformation of random variables. Develop understanding of Bayesian framework. Course Outcom I Sem Subject Name (Subject Code) No. of Hours Network Security and Cryptography (M20CS08) On successful completion of this course, students are able to: I dentifies various types of vulnerabilities, attacks, mechanisms and security services Compare and contrast symmetric and asymmetric encryption algorithms. Implementation of message authentication, hashing algorithms and able to understand kerberos Explore the attacks and controls associated with IP, transport level, web and E-mail security Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. Outcome Year / semester Outcome I Sem Course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Course Sexplain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues dentify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Year / semester Subject Name (Subject Code) No. of Hours Credits: 3 Explain the issues on cloud computing along with security, privacy, and interoperability Defining the fundamentals of writing Python scripts.	On successi	ful completion of th	nis course, students will be able to:		
3 Discover different operations on algebraic structure 4 Derive the probability density function of transformation of random variables. 5 Develop understanding of Bayesian framework. Course Outcom I Sem Vear /Semester Outcom	1	Define the concepts r	elated to the basics of group theory.		
4 Derive the probability density function of transformation of random variables. 5 Develop understanding of Bayesian framework. Course Outcom I Sem Subject Name (Subject Code) Network Security and Cryptography (M20CS08) On successful completion of this course, students are able to: 1 Identifies various types of vulnerabilities, attacks, mechanisms and security services 2 Compare and contrast symmetric and asymmetric encryption algorithms. 3 Implementation of message authentication, hashing algorithms and able to understand kerberos 4 Explore the attacks and controls associated with IP, transport level, web and E-mail security 5 Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. 6 Understand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Course Vear / semester Olude computing (M20CS03) L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss main concepts, key strengths, and limitations for cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. 3 Explain the issues on cloud computing along with security, privacy, and interoperability 4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Vear / semester Subject Name (Subject Code)	2	Develop understandii	ng of number theory algorithms.		
Develop understanding of Bayesian framework. Course Outcome Year /Semester Outcome Subject Name (Subject Code) Network Security and Cryptography (M20C508) Network Security and Cryptography (M20C508) L;3 T:0 P:0					
Course Outcome Year / Semester Subject Name (Subject Code) Network Security and Cryptography (M20CS08) Network Security and Cryptography (M20CS08) Credits:3 T:0 P:0	4	Derive the probabil	lity density function of transformation of rand	om variables.	
Outcom I Sem Network Security and Cryptography (M20CS08) Network Security and Cryptography (M20CS08) I Isem Identifies various types of vulnerabilities, attacks, mechanisms and security services Compare and contrast symmetric and asymmetric encryption algorithms. Implementation of message authentication, hashing algorithms and able to understand kerberos Explore the attacks and controls associated with IP, transport level, web and E-mail security Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. Gunderstand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Course Outcome Year / semester Cloud computing (M20CS03) After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Outcome Year / semester Subject Name (Subject Code) Python Programming (M20CS04) I Sem Defining the fundamentals of writing Python scripts.	5	Develop understan	ding of Bayesian framework.		
Identifies various types of vulnerabilities, attacks, mechanisms and security services Compare and contrast symmetric and asymmetric encryption algorithms.	Outcom		Network Security and Cryptography		Credits:3
Course Year/semester Cloud computing (M20CS04) After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Choose and use the appropriate technology, methods on these issues Course Year/semester Subject Name (Subject Code) Discuss main concepts, key strengths, and limitations for cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Course Year/semester Subject Name (Subject Code) Discuss main concepts, key strengths, and limitations for cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Sexplain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Subject Name (Subject Code) Provide the appropriate solutions on cloud computing based on the application. Course Year/semester Subject Name (Subject Code) Python Programming (M20CS04) Defining the fundamentals of writing Python scripts.	On success	ful completion of t	his course, students are able to:	1	
2 Compare and contrast symmetric and asymmetric encryption algorithms. 3 Implementation of message authentication, hashing algorithms and able to understand kerberos 4 Explore the attacks and controls associated with IP, transport level, web and E-mail security 5 Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. 6 Understand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Course Vear / semester Subject Name (Subject Code) Cloud computing (M20CS03) Credits:3 After the completion of this course, the students should be able to 1 Discuss main concepts, key strengths, and limitations for cloud computing. 2 Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. 3 Explain the issues on cloud computing along with security, privacy, and interoperability 4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Vear / semester Subject Name (Subject Code) Python Programming (M20CS04) 1 Sem Defining the fundamentals of writing Python scripts.	1	Identifies various t	vpes of vulnerabilities, attacks, mechanisms a	nd security service	!S
4 Explore the attacks and controls associated with IP, transport level, web and E-mail security 5 Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. 6 Understand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Course Outcome Year / semester I Sem Subject Name (Subject Code) Cloud computing (M20CS03) L:3 T:0 P:0 After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Year / semester Subject Name (Subject Code) Python Programming (M20CS04) L:3 T:0 P:0 L:3 T:0 P:0 Credits: 3 L:3 T:0 P:0	2		• •	•	
Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. Understand the various wireless network vulnerabilities and implements different types of cryptographic techniques to improve wireless network security. Vear/semester I Subject Name (Subject Code) Cloud computing (M20CS03) L:3 T:0 P:0 After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Year/semester Subject Name (Subject Code) No. of Hours Python Programming (M20CS04) L:3 T:0 P:0 Defining the fundamentals of writing Python scripts.	3	Implementation of m	nessage authentication, hashing algorithms and able	to understand kerbe	ros
firewalls. Course Year / semester Outcome I Sem Miscuss main concepts, key strengths, and limitations for cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Outcome I Sem Defining the fundamentals of writing Python scripts.		Explore the attacks a	and controls associated with IP, transport level, web	and E-mail security	
Course Outcome I Sem Subject Name (Subject Code) Cloud computing (M20CS03) L:3 T:0 P:0 After the completion of this course, the students should be able to Discuss main concepts, key strengths, and limitations for cloud computing. Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Outcome I Sem Subject Name (Subject Code) Python Programming (M20CS04) L:3 T:0 P:0 Defining the fundamentals of writing Python scripts.	5		etection system, solutions for wireless networks and	designing of variou	s types of
Outcome I Sem Cloud computing (M20CS03) L:3 T:0 P:0 After the completion of this course, the students should be able to 1 Discuss main concepts, key strengths, and limitations for cloud computing. 2 Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, laaS, public cloud, private cloud, hybrid cloud, etc. 3 Explain the issues on cloud computing along with security, privacy, and interoperability 4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Outcome Year / semester I Sem Subject Name (Subject Code) Python Programming (M20CS04) No. of Hours L:3 T:0 P:0 Credits: 3 1 Defining the fundamentals of writing Python scripts.	6			different types of c	ryptographic
After the completion of this course, the students should be able to 1 Discuss main concepts, key strengths, and limitations for cloud computing. 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 on cloud computing along with security, privacy, and interoperability 4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Outcome I Sem Subject Name (Subject Code) Python Programming (M20CS04) L:3 T:0 P:0 1 Defining the fundamentals of writing Python scripts.					Credits:3
1 Discuss main concepts, key strengths, and limitations for cloud computing. 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 on cloud computing along with security, privacy, and interoperability 4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Outcome 1 Sem Credits: 3 Python Programming (M20CS04) Defining the fundamentals of writing Python scripts.		I .		L:3 1:0 P:0	
Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Outcome Year / semester Subject Name (Subject Code) Python Programming (M20CS04) L:3 T:0 P:0 Defining the fundamentals of writing Python scripts.					
IaaS, public cloud, private cloud, hybrid cloud, etc. Explain the issues on cloud computing along with security, privacy, and interoperability Choose and use the appropriate technology, methods on these issues Identify problems, and explain, analyze, and evaluate various cloud computing solutions. Provide the appropriate solutions on cloud computing based on the application. Course Outcome Year / semester Python Programming (M20CS04) Defining the fundamentals of writing Python scripts.		Discuss main concep	ots, key strengths, and limitations for cloud computi	ng.	
4 Choose and use the appropriate technology, methods on these issues 5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Vear / semester Subject Name (Subject Code) Python Programming (M20CS04) 1 Defining the fundamentals of writing Python scripts.	2			mputing, including S	SaaS, PaaS,
5 Identify problems, and explain, analyze, and evaluate various cloud computing solutions. 6 Provide the appropriate solutions on cloud computing based on the application. Course Outcome I Sem Subject Name (Subject Code) Python Programming (M20CS04) No. of Hours L:3 T:0 P:0 1 Defining the fundamentals of writing Python scripts.		Explain the issues	on cloud computing along with security, privac	cy, and interoperal	bility
6 Provide the appropriate solutions on cloud computing based on the application. Course Outcome I Sem Subject Name (Subject Code) Python Programming (M20CS04) No. of Hours L:3 T:0 P:0 1 Defining the fundamentals of writing Python scripts.	4	Choose and use the a	appropriate technology, methods on these issues		
Course Outcome I Sem Subject Name (Subject Code) Python Programming (M20CS04) Defining the fundamentals of writing Python scripts. No. of Hours L:3 T:0 P:0	5	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.			
Outcome I Sem Python Programming (M20CS04) 1 Defining the fundamentals of writing Python scripts.	6	Provide the appropri	ate solutions on cloud computing based on the appl	ication.	
Outcome I Sem Python Programming (M20CS04) 1 Defining the fundamentals of writing Python scripts.	Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
2 Expressing the Core Python scripting elements such as variables and flow control structures.	1	Defining the funda	mentals of writing Python scripts.	•	
	2			and flow control st	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	Internet of Things (M20CS05)	L:3 T:0 P:0		
On successf	ful completion of th	nis course, students will be able to:			
1	Describe the basic to	erminology, latest technology along with its applica	tions.		
2	Discuss the protocol	Is based on the concepts such as machine to machine	e.		
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.			
5	Implement it wide	ely that can be used in many applications of Iol	Γ devices		
6	Design a web app	lication framework on REST ful web API.			
Course Outcome	Year /SemesterI	Subject Name (Subject Code) Secure Software Design and Development	No. of Hours L:3 T:0 P:0	Credits:3	
	Sem	(M20CY02)			
On successi	 ful completion of t	his course, students are able to:	1		
1	Differentiate between	oon various software vulnerabilities			
1		een various software vulnerabilities.			
2	Explain the Software	e process vulnerabilities for an organization			
2 3	Explain the Software Demonstrate the Mo	e process vulnerabilities for an organization nitor resources consumption in software			
2 3 4	Explain the Software Demonstrate the Mo Explain the Interrela	e process vulnerabilities for an organization nitor resources consumption in software te security and software development process.	jection attack		
2 3 4 5	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stu	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		Credite:3	
2 3 4	Explain the Software Demonstrate the Mo Explain the Interrela	e process vulnerabilities for an organization nitor resources consumption in software te security and software development process.	jection attack. No. of Hours L:3 T:0 P:0	Credits:3	
2 3 4 5 Course Outcome	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem	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)	No. of Hours	Credits:3	
2 3 4 5 Course Outcome	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stu- Year / semester I Sem completion of this	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)	No. of Hours	Credits:3	
2 3 4 5 Course Outcome	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this of Explain the overview	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	
2 3 4 5 Course Outcome After the continuous	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this Explain the overview Demonstrate the Acc	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 's access matrix	Credits:3	
2 3 4 5 Course Outcome After the continuation of the continuation	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this of Explain the overview Demonstrate the According to the Encryp	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 of operating system eess control matrix, access control list and Lampson	No. of Hours L:3 T:0 P:0 's access matrix d Security issues	Credits:3	
2 3 4 5 Course Outcome 1 2 3	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this of Explain the overview Demonstrate the According to the Encryptic Identify Ide	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 tess control matrix, access control list and Lampson option Techniques, Authentication and Password con Techniques and apply the real time applications of the system administrator and Create	No. of Hours L:3 T:0 P:0 's access matrix d Security issues		
2 3 4 5 Course Outcome After the control of the con	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this of Explain the overview Demonstrate the According to the Encryption Identify the Encryption Know the role and reserved.	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 ess control matrix, access control list and Lampson option 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 's access matrix d Security issues		
2 3 4 5 Course Outcome 1 2 3 4 5	Explain the Software Demonstrate the Mo Explain the Interrela Discuss the Case stury Year / semester I Sem Completion of this of Explain the overview Demonstrate the According to the Encryption Identify the Encryption Know the role and response to the According to the Encryption Completion of this of the Encryption Completion of the Encryption Complet	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 option Techniques, Authentication and Password con Techniques and apply the real time applications esponsibilities of a system administrator and Create indows platform	No. of Hours L:3 T:0 P:0 's access matrix d Security issues and administer user	accounts on	

	assumptions etc			=
2		courts of AI county to the county		
2		acepts of AI search techniques		
3	11 0	Representation techniques		
4	Analyze different s	tructures of representation		
5	Evaluate AI search	techniques		
6	Understand the con	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			
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	
		nis course, students are able to:		
On successi	tur completion of the	is course, students are usic to.		
1	Develop the archite	ecture along with specific infrastructure on clo	oud computing,	
		S, laaS, public cloud, private cloud, hybrid clo		
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		
1		Python scripting elements such as variables and flo	w control structures	
2	Apply Python function	ons to facilitate code reuse		
3	Extending how to v	vork with lists and sequence data.		
4	Implement file opera exceptions properly.	tions such as read and write and Adapting the code	robust by handling	errors and
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		tarting of Raspberry Pi and practice Linux c	commands in com	mand terminal
2		l basic python programs on RaspberryPi		
3	<u> </u>	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	
On successf	ful completion of th	is course, students will be able to:		l
1	Acquire knowledge of	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	iis		
	b. Dissertation			
	c. Writing a good re	esearch proposal		
4	Interpret the Scope	e of Patent Rights and Administration of Paten	t 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 successi	ful completion of th	nis course, students are able to:	<u> </u>	<u> </u>
1	· ·	nowledge on Definition of a research paper, Pussessessessessessessessessessessessesse	urpose of writing	any
2	Understand the standard English formats .for scripting the best research paper.			
3	Analyze all the Qual	itative and Quantitative Research Methodologies an	d the ethics of plagi	arism
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:3
Outcome	II Sem	Cyber Security (M20CS27)	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Outline key terms and	d concepts in cyber law, intellectual property and cy	ber crimes.	
2	Explore the vulnerabi	lities, threats and cybercrimes posed by criminals.		
3	-	urity challenges phased by mobile devices.		
4	Identify various types maintain security pro	s of tools and methods used in cybercrime, develops tection.	the secure counter	methods to
5	Analyze and evaluate	the cyber security needs of an organization.		
		nd strategic cyber security risk management policies information and assets.	in order to adequat	ely protect an
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				
	•	nerabilities and breaches to design database		
	Discuss Relational [security	Data Model and concurrency controls and locki	ing, SQL extensior	ns to
3	Demonstrate the Brow	wser security principles.		

Course Outcom e On successful co 1 Disc 2 Desc 3 Illus 4 Imp 5 Ana 6 Und Course Outcome II S On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ve Outcome II S Intro	completion of the scuss different apprescribe various algorates the basic approve the performalyze current resolution of the scuss digital fore plain the legal is sestion	Subject Name (Subject Code) Machine Learning (M20CS16) Mis course, students will be able to: Dication on Machine Learning problems. Orithms on Machine Learning mentioning its strengtheory focused on Machine Learning. Theory focused on Machine Learning algorithms with search papers. The search papers. The states are able to: Digital Forensics (M20CS17) This course, students are able to: The states are able to	No. of Hours L:3 T:0 P:0	Credits:3				
Outcom e On successful co 1 Disc 2 Desc 3 Illus 4 Imp 5 Ana 6 Und Course Outcome II S On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ve Outcome I S After the comp 1 Intro	completion of the scuss different apprescribe various algorates the basic approve the performalyze current restricted and the late of the scuss digital fore plain the legal is sistion	Machine Learning (M20CS16) nis course, students will be able to: Dication on Machine Learning problems. Orithms on Machine Learning mentioning its strengtheory focused on Machine Learning. Transce of Machine Learning algorithms with search papers. Test issues raised by current researchers. Subject Name (Subject Code) Digital Forensics (M20CS17) This course, students are able to: Insics related to investigative process.	L:3 T:0 P:0 gths and weaknesses. different paramete No. of Hours L:3 T:0 P:0	ers. Credits:3				
Property of the company of the course of the	completion of the scuss different apprescribe various algoral strate the basic approve the performalyze current restricted from the late of the scuss digital fore plain the legal is sestion	nis course, students will be able to: Dication on Machine Learning problems. Dication on Machine Learning mentioning its strenge theory focused on Machine Learning. Theory focused on Machine Learning. Theory focused on Machine Learning algorithms with search papers. The search papers. The search papers. The search papers (Subject Code) Digital Forensics (M20CS17) This course, students are able to: The search papers (M20CS17) This course, students are able to: The search papers (M20CS17)	gths and weaknesses. different paramete No. of Hours L:3 T:0 P:0	Credits:3				
On successful co 1 Disc 2 Desc 3 Illus 4 Imp 5 Ana 6 Und Course Ye Outcome II 3 On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II 8	scuss different approscribe various algoristrate the basic approve the performallyze current resolution of the late of the lat	nis course, students will be able to: Dication on Machine Learning problems. Dication on Machine Learning mentioning its strenge theory focused on Machine Learning. Theory focused on Machine Learning. Theory focused on Machine Learning algorithms with search papers. The search papers. The search papers. The search papers (Subject Code) Digital Forensics (M20CS17) This course, students are able to: The search papers (M20CS17) This course, students are able to: The search papers (M20CS17)	No. of Hours L:3 T:0 P:0	Credits:3				
1 Disc 2 Desc 3 Illus 4 Imp 5 Ana 6 Und Course Ye Outcome II 3 On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II 8	scuss different approscribe various algoristrate the basic approve the performallyze current resolution of the late of the lat	continuous on Machine Learning problems. Theory focused on Machine Learning. Theory focused on Machine Learning algorithms with search papers. The search papers.	No. of Hours L:3 T:0 P:0	Credits:3				
1 Disc 2 Desc 3 Illus 4 Imp 5 Ana 6 Und Course Ye Outcome II 3 On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II 8	scuss different approscribe various algoristrate the basic approve the performallyze current resolution of the late of the lat	continuous on Machine Learning problems. Theory focused on Machine Learning. Theory focused on Machine Learning algorithms with search papers. The search papers.	No. of Hours L:3 T:0 P:0	Credits:3				
3 Illus 4 Imp 5 Ana 6 Und Course Ye Outcome II S 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II S	ustrate the basic prove the performalyze current resolution of the late of the	theory focused on Machine Learning. rmance of Machine Learning algorithms with search papers. test issues raised by current researchers. Subject Name (Subject Code) Digital Forensics (M20CS17) his course, students are able to: nsics related to investigative process.	No. of Hours L:3 T:0 P:0	Credits:3				
4 Imp 5 Ana 6 Und Course Ye Outcome II S 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II S After the comp 1 Intro	prove the performalyze current resolution and the late of the late	rmance of Machine Learning algorithms with search papers. Lest issues raised by current researchers. Subject Name (Subject Code) Digital Forensics (M20CS17) his course, students are able to: nsics related to investigative process.	No. of Hours L:3 T:0 P:0	Credits:3				
5 Ana 6 Und Course Ye Outcome II S 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II S After the comp 1 Intro	nalyze current resolution of the late of t	search papers. sest issues raised by current researchers. Subject Name (Subject Code) Digital Forensics (M20CS17) his course, students are able to: nsics related to investigative process.	No. of Hours L:3 T:0 P:0	Credits:3				
6 Und Course Ye Outcome II 3 On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome II 8	rear /Semester I Sem completion of tl scuss digital fore plain the legal issistion	Subject Name (Subject Code) Digital Forensics (M20CS17) his course, students are able to: nsics related to investigative process.	L:3 T:0 P:0					
Course Outcome 1 Disc 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome 1 Step outcome 1 Intro	Vear /Semester I Sem completion of the scuss digital fore plain the legal issistion	Subject Name (Subject Code) Digital Forensics (M20CS17) his course, students are able to: nsics related to investigative process.	L:3 T:0 P:0					
Outcome II s On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I s After the comp 1 Intro	I Sem completion of the scuss digital fore plain the legal issistion	Digital Forensics (M20CS17) nis course, students are able to: nsics related to investigative process.	L:3 T:0 P:0					
Outcome II s On successful co 1 Disc 2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Outcome I s After the comp 1 Intro	I Sem completion of the scuss digital fore plain the legal issistion	Digital Forensics (M20CS17) nis course, students are able to: nsics related to investigative process.		vestigator's				
1 Discrete Figure 1 Discrete Proposition 2 Explored position 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I S	scuss digital fore plain the legal issistion	nsics related to investigative process.	ysis based on thein	vestigator's				
2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I S After the comp	plain the legal is:		ysis based on thein	vestigator's				
2 Expl posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I S After the comp	plain the legal is:		ysis based on thein	vestigator's				
posi 3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I S After the comp	sition	sues to prepare, perform digital forensic anal	ysis based on thein	vestigator's				
3 Der 4 Elab 5 Ana 6 Dev Course Ye Outcome I S After the comp	sition							
4 Elab 5 Ana 6 Dev Course Ye Outcome I S After the comp			position					
5 Ana 6 Dev Course Ye Outcome I S After the comp	emonstrate the t	techniques, usage of digital forensics tools.						
6 Dev Course Ye Outcome I S After the comp	aborate digital fo	rensics in detail.						
Course Ve Outcome I S After the comp	alyze the state o	of the practice, gaps in technology, policy, and	d legal issues					
Outcome I S After the comp		s used on Data Analysis, cybercrime.						
Outcome I S After the comp	/ear / semester	Subject Name (Subject Code)	No. of Hours	Credits:3				
1 Intro	Sem	Blockchain Technology (M20CS18)	L:3 T:0 P:0	01001000				
1 Intro	npletion of this o	course, the students should be able to						
	-	amentals of blockchain, history, technology a	and decentralization	n.				
2 Revi		nic concepts and its use in blockchain						
3 Defi	Define bitcoin and understand structure of blockchain							
		atives to proof of work						
		ontracts, solidity and Web3 to implement bloo	ckchain					
		ations of blockchain and its challenges						
Course Ye	/ear / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3				
	car / scincstel	Ethics and Law of Cyber Security	L:3 T:0 P:0	Cituits. 3				
		(M20CY06)						
trad 2 Dete	I Sem nderstand key te	$M20{ m CY}06)$ rms and concepts in cyber law, intellectual pr	operty and cybercr	Understand key terms and concepts in cyber law, intellectual property and cybercrimes, crademarks and domain theft				

3	networks, and safe Incorporate approa Year/Semester	and corrupted systems, protecting personal d Internet usage.	ata, securing simp	e computer				
4 Course	networks, and safe Incorporate approa Year/Semester	Internet usage.		•				
Course	Year/Semester	aches for incident analysis and response.		networks, and safe Internet usage.				
			Incorporate approaches for incident analysis and response. Veer/Semester Subject Name (Subject Code) No. of Hours Credits: 3					
Outcome								
O 444002220	II Sem	Firewall and VPN Security (M20CY07)	L:3 T:0 P:0					
On successfu	ul completion of th	is course, students will be able to:						
1	To show the funda	mental knowledge of Firewalls and it types						
	Construct a VPN to Authorization	allow Remote Access, Hashing, connections	with Cryptography	and VPN				
	Elaborate the know Detection	rledge of depths of Firewalls, Interpreting fire	ewall logs, alerts, Ir	trusion and				
4	Infer the design of	Control Systems of SCAD, DCS, PLC's and ICS's	s					
5	Evaluate the SCAD	A protocols like RTU, TCP/IP, DNP3, OPC,DA/H	1AD					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0	Credits:3				
Outcome	II Sem	Big Data Analytics (M20CY08)	2.3 1.01.0					
On successf	ul completion of th	nis course, students are able to:						
1								
2								
3								
4								
5								
6								
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2				
Outcome	I Sem	Ethical Hacking and Cyber Security Lab (M20CY09)	L:0 T:0 P:4					
After the c	ompletion of this c	course, the students should be able to						
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	Understand the methor	ods available for retrieving the lost data.						
2	Classify the various r	mobile forensic techniques and how to handle them	1.					
3	Identify the differe	nt Open-source intelligence techniques						

4	Demonstrate how to	develop certification for Cyber Forensic.		
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 app	collication on Machine Learning problems	1	
2	Describe various algo	orithms on Machine Learning mentioning its streng	ths and weaknesses.	
3	Improve the perfo	rmance of Machine Learning algorithms with	different paramet	ers
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	Block Chain Techology Lab(M20CY10)	L:0 T:0 P:4	
1	Explain design princi	iples of Bitcoin and Ethereum		
2	Explain Nakamoto co	onsensus.		
3	Explain the Simplif	ied Payment Verification protocol.		
4	List and describe differences between proof-of-work and proof-of-stake consensus			
5	Interact with a blockchain system by sending and reading transactions.			
6	Design, build, and deploy a distributed application			
7	Evaluate security, privacy, 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 o	on current stress management techniques and evalua	te personal relevano	ce.
3	Practice specific techniques, track effectiveness, and revise to meet personal preferences.			
	Choose an adaptable stress management plan for academic success incorporating selected techniques.			

III-SEMESTER

Course Outcom e	Year/Semester ■ Sem	Subject Name (Subject Code) Information Warfare(M20CY12)	No. of Hours L:3 T:0 P:0	Credits: 3
On success	ful completion of t	his course, students will be able to:		
1	Explain the theory	of data, information and knowledge as they po	ertain to informat	ion warfare
2	Apply strategies of	using information as a weapon and a target		
3	Apply the principle	s of offensive and defensive information warfa	are for a given cor	ntext
4	Discuss the social,	legal and ethical implications of information w	arfare	
5	Evaluate contempo environment	orary information warfare concepts for their a	pplication in a cor	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	
e				
	isful completion of t	his course, students are able to:		
	_			
1		rious types of intruders and intrusion detectio	n systems.	
2	Implementation of	Intrusion detection architecture.		
3	Identifying the Sec	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	III Sem	Social, Web and Mobile Analytics	L:3 T:0 P:0	
e		(M20CY14)		
After the	completion of this	course, the students should be able to		
1	Apply best practice	es in Search Engine Optimization		
2	Apply ethical princ	iples to the use of web and social media data		
3	Use different tool f	for capturing data from various resources		
4	Perform Mobile Ap	pplication analysis using different tool and tech	nniques	
5	Analysis report ger	neration and presentations.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcom	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0	
e				
On success	ful completion of t	his course, students will be able to:		
	<u> </u>	,		

1	Describe problem clearly, identify and analyze the individual functions.					
2	Analyze study on solving optimization problem					
3		rmula on optimization problem.				
4		reliably to find an approximate solution				
5		ormance of an algorithm.				
6		inderstandand solve optimization techniques	using algorithms			
Course	Year /Semester	i i	No. of Hours	Credits: 3		
		Subject Name (Subject Code) Waste Management (M20CE27)				
Outcom	III Sem	waste Management (W200227)	L:3 T:0 P:0			
e						
On success	sful completion of t	this course, students are able to:				
1	Compare the subje	ct from the technical, legal and economical po	ints.			
2		Learn solid waste management.				
3	Describe environm	Describe environment 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 incineration facility.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcom	III Sem	Embedded System Design (M20CE27)	L:3 T:0 P:0			
Outcom	III Sem		L:3 1:0 P:0			
e						
		course, the students should be able to				
2		d systems, design, technology to explain its megle-purpose processors using combinational as				
3		mizing single – purpose processors. Discuss at		•		
3		al purpose processors.	bout the basic arch	necture and		
4		uish between a timer and a counter, various typ	nes of timers and I	Iniversal		
		eiver/Transmitter.Explain controllers for LCD				
5	Discuss common n	nemory types ROM, RAM, advanced RAM. E	xplain microproce			
		pitration methods, various protocols like serial				
6	Explain basics of in architecture.	nterrupts, architectures like Round Robin, Rea	I – Time Operating	g System		
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			
	THE SCHILL	, ,	1.0 1.01.20			
e	1			1		
1						
_						
2						
2						
_						
2						
3						

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 th	nis course, students will be able to:		
1				
2				
3				
4				
7				
5				
3				



VAAGDEVI COLLEGE OF ENGINEERING

Autonomous

Bollikunta, Warangal Urban-506 005 (T.S)

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (CO's) FOR B.TECH – CIVIL ENGINEERING (R20)

<u>CC</u>	UKSE OUTCOME	ES (CO S) FOR B.TECH -	CIVIL ENGINEER	ING (NZU)
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	ompletion of this cou	rse, the students should be ab	ole to	
1	Understand the princusing multiple method	ciples of matrix to calculate the ods.	characteristics of system	m of linear equations
2		ues, Eigenvectors of matrices.		
3		ngle-variable functions graphica		y.
4	Analyze improper in	tegrals using Beta and Gamma	functions.	
5		ivatives, extreme of functions of 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	rse, 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	Understands the basi	c concepts in Nondestructive to	echniques and their app	lications.
4	Explain the knowled their remedies.	ge of waves and the factors aff	ecting acoustics of build	dings and
5	Calculate geometric	properties like Centre of gravit	y moment of inertia and	l mass
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Basic Mechanical Engineering (B20ME05)	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	
1	Identify the Various	Energy sources and IC engines	systems.	
2	Apply the Metal rem	oval process using Lathe, drilli	ng and Milling operation	ons.
3		tion and usage of various engin		
4		e of operation of Impulse and r	<u> </u>	
5		ice of engineering materials.		
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Programming for Problem Solving (B20CS01)	No. of Hours : L: 4 T: 0 P: 0	Credits: 4
After the co	ompletion of this cou	rse, the students should be ab	ole to	

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 different operations on arrays and creating and using of functions to solve problems.			
4	Understanding and ex	xploring the various methods of	of memory allocations.	
5	Ability to design and implement different types of file structures using standard methodology.			
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Physics Lab (B20PH05)	No. of Hours : L: 0 T: 0 P: 3	Credits: 1.5
After the co	ompletion of this cour	rse, 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 distribution	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	Subject Name (Code): Programming for Problem Solving Lab (B20CS02)	No. of Hours : L: 0 T:0 P: 3	Credits: 1.5
After the co	ompletion of this cour	rse, the students should be ab	ole to	
1		ucture of the C Programming, of structures and all related conce	• •	nd usage
2	Ability to understand executable form.	any algorithm and Write the C	programming code in	
3	Implement Programs to solve real time pro	using functions, pointers and ablems.	arrays, and use the pre-p	processors
4	Ability to use file str	uctures 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	ompletion of this cour	rse, the students should be ab	ole to	
1	Know the fundament	al knowledge of various trades	and their usage in real	time Applications.
1 2		al knowledge of various trades		
	Compare Foundry, W	Velding, Black smithy, Fitting, for analyzing power tools in c	Machine shop and hous	se wiring.

Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Induction Program (B20MC01)	No. of Hours : L: 0 T: 0 P: 0	Credits: 0
A ftow the ac	mulation of this cour	es the students should be sh	la ta	
	I mpietion of this coul	rse, the students should be ab	oie to	
1		NA	ı	
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Differential Calculus and	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
Outcome	. 17 II-Selli	Transforms (B20MA06)	L: 51:1 P: 0	
After the co	empletion of this cou	rse, the students should be ab	ole to	
1	Apply the fundament	al concepts of ordinary differe	ntial equations toreal tin	ne problems.
2		lution of a non homogeneous d hysical problems of Engineerin		applying its
3	Evaluate initial value technique.	problems and boundary value	problems using Laplace	e transforms
4	Expand the algebraic	and transcendental functions b	by applying Fourier Seri	es.
5	Apply the concepts of	f Partial Differential Equations	s to Engineering problem	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 Imerulades of m	alaaylan hattanias and aannasian		
1	-	olecular batteries and corrosion	1	
2	The knowledge of wa			
<u>3</u>		olymers and their uses. dge of principles and concepts	of phase rule and surface	a ahamister
5		aterials and their uses.	of phase full and surface	Le chemistry.
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	of resultant force and moment	Systems.	
2	_	lated to friction developed in m	-	
3		id moment of inertia for simple		<u> </u>
4		echanics to solve problems of 1		•
5		cation of Work Energy method		ems.
	Tr	Subject Name (Code):	ı ı r	
Course Outcome	Year / Semester : I / II-Sem	Basic Electrical and Electronics Engineering	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	 	(B20EE01) rse, the students should be ab	le to	
1	Analyze circuit theor power.	ems, mesh and nodal analysis,	series and parallel netw	orks, Electrical

2	Gain knowledge on AC circuits, reactance, Impedance, Susceptance and Admittance and Power Factor			
3		rinciple of DC motors, Transfor	rmers.	
4		tics of PN Junction diode and a		
5	Learn the basic of A	mplifiers and Rectifiers.		
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	ole to	
1	Skim and scan the di	gital text to summarize it for fu	iture reference.	
2		e notes according to their needs		
3		e effectively in spoken and wri		
4		ently in various contexts and d		
5	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.			
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Python Programming Lab (B20CS07)	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	Expressing the Core Python scripting elements such as variables and flow control structures.			
2	Apply Python functions to facilitate code reuse.			
3	Extending how to work 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 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 cou	rse, the students should be ab	ole to	
1	Understand various commands, object properties in AUTOCAD.			
2		ons of Points and solids.		
3	Estimate the use of drawings, dimensioning, scales and conic sections.			
4		sion of Isometric views to Orth		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Probability Distribution and Numerical Methods (B20MA08)	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	Use probability theor	ry for modelling uncertainty in	engineering problems	

3	Construct confidence interval estimates for population parameters to test the hypothesis.			
4	Find a better approximate root of a given equation.			
5	Compute the differer	tial equation using Numerical	techniques.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): 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	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	Identify the flexural	and shear stresses for various s	ections.	
4	Evaluate the slope ar	d deflection of determinate bea	ams.	
5	Identify the concept	of torsion and spring subjected	to loading	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Fluid Mechanics (B20CE03)	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		als of fluids and the principles		
2	Compute dimensional flow in a pipe applying continuity equation.			
3	Calculate the flow parameters by Euler's and Bernoulli's equation.			
5	Differentiate laminar and turbulent flow and various losses in pipe flow.			
J	Determine Boundary	layer thickness, Drag-Lift forc	es.	
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	le to	
1	Identify the classifica	ation of surveying and instrume	ents used.	
	Identify the classification of surveying and instruments used. Calculate the horizontal and vertical angle using Tacheometric surveying.			
2.	Calculate the horizon	ntal and vertical angle using Tag	cheometric surveying	
<u>2</u> 3				
3	Understand the proce	ess of control surveying and ad	justments.	
	Understand the proce Know the concept of	ess of control surveying and ad Hydrographic and Astronomic	justments.	
3	Understand the proce Know the concept of	ess of control surveying and ad	justments.	
3	Understand the proce Know the concept of	ess of control surveying and ad Hydrographic and Astronomic	justments.	Credits: 3
3 4 Course Outcome	Understand the proce Know the concept of Understand the princ Year / Semester : II / III-Sem	Hydrographic and Astronomic iples of Total station and GPS Subject Name (Code): Construction Materials	instruction in the state of the	Credits: 3
3 4 Course Outcome	Understand the proce Know the concept of Understand the princ Year / Semester : II / III-Sem ompletion of this coun	Hydrographic and Astronomic iples of Total station and GPS Subject Name (Code): Construction Materials (B20CE05)	iustments. cal surveying. surveying. No. of Hours: L: 3 T: 0 P: 0	Credits: 3
3 4 Course Outcome After the co	Understand the proce Know the concept of Understand the prince Year / Semester : II / III-Sem Compare the propert	Hydrographic and Astronomic iples of Total station and GPS Subject Name (Code): Construction Materials (B20CE05) rse, the students should be ab	instruction in the state of the	
3 4 Course Outcome After the co	Understand the proce Know the concept of Understand the princ Year / Semester : II / III-Sem Completion of this coun Understand the propert Understand the typic	Hydrographic and Astronomic iples of Total station and GPS Subject Name (Code): Construction Materials (B20CE05) rse, the students should be abites of most common and advantages.	instruction in the state of the	

5	Understand the importance of modern material for construction.				
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Strength of Materials Lab (B20CE06)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this cou	rse, the students should be ab	le to		
1	nuentiny the bending	venavior or veams using venur	ng test.		
2	Determine the benav	ior of material under torsion.			
3	Determine the hardne	ace of materials using different	tasts		
4	Determine the hardness of materials using different tests. Find out the characteristic of material under compression, impact and shear test.				
	Tina out the characte	Tistic of material under compre	siston, impact and shear	tost.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Surveying Lab (B20CE07)	No. of Hours: L: 0 T: 0 P: 3	Credits: 1.5	
After the co	empletion of this cour	rse, the students should be ab	le to		
1	Calculate area of give	en plot/points using chain surve	ev.		
2	Determine the angle/distance of given points using compass survey.				
3	Find out the angle, distance and height of the given points using theodolite surveying.				
4	Determine the distance of the given points using Total station.			, ,	
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 cou	rse, the students should be ab	le to		
1	Understand the nuances of English language through audio-visual experience and group activities.				
2	Speak with clarity an	d confidence which in turn enh	nances their employabili	ity skills.	
3	Develop their listening skills so that they may appreciate its role in developing LSRW skills language and improve their pronunciation.			ing LSRW skills	
4	Involve the students	in speaking activities in various	s contexts.		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Project Based Learning - 1 (B20CE08)	No. of Hours: L: 0 T: 0 P: 2	Credits: 1	
After the co	ompletion of this cou	rse, the students should be ab	le to		
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	
After the co	ompletion of this cou	rse, the students should be ab	le to		

1	It ensures students sustained happiness through identifying the essentials of human values and skills.			
2	It facilitates a correct understanding between profession 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 appropriate technologies and management patterns to create harmony in professional and personal life.			
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	Evaluate the direct ar	nd bending stresses of different	t structures.	
3		l load of columns and stresses		thin cylinders.
4		ept of principal stresses and str	=	
5		etrical bending of beams and si		t 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		rse, the students should be ab		
1		nowledge in open-channel hyd		ering.
2	Describe dimensional analysis and similarity to develop hydraulic model.			
3	Understand about the turbo-machines and its efficiency.			
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	Subject Name (Code): 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 beams, pin-jointed indeterminate plane frames and rigid plane frames by strain energy method.			
2	Anaryse continuous ocams and rigid frames by slope defection method.			
3	Understand the concept of moment distribution and analyse continuous beams and rigid frames with and without sway.			
4	matrix flexibility method.			
5	Understand the concept of matrix stiffness method and analyse of continuous beams, pin jointed trusses and rigid plane frames.			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Engineering Geology (B20CE12)	No. of Hours : L: 2 T: 0 P: 0	Credits: 2

	TT 1 . 1 . 1		1	1 1
1		ortance of geological knowledge s geological agencies.	e such as earth, earthqu	ake, volcanism and
2	Gain basics knowled	dge on properties of minerals.		
3	Gain knowledge abo	out types of rocks, their distribu	tion and uses.	
4	Understand the met	nods of study on geological stru	cture.	
5	Understand the application of geological investigation in projects such as dams, tunnels, bridges, roads, airport and harbor.			
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): 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	ole to	I
1	Know the different	construction techniques and stru	ıctural systems.	
2	Understand various techniques and practices in masonry construction, flooring, and roofing.			
3	Plan the requirements for substructure construction.			
4	Know the methods and techniques involved in construction of various types of super structures			
5	Select, maintain and operate hand and power tools and equipment used in the building construction sites.			
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	Calibrate flow meas	uring devices used in pipes, cha	annels and tank.	
2	Demonstrate practical understanding of the minor and friction losses in pipe flows and characterize laminar and turbulent flows.			
3	Demonstrate practical working of Hydraulic machines- different types of Turbines, Pumps, and other miscellaneous hydraulics machines.			
4	Compare results of	analytical models with actual be	havior of real fluid flov	vs.
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): 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 ground surface features based on map patterns of contour with emphasis on practical application in civil engineering.			
2	Identify physical and mechanical properties of rocks and minerals and its application in civil engineering uses.			
3	Measure strike and dip 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	n, Section and elevation of the	building structures.	
3	Understand the 2D &	3D building elements.	-	
4	Detail the building co	omponents in Auto CAD drawi	ings.	
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Project Based Learning - 2 (B20CE17)	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		NA		
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Design of Steel Structures (B20CE18)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co		rse, the students should be ab		
1	Recognize the design	philosophy of steel structures	and connections.	
2	Select the suitable se	ction shape and size for tension	n and compression mem	bers.
3	Able to calculate ulti	mate load of steel beams and p	ortal frames using plasti	c analysis.
4	Able to design beams	s, Built-up beams and plate gird	ders.	
5	Identify and compute	the design trusses on Industria	al structures.	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Geotechnical Engineering (B20CE19)	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	Identify the propertie	es and characteristics of soils.		
2	Analyze permeability	and seepage through soils.		
3	Ability to analyze the	e stress distribution and consoli	idation settlement.	
4	Understand the princ	iples of shear strength of soils.		
5	Able to know site inv	vestigation methods and Testing	g of soils.	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Concrete Technology (B20CE20)	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		on the concrete mix proportioni		
2	Understand the prope	erties of concrete in fresh and r	nardened state.	
3	Admity to know deve	nopment of High Strength and	High Performance Conc	rete.
4	Understand the impo	rtance of durability of concrete	2.	
5	Identify enecial ear-	rate and Quality Control during	a construction	
3	identity special conc	rete and Quality Control during	g construction.	
Course Outcome	Year / Semester : III / V-Sem	Subject Name (Code): Hydrology and Water Resource Engineering (B20CE21)	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	
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	of Flood and Drought and man	agement strategies.	
4	Describe the importa	nce and design water storage re	eservoirs.	
	1	0 0		



Autonomous

Bollikunta, Warangal Urban-506 005 (T.S)

DEPARTMENT OF CIVIL ENGINEERING

<u>CO</u>	URSE OUTCOME	CS (CO's) FOR B.TECH –	CIVIL ENGINEER	<u>ING (R22)</u>
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): Matrices and Calculus (B22MA01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4
After the co	ompletion of this cour	rse, the students should be ab	ole to	
1	Write the matrix repr system of equations.	esentation of a set of linear equ	uations and to analyse th	he solution of the
2	Find the Eigen values			
3	Reduce the quadratic	form to canonical form using	orthogonal transformati	ons.
4	Solve the application	s on the mean value theorems.		
5	Evaluate the imprope	r integrals using Beta and Gan	nma functions.	
6	Find the extreme value	ues of functions of two variable	es with/ without constra	ints.
7	Evaluate the multiple	integrals and apply the concep	pt to find areas, volumes	S.
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	ole 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 cons.	nductor, semiconductor,	, and an insulator by
3	Identify the role of se	emiconductor devices in science	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	aterials.	
6	Understand various a	spects of Lasers and Optical fi	ibre and their application	ns in diverse fields.
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): C Programming and Data Structures (B22CS06)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3
After the co	mpletion of this cour	rse, the students should be ab	ole to	
1	Understand the vario	us steps in Program developme	ent.	
2	Explore the concepts	of control statements and fund	ctions 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 cou	rse, the students should be ab	le to	
1	Study and practice or	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	ompletion of this cou	rse, the students should be ab	ole to	
1	Understand the impo	rtance of vocabulary and sente	nce structures.	
2	Choose appropriate v communication.	vocabulary and sentence structu	ires for their oral and w	ritten
3		derstanding of the rules of fund		
4		sion skills using known and unl		
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 cor	nstant.	
4	Understand the varia	tion of magnetic field and beha	vior of hysteresis curve	·.
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

After the co	ompletion of this cou	rse, the students should be ab	le to		
1	Develop modular and readable C Programs				
2	Solve problems using strings, functions. Handle data in files.				
3	Implement stacks, queues using arrays.				
4	To understand and an	nalyze various searching and so	orting algorithms.		
Course Outcome	Year / Semester : I / I-Sem	Subject Name (Code): English Language and Communication Skills Laboratory (B22EN02) rse, the students should be ab	No. of Hours : L: 0 T: 0 P: 2	Credits: 1	
Arter the co	impletion of this coul	se, the students should be ab	TC to		
1	Understand the nuan activities.	ces of English language throug	h audio- visual experier	nce and group	
2	Neutralize their acce	• •			
3		ng skills so that they may appre e their pronunciation.	ciate its role in develop	ing LSRW skills of	
4	Involve in speaking a	activities in various contexts.			
5	Speak with clarity an	d 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 cou	rse, the students should be ab	le to		
1		, the Engineering graduate will gical principles and environment nent			
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Ordinary Differential Equations and Vector Calculus (B22MA02)	No. of Hours: L: 3 T: 1 P: 0	Credits: 4	
After the co	ompletion of this cou	rse, the students should be ab	le to		
1	Identify whether the	given differential equation of f	irst order is exact or not	t.	
2	Solve higher differer problems.	ntial equation and apply the con	cept of differential equ	ation to real world	
3	Extend the basic confashion.	cepts of differential calculus to	vector functions in a si	mple and natural	
4	Extend the basic confashion.	cepts of differential calculus to	vector functions in a si	mple and natural	
5	Evaluate the line, sur	face and volume integrals and	converting them from o	ne to another.	
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Engineering Chemistry (B22CH01)	No. of Hours : L: 3 T: 1 P: 0	Credits: 4	
After the co	ompletion of this cou	rse, the students should be ab	le to		

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 entrepreneurs.	and practical utility in	order to become
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Computer Aided Engineering Graphics (B22ME03)	No. of Hours : L: 1 T: 0 P: 4	Credits: 3
After the co	ompletion of this cour	rse, 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 Sectional views of solids and	d Development of surfa	ces of solids.
3	Read and interpret er	ngineering drawings.		
4	Conversion of orthogusing computer aided	graphic projection into isometri I drafting.	c view and vice versa n	nanually and by
Course	Year / Semester	Subject Name (Code):	No. of Hours :	
Outcome	: I / II-Sem	Applied Mechanics (B22CE02)	L: 3 T: 0 P: 0	Credits: 3
Outcome	: I / II-Sem			Credits: 3
Outcome After the co	: I / II-Sem ompletion of this cou	(B22CE02)	le to	Credits: 3
Outcome After the co	: I / II-Sem Discreption of this county	(B22CE02) rse, the students should be about of resultant force and moment	ole to Systems.	Credits: 3
Outcome After the co	: I / II-Sem ompletion of this coun Understand concepts Analyze problems re	(B22CE02)	Systems. notion of bodies.	
Outcome After the co	: I / II-Sem Ompletion of this coun Understand concepts Analyze problems re Calculate centroid an	(B22CE02) rse, the students should be about of resultant force and moment lated to friction developed in manual contents.	Systems. notion of bodies. and composite sections	
After the co	Understand concepts Analyze problems re Calculate centroid an	(B22CE02) rse, the students should be about of resultant force and moment lated to friction developed in mid moment of inertia for simple	Systems. notion of bodies. and composite sections	S.
Outcome 1 2 3 4	Understand concepts Analyze problems re Calculate centroid an	(B22CE02) rse, the students should be about of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of the students.	Systems. notion of bodies. and composite sections	S.
Outcome 1 2 3 4 5 Course Outcome	: I / II-Sem Understand concepts Analyze problems re Calculate centroid an Apply concepts of m Understand the appli Year / Semester : I / II-Sem	(B22CE02) rse, the students should be about of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of acation of Work Energy method Subject Name (Code):	Systems. notion of bodies. and composite sections rigid body motion. for plane motion probl No. of Hours: L: 2 T: 0 P: 0	s. ems.
Outcome 1 2 3 4 5 Course Outcome	Understand concepts Analyze problems re Calculate centroid an Apply concepts of m Understand the appli Year / Semester : I / II-Sem	of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of cation of Work Energy method Subject Name (Code): Surveying (B22CE04)	Systems. notion of bodies. and composite sections rigid body motion. for plane motion probl No. of Hours: L: 2 T: 0 P: 0	s. ems.
Outcome 1 2 3 4 5 Course Outcome	: I / II-Sem Understand concepts Analyze problems re Calculate centroid an Apply concepts of m Understand the appli Year / Semester : I / II-Sem Understand this country Understand the work	of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of a cation of Work Energy method Subject Name (Code): Surveying (B22CE04)	Systems. notion of bodies. and composite sections rigid body motion. for plane motion probl No. of Hours: L: 2 T: 0 P: 0	s. ems.
Outcome 1 2 3 4 5 Course Outcome After the council 1 2	Understand concepts Analyze problems re Calculate centroid an Apply concepts of m Understand the appli Year / Semester : I / II-Sem Understand the work Identify data collection	of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of acation of Work Energy method Subject Name (Code): Surveying (B22CE04) rse, the students should be about ing principles of survey instrument methods and prepare field in	Systems. notion of bodies. and composite sections rigid body motion. for plane motion probl No. of Hours: L: 2 T: 0 P: 0 Dele to ments. otes.	s. ems.
Outcome 1 2 3 4 5 Course Outcome	Understand concepts Analyze problems re Calculate centroid an Apply concepts of m Understand the appli Year / Semester : I / II-Sem Understand the work Identify data collection Calculate angles, dist	rse, the students should be about of resultant force and moment lated to friction developed in mid moment of inertia for simple echanics to solve problems of acation of Work Energy method Subject Name (Code): Surveying (B22CE04) rse, the students should be about ing principles of survey instruments.	Systems. notion of bodies. and composite sections rigid body motion. for plane motion probl No. of Hours: L: 2 T: 0 P: 0 Dele to ments. otes. areas using theodolite.	s. ems.

Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): Python Programming Laboratory (B22CS04)	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	Develop the applicat	ion specific codes using pythor	1.	
2		Lists, Tuples and Dictionaries i		
3		ture of exception handling for	•	entions.
4		ng modular approach, file I/O, l		
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 ab	ole to	
1	Able to determine th	e hardness of water		
2		hods such as conductometry, ar	nd potentiometry in orde	er to find out the
3		prepare polymers like bakelite a		
4	-	cation value, and viscosity of lu		
Course Outcome	Year / Semester : I / II-Sem	Subject Name (Code): 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 ab	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 e	to judge which type of instruments the area.	ent to be used for carryi	ng out survey for a
4	Student will be able map.	to judge the profile of ground b	y observing the availab	le existing contour
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): 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 ab	le to	
1	After learning the co	ntents of this paper the student	must be able to	
2		of probability and distributions		
3		ts of one unit to the concepts ir		
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Building Materials, Construction and Planning (B22CE06)	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	Comprehend differen	it types of construction materia	п.	
2	Understand the mand	nacturing of Cement and role (or Admixtures.	
3	identity the concept of building components and services.			
4	Know the importance of wrasonry and formwork.			
5	Plan a building based on the factors and principles of planning.			
			F8.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Engineering Geology (B22CE07)	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	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 abov	ut structural geology.		
4	Understand the effec	ts of earthquakes and importan	ce of geophysical studi	es.
5	Understand the appli tunnels	cation of geological investigati	on in projects such as d	lams, Reservoirs and
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): 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	Subject Name (Code): 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	
1	Understand the broad	d principles of fluid statics,		
2	Learn the concept of	fluid kinematics and dynamics		
3	Understand the meas	urement of flow in pipes and n	otches.	
4	Understand classifica	ations of flow losses through pa	ipes.	
5	Apply the continuity,	momentum and energy princip	oles.	
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Surveying Laboratory - II (B22CE10)	No. of Hours : L: 0 T: 1 P: 2	Credits: 2

1	Calculate area of give	on plot/points using theodelite	CHANON	
1	Calculate area of given plot/points using theodolite survey. Determine the angle/distance of given points using theodolite survey.			
2			•	•
3	· ·	tance and elevation of the give	1 0	ion.
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	mpletion of this cour	rse, the students should be ab	le to	
1	Identify the bending	behavior of beams using bendi	ng test.	
2	Determine the behav	ior of material under torsion.		
3	Determine the hardne	ess of materials using different	tests.	
4		ristic of material under compre		test.
Course Outcome	Year / Semester : II / III-Sem	Subject Name (Code): Computer Aided Drafting Laboratory (B22CE12)	No. of Hours : L: 0 T: 0 P: 2	Credits: 1
After the co	ompletion of this cour	rse, the students should be ab	le to	
1	Plan buildings as per	NBC.		
2	Draw brick bonds, P	lan, Section and Elevation of b	uildings.	
3	Develop residential b	ouilding and public building as	per the building by-law	S.
4	Draw Electrical layor	ut, Plumbing layout for buildin	gs.	
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 cour	rse, the students should be ab	le 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 cour	rse, the students should be ab	le to	
1		electrical circuits using netwo		
2	To understand and ar	nalyze basic Electric and Magn	etic circuits.	
3	To study the working	g principles of Electrical Machi	nes.	
4	To introduce compor	nents of Low Voltage Electrical	l Installations.	
5	•	acterize diodes and various type		
Course Outcome	Year / Semester : II / IV-Sem	Subject Name (Code): Concrete Technology (B22CE13)	No. of Hours : L: 3 T: 0 P: 0	Credits: 3

After the co	empletion of this cour	se, the students should be ab	ole to	
1	Acquire knowledge of	on the testing of aggregates and	l its properties.	
2		erties of concrete in fresh state.		
3		perties of concrete in hardened		
4		oncept of Elasticity, Creep and		
5	•	es of admixtures and special co		
		Subject Name (Code):		
Course	Year / Semester	Strength of Materials – II	No. of Hours:	Credits: 3
Outcome	: II / IV-Sem	(B22CE14)	L: 3 T: 0 P: 0	Cicuits. 5
After the co	mpletion of this cour	rse, the students should be ab	ole to	I
1	_	ept of torsion of circular shafts		
2	Determine the critical	l load of columns.		
3	Evaluate the direct ar	nd bending stresses of different	t structures.	
4		es developed in thick and thin o		
5		etrical bending of beams and s	•	t section.
	Year / Semester	Subject Name (Code):		
Course	: II / IV-Sem	Hydraulics and Hydraulics	No. of Hours:	
Outcome		Machinery (B22CE15)	L: 3 T: 0 P: 0	Credits: 3
0 0000		, , , ,	200 200 200	
After the co	mpletion of this cour	se, the students should be ab	le to	
1		nowledge in open-channel hyd		ering.
2		l analysis and similarity to dev		. <u> </u>
3		turbo-machines and its efficie		
4		ydraulic turbines and their ope		
5		ance of centrifugal pumps.	rational design.	
	•	Subject Name (Code):		
Course	Year / Semester	Structural Analysis - I	No. of Hours:	Credits: 3
Outcome	: II / IV-Sem	(B22CE16)	L: 3 T: 0 P: 0	Credits. 5
After the co	mpletion of this cour	rse, the students should be ab	le to	
1		plane frames by different metho		
2	, , , ,	arches and understand the cor		IS.
3		erminate beams with rotation of		
4		sing three moments and slope of		
5	-	ept of moving loads and influen		
<i>J</i>	Shadistand the collect			
Carren	Voor / Correction	Subject Name (Code):	No of Hear	
Course	Year / Semester	Fluid Mechanics and	No. of Hours:	Credits: 1
Outcome	: II / IV-Sem	Hydraulics Machinery	L: 0 T: 0 P: 2	
4.07		Laboratory (B22CE17)	<u> </u>	
	, <u>*</u>	rse, the students should be ab		ination
1		easurement techniques of fluid		
2		l understanding of the minor a		
3	-	orking of Hydraulic machines-	• •	ines,
	_	cellaneous hydraulics machine		
4	Compare results of a	nalytical models with actual be	havior of real fluid flov	vs.
		Subject Name (Code):		
Course	Year / Semester	Basic Electrical and	No. of Hours:	Credits: 1
Outcome	: II / IV-Sem	Electronics Engineering	L: 0 T: 0 P: 2	Cicuits. 1
		Laboratory (B22EE20)		

After the co	ompletion of this cou	rse, the students should be ab	ole to	
1		electrical circuits using netwo		
2	To understand and analyze basic Electric and Magnetic circuits.			
3	To study the working	g principles of Electrical Machi	ines.	
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	ompletion of this cour	rse, the students should be ab	ole to	
1	Acquire knowledge	on the properties of cement and	l aggregate.	
2	Evaluate the workabi	lity of fresh Concrete.		
3	Determine the streng	th characteristics of hardened of	concrete.	
4	Gain knowledge of N	Von-destructive test on concrete	2.	
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	mpletion of this cou	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 cou	rse, the students should be ab	le to	
1		eveloped a better understanding		lated 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	Students will attain a finer grasp of how gender discrimination works in our society and how to counter them. Students will acquire insights into the gendered division of labour and its relation to politics and economics.			
4		o a sense of appreciation of wo onals will be better equipped to		
5		ccounts of studies and moveme to women, the textbook will en		



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Bollikunta, Khila Warangal (Mandal), Warangal Urban-506 005 (T.S), www.vaagdevi.edu.in DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

<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:
Outcome	I Sem	(B20MA01) Linear Algebra & Calculus	4
After the co	ompletion of this co	urse, the students should be able to	
1	Understand the prince equations using multiple	ciples of matrix to calculate the characteristics of syst	tem of linear
2		lues, Eigenvectors of matrices.	
3		of sequence and series to identify the convergence.	
4	Evaluate limits of six	ngle-variable functions graphically and computationa	ılly.
5	Calculate Partial der	ivatives, extreme of functions of multiple variables.	
Course	Semester	(B20CS01) Programming for Problem	
Outcome	I Sem	Solving	L: 4 T: 0 P: 0 C: 4
After the co		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 sequence scientific and engine	ing, branching, looping and decision making stateme eering problems.	ents 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 st	andard
Course	Semester	(B20PH01) Modern Physics	
Outcome	I Sem	(B201 H01) Modern I hysics	L:3 T: 0 P: 0 C: 3
After the co	mpletion of this cours	e, the students should be able to	
1	Understands the bas	sic principles and hypothesis of quantum mechanics.	
2		ne concepts of wave optics for accurate determination	
		ilms, Newton's rings and the diffraction in single slit	
3		eteristics and working of lasers and their applications	in
Λ	various fields.		
4		s on the basis of energy band gap, and evaluates the en semiconductors for device applications.	carrier
5		of the light propagation in optical fibres in optical	
3	communication syste		
Course	Semester	(D20CH02) Chamisture	I . 2 T. 0 D. 0 C. 2
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	Ŭ	les and concepts of corrosion, control methods.	
3	The knowledge of w	•	
4	The knowledge of po	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	(B20ME01) Engineering Drawing	L: 0 T: 0 P: 4 C: 2	
Outcome	I Sem	(B20WE01) Engineering Drawing	L. 0 1. 01. 4 C. 2	
After the co	mpletion of this cours	e, the students should be able to		
1	Understand various of AUTOCAD.	commands, modify the applications and object proper	erties in	
2	Analyse the Projecti	ons of Points and solids.		
3		Estimate the use of drawings, dimensioning, scales and conic sections.		
4	Compare the Conver	rsion of Isometric views to Orthographic views.	T	
Course	Semester	(B20PH05) Physics Lab	L: 0 T: 0 P: 3 C:	
Outcome	I Sem	(22021200) 2 11,5005 200	1.5	
After the co	mpletion of this cours	e, the students should be able to		
1	Estimate the frequen	cy of tuning for and AC supply with the help of stre	tched strings.	
2	Analyze as well as c Patterns.	ompare the intensity distribution of interference and	diffraction	
3	Draw the characterist Parameters.	stics of electrical and electronic circuits and evaluate	the dependent	
4		and the applications of semiconducting devices.		
5	Evaluates the wavelerings.	ength and radius of curvature of Plano convex lens b	y Newton's	
Course	Semester	(B20CS02) Programming for Problem	L: 0 T: 0 P: 3 C:	
Outcome	I Sem	Solving Lab	1.5	
After the co	mpletion of this cours	e, the students should be able to		
1	Understand basic str	ructure of the C Programming, data types, declaration ructures and all related concepts.	n and usage of	
2	Understand any algo	orithm and Write the C programming code in executa	able form.	
3	Implement Programs real time problems.	s using functions, pointers and arrays, and use the pr	e-processors to solve	
4	Ability to use file str	ructures and implement programs on files.		
Course	Semester	(B20MA02) Differential Equations & Vector	L: 3 T: 1 P: 0 C:	
Outcome	II Sem	Calculus	4	
After the co	ompletion of this co	urse, the students should be able to		
1	Apply the fundamen	tal concepts of ordinary differential equations to rea	l time problems.	
2		olution of a non homogeneous differential equations	and applying its	
2	concepts in Engineer			
3	•	e integrals in various coordinate systems.	anin a muahla	
5		of gradient, divergence and curl to formulate Engine and volume integrals using fundamental theorems.	ering problems.	
	*	and volume integrals using fundamental theorems.		
Course	Semester	(B20EC01) Basic Electronic devices L:	3 T: 1 P: 0 C: 4	
Outcome	II Sem			
-		e, the students should be able to		
1	-	eristics of the PN junction diode and Zener diode.		
2		with and without filters for specified DC voltage.	CC .	
3	Illustrate the voltage	-current characteristics of Junction Transistor and di	tterent	



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	configurations of Tr	ansistor.			
4	Design and analyze the different biasing circuits and amplifier circuits.				
5	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.				
Course	Semester	(D20EE02) Elegation Circuita	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem	(B20EE03) Electrical Circuits			
After the co	mpletion of this cours	se, the students should be able to			
1		trical circuits such as laws, transformation and network	rk theorems and		
	network reduction to	•			
2	Generate voltage and current waveforms for 3 phase AC circuits and study the relationship				
		d current in star and delta connections.			
3		tworks with ABCD parameters.			
4		state and transient operation of series and parallel RL0			
5	Classify various typ	es for filters and attenuators and study their character	istics.		
Course	Semester	(B20CS05) Basic Python programming	I. 2 T. 0 D. 0 C. 2		
Outcome	II Sem	(B20C303) Basic 1 ython programming	L: 3 T: 0 P: 0 C: 3		
After the co	mpletion of this cours	se, the students should be able to			
1	, -	nentals of writing Python scripts.			
2	Expressing the Core	Python scripting elements such as variables and flow	control structures.		
3	Apply Python functi	ons to facilitate code reuse.			
4	Extending how to w	ork with lists and sequence data.			
5	Adapting the code re	bust by handling errors and exceptions properly.			
Course	Semester	(B20EN02) English Language and Interactive	L: 0 T: 0 P: 3 C:		
Outcome	II Sem	Communication Skills Lab	1.5		
After the co	mpletion of this cours	se, the students should be able to			
1.		nces of English language through audio-visual experie	ence and group		
	activities.				
2.	Speak with clarity and confidence which in turn enhances their employability skills.				
3.	Speak with clarity a	nd confidence which in turn enhances their employab	ility skills.		
	Develop their listening	ng skills so that they may appreciate its role in developing	·		
	Develop their listening language and improve	ng skills so that they may appreciate its role in developing their pronunciation.	·		
4.	Develop their listenir language and improv Involve the students	ng skills so that they may appreciate its role in developing	ng LSRW skills		
4. Course	Develop their listening language and improve	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts.	·		
	Develop their listenir language and improv Involve the students	ng skills so that they may appreciate its role in developing their pronunciation.	ng LSRW skills		
Course Outcome	Develop their listening language and improve Involve the students in Semester II Sem	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts.	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome	Develop their listenir language and improv Involve the students Semester II Sem mpletion of this cours	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome	Develop their listenir language and improv Involve the students Semester II Sem mpletion of this cours	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Laburacteristics and operation of Semiconductor diodes.	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome After the con	Develop their listening language and improve Involve the students in Semester II Sem	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Laburacteristics and operation of Semiconductor diodes.	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome After the con 1 2	Develop their listening language and improve Involve the students in Semester II Sem	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to a paracteristics and operation of Semiconductor diodes. Cutifier circuits. aracteristics of BJT, FET and UJT.	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome After the con 1 2 3	Develop their listenir language and improv Involve the students Semester II Sem mpletion of this course Demonstrate the character Analyze different re Demonstrate V-I character in the students of the students of the seminary of the students of the stude	ng skills so that they may appreciate its role in developing the their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab see, the students should be able to a paracteristics and operation of Semiconductor diodes. Cetifier circuits. aracteristics of BJT, FET and UJT. conic circuits.	ng LSRW skills L: 0 T: 0 P: 3 C:		
Course Outcome After the con 1 2 3 4	Develop their listening language and improve Involve the students in Semester II Sem	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to a paracteristics and operation of Semiconductor diodes. Cutifier circuits. aracteristics of BJT, FET and UJT.	L: 0 T: 0 P: 3 C: 1.5		
Course Outcome After the course Course Outcome	Develop their listenir language and improv Involve the students Semester II Sem mpletion of this course Demonstrate the char Analyze different re Demonstrate V-I char Design simple electrons Semester II Sem	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to a racteristics and operation of Semiconductor diodes. Caracteristics of BJT, FET and UJT. ronic circuits. (B20CS09) Basic Python programming Lab	L: 0 T: 0 P: 3 C: L: 0 T: 0 P: 3 C:		
Course Outcome After the course Course Outcome	Develop their listening language and improved Involve the students of the stud	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to a racteristics and operation of Semiconductor diodes. Cifier circuits. aracteristics of BJT, FET and UJT. conic circuits. (B20CS09) Basic Python programming Lab se, the students should be able to	L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5		
Course Outcome After the con 1 2 3 4 Course Outcome After the con	Develop their listenin language and improve Involve the students in Semester II Sem Manual Semester II Sem Demonstrate the character of the character of the character of the character of the semester of the semester of the course of the	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab Se, the students should be able to a paracteristics and operation of Semiconductor diodes. Caracteristics of BJT, FET and UJT. Tonic circuits. (B20CS09) Basic Python programming Lab Se, the students should be able to appreciate its role in developing their products.	L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5		
Course Outcome After the con 1 2 3 4 Course Outcome After the con 1	Develop their listenin language and improv Involve the students Semester II Sem mpletion of this course Demonstrate the char Analyze different re Demonstrate V-I char Design simple electron Semester II Sem mpletion of this course Expressing the Core Apply Python function	ng skills so that they may appreciate its role in developing their pronunciation. In speaking activities in various contexts. (B20EC02) Basic Electronic Devices Lab se, the students should be able to a racteristics and operation of Semiconductor diodes. Cifier circuits. aracteristics of BJT, FET and UJT. conic circuits. (B20CS09) Basic Python programming Lab se, the students should be able to	L: 0 T: 0 P: 3 C: 1.5 L: 0 T: 0 P: 3 C: 1.5		



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Course Outcome	Semester II Sem	(B20ME03) Engineering & IT Workshop	L: 0 T: 0 P: 3 C: 1.5	
		se, the students should be able to		
1	Know the fundamental knowledge of House wiring and soldering and their usage in real time Applications.			
2		electronic components and measuring instruments	S.	
3	Use basic concepts of	of computer hardware for assembly and disassemb	oly.	
4	Use Microsoft tools			
Course	Semester	(B20MA09) Numerical Methods and	L: 3 T: 1 P: 0 C: 4	
Outcome	III Sem	Complex Variables	L. 3 1. 11. 0 C. 4	
After the co	_	urse, the students should be able to		
1		imate root of a given equation using appropriate in		
2		tion to solve the differential equations using nume	erical techniques.	
3		x function with reference to their analyticity.		
4		functions by using Taylor's and Laurent's series.		
5		egrals and transforms the functions from one plan		
Course Outcome	Semester III Sem	(B20EC03) Signals and Systems	L: 3 T: 0 P: 0 C:	
After the co	ompletion of this co	urse, the students should be able to		
1		e of vectors, orthogonal basis to signals. Analyze ontinuous-time periodic signals using Fourier series	-	
2		ply Fourier transform on various signals.		
3	Apply the Laplace to signals.	ransform and Fourier transform for the analysis of	continuous-time	
4	Analyse systems bas	sed on their properties and determine the response	of LTI system.	
5	Understand the cond	epts of convolution and correlation of signals.		
Course Outcome	Semester III Sem	(B20EC04) Electronic Circuits Analysis	L: 3 T: 0 P: 0 C:	
After the co		urse, the students should be able to		
1	•	e the Low frequency model of transistor and evaluate	te the h-parameters.	
2	•	nd multi stage amplifiers in high frequency region.		
3	specifications.	the negative feedback amplifiers and oscillators acc	cording to the required	
4		ncies of large signal amplifiers.		
5		t various tuned amplifiers.		
Course Outcome	Semester III Sem	(B20EC05) Switching Theory and Logic Design	L: 3 T: 0 P: 0 C:	
After the co	_	urse, the students should be able to		
1	NOT).	the functionality of logic gates (AND, NAND, O		
2		nbinational circuits using minimization technique	S.	
3	•	flops and design various registers.		
4		basic sequential circuits and counters.		
5		ze completely specified and incompletely specifie		
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 m	nagnetic circuits and its analysis.		
2	Understand the principle of operation of DC machines and their applications.			
3	Analyze the construction, types, performance and its applications			
4	Understand the rotati	ng 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	2	
After the co	ompletion of this co	urse, the students should be able to	•	
1	_	gital text to summarize it for future reference.		
2	Read the text to make	e notes according to their needs.		
3		e effectively in spoken and written forms.		
4		ently in various contexts and different cultures.		
		ency in English including reading and listening con	nnrehension writing and	
5	speaking skills.	ency in English meruding reading and fistening con	iipichension, witting and	
Course	Semester	(B20EC06) Electronic Circuits Analysis	I.OT.OD. 2 C. 15	
Outcome	III Sem	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		cept of multistage amplifiers, analysis of multi	stage amplifier and plot	
	frequency response.			
2		I test amplifier circuits and interpret the results.		
3	^	st equipment and hardware/software tools to charac	terize the behaviour	
4	Synthesize and evaluate single stage and multi stage amplifiers.			
	•			
Course	Semester	(B20EC07) Electronic Simulation EDA	L: 0 T: 0 P: 3 C: 15	
Course Outcome	Semester III Sem	(B20EC07) Electronic Simulation EDA Tools Lab	L: 0 T: 0 P: 3 C: 1.5	
Course Outcome	Semester III Sem ompletion of this co	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to		
Course Outcome After the co	Semester III Sem Ompletion of this co Illustrate different ty	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi	ng MATLAB.	
Course Outcome After the co	Semester III Sem ompletion of this co Illustrate different ty Demonstrate the imp	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usive portance of convolution and correlation for different	ng MATLAB.	
Course Outcome After the co	Semester III Sem Ompletion of this co Illustrate different ty Demonstrate the imp	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi cortance of convolution and correlation for different gital circuits.	ng MATLAB. nt applications.	
Course Outcome After the co	Semester III Sem Ompletion of this co Illustrate different ty Demonstrate the imp	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usive portance of convolution and correlation for different	ng MATLAB. nt applications.	
Course Outcome After the co	Semester III Sem III Sem III Sem Illustrate different ty Demonstrate the imp Simulate various dig Design and develop Semester	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usinortance of convolution and correlation for differential circuits. functional analysis of combinational & sequential	ng MATLAB. nt applications. al circuits.	
Course Outcome After the co 1 2 3 4 Course Outcome	Semester III Sem Dempletion of this condition of the condition of this condition of the condition of this condition of this condition of the condition	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi cortance of convolution and correlation for different gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1	ng MATLAB. nt applications.	
Course Outcome After the co 1 2 3 4 Course Outcome	Semester 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	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi cortance of convolution and correlation for different gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to	ng MATLAB. nt applications. al circuits.	
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1	Semester 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	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi cortance of convolution and correlation for different 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.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1	
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2	Semester 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 that	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usinortance of convolution and correlation for differential circuits. functional analysis of combinational & sequential (B20EC08) Project Based Learning-1 urse, the students should be able to tal and engineering concepts in projects. at include critical thinking, communication and createring tools.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1	
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Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3 4 5	Semester 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 that Identify meaningful of Design and develop l Develop team work a	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usinortance of convolution and correlation for differential circuits. functional analysis of combinational & sequential (B20EC08) Project Based Learning-1 urse, the students should be able to tall and engineering concepts in projects. In include critical thinking, communication and create connections across content of the course. The earning concept models for societal perceptive.	ng MATLAB. nt applications. al circuits. L: 0 T: 0 P: 2 C: 1	
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Course Outcome After the co 1 2 3 4 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	Semester 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 that Identify meaningful of Design and develop I Develop team work a Semester IV Sem Ompletion of this co- Design the circuits for like computers, contra Analyze the application	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usi cortance of convolution and correlation for different gital circuits. functional analysis of combinational & sequentia (B20EC08) Project Based Learning-1 urse, the students should be able to cal and engineering concepts in projects. at include critical thinking, communication and create connections across content of the course. earning concept models for societal perceptive. umong multidisciplinary environment and engages I (B20EC12) Pulse and Digital Circuits urse, the students should be able to or generating desired wave shapes (non-sinusoidal) rol 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.	
Course Outcome After the co 1 2 3 4 Course Outcome After the co 1 2 3 4 5 Course Outcome After the co 1 1 1	Semester 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 the Identify meaningful of Design and develop I Develop team work a Semester IV Sem ompletion of this co Design the circuits for like computers, contr Analyze the applicati Analyze the switchin	(B20EC07) Electronic Simulation EDA Tools Lab urse, the students should be able to pes of signals and methods of generating them usinortance of convolution and correlation for differentiatal circuits. functional analysis of combinational & sequentiation (B20EC08) Project Based Learning-1 urse, the students should be able to tal and engineering concepts in projects. at include critical thinking, communication and creation connections across content of the course. tearning concept models for societal perceptive. temong multidisciplinary environment and engages I (B20EC12) Pulse and Digital Circuits urse, the students should be able to or generating desired wave shapes (non-sinusoidal) ool 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 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 L: 3 T: 0 P: 0 C: 3				
Outcome	IV Sem	Communications	L: 5 1: 0P: 0C: 5		
After the co	ompletion of this co	urse, the students should be able to			
1	Analyze and simulate the concepts of AM and AM Demodulation in communication.				
2	Interpret with various angle modulation and demodulation systems.				
3	Demonstrate the unde	erstanding of various baseband transmission techni	ques.		
4	Demonstrate the unde	erstanding of various digital modulation and democ	dulation techniques.		
5		or detection and error correction codes like block			
Course	Semester	(B20EC14) Electromagnetic Theory and	T 2 T 0 D 0 C 2		
Outcome	IV Sem	Transmission Lines.	L: 3 T: 0 P: 0 C: 3		
	ompletion of this co	urse, the students should be able to			
1	Apply vector calculu	us to electrostatic fields in different engineering as to find fields and potentials for a variety of situ			
2	Explain, illustrate & situations.	can apply the concept of Magnetostatics in diffe	rent engineering		
3		he concept of conductors, dielectrics & capacitanoninologies and; be able to compute the Pointing vec			
4	Study time varying	Maxwell's equations and their applications is ele	ctromagnetic problems.		
5		mission lines with equivalent circuit and explain different engineering situations.	n their characteristics &		
Course	Semester	(B20EC15) Probability Theory and			
Outcome	IV Sem	Stochastic Process	L: 3 T: 0 P: 0 C: 3		
			L: 3 T: 0 P: 0 C: 3		
	ompletion of this co	Stochastic Process			
After the co	Ompletion of this co Understand the basic	Stochastic Process urse, the students should be able to	ses.		
After the co	Understand the basic Solve simple enginee	Stochastic Process urse, the students should be able to concepts of probability theory and random process	ses.		
After the co	Understand the basic Solve simple enginee Compare and contras	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions	ses. onal random variables.		
1 2 3	Understand the basic Solve simple enginee Compare and contras Analyze the autocorre	Stochastic Process urse, the students should be able to concepts of probability theory and random process tring problems with the knowledge of two dimensions the various random processes.	ses. onal random variables.		
1 2 3 4	Understand the basic Solve simple enginee Compare and contras Analyze the autocorre	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions the various random processes. elation and cross correlation functions and their pro-	ses. onal random variables.		
After the control of	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions to the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law.	ses. onal random variables. operties.		
After the control of	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this co	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions to the various random processes. elation and cross correlation functions and their pro- of information theory and Shannon law. (B20EC16) Computer Organization	ses. onal random variables. operties.		
After the constant of the cons	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Describe the fundamental	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions to 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.	ses. onal random variables. operties. L: 3 T: 0 P: 0 C: 3		
After the constant of the cons	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Describe the fundame Understand the concepts	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions of the various random processes. The various random processes random processes. The various random processes	ses. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons.		
1 2 3 4 5 Course Outcome After the co	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Understand the conce Understand the conce	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions at the various random processes. The elation and cross correlation functions and their process of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to central organization of a computer system. The epts of register transfer logic and arithmetic operation of the epts of Hardwired control and micro programmed of the entry of the	ses. onal random variables. operties. L: 3 T: 0 P: 0 C: 3 ons.		
1 2 3 4 5 Course Outcome After the course 1 2 3 4 4	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Understand the concepts Understand the concepts Explain the I/O and reserved.	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions at the various random processes. The elation and cross correlation functions and their process of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to ental organization of a computer system. The epts of register transfer logic and arithmetic operation of the epts of Hardwired control and micro programmed of the memory organization in depth.	bes. consideration of the second random variables. L: 3 T: 0 P: 0 C: 3 cons. control.		
1 2 3 4 5 Course Outcome After the co	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Understand the concepts Understand the concepts Explain the I/O and reserved.	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions at the various random processes. The elation and cross correlation functions and their process of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to central organization of a computer system. The epts of register transfer logic and arithmetic operation of the epts of Hardwired control and micro programmed of the entry of the	bes. consideration of the second random variables. L: 3 T: 0 P: 0 C: 3 cons. control.		
After the constraint of the co	Understand the basic Solve simple enginee Compare and contras Analyze the autocorre Understand concepts Semester IV Sem Ompletion of this concepts Understand the concepts Understand the concepts Explain the I/O and re Understand the concepts Explain the I/O and re Understand the concepts Explain the I/O and re Understand the concepts Semester IV Sem	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions at the various random processes. The lation and cross correlation functions and their process of information theory and Shannon law. (B20EC16) Computer Organization urse, the students should be able to the lation of a computer system. The lation of t	cessor communication.		
After the control of	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Understand the concepts Understand the concepts Understand the concepts Explain the I/O and refunderstand the concepts Understand the concepts Explain the I/O and refunderstand the concepts Semester IV Sem Ompletion of this concepts	Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimensions of the various random processes. The various random proces	cess. Donal random variables. Deperties. L: 3 T: 0 P: 0 C: 3 Dons. Donal random variables. L: 0 T: 0 P: 0 C: 3		
After the constraint of the co	Understand the basic Solve simple enginee Compare and contras Analyze the autocorr Understand concepts Semester IV Sem Ompletion of this concepts Understand the concepts Understand the concepts Understand the concepts Explain the I/O and representation of this concepts Understand the concepts Semester IV Sem Ompletion of this concepts Understand the concepts Ompletion of this concepts Understand the concepts Understand the concepts Understand the concepts Ompletion of this concepts Understand the applied	Stochastic Process urse, the students should be able to concepts of probability theory and random process ring problems with the knowledge of two dimensions at the various random processes. The elation and cross correlation functions and their process of information theory and Shannon law. (B20EC16) Computer Organization The entral organization of a computer system. The epts of register transfer logic and arithmetic operation epts of Hardwired control and micro programmed computer organization in depth. The epts of parallel processing, pipelining and inter processing processing, pipelining and inter processing the entral organization in depth. The entral organization in depth. The epts of parallel processing, pipelining and inter processing the entral organization in depth. The entral organization in d	ces. Donal random variables. Deperties. L: 3 T: 0 P: 0 C: 3 Dons. Donal random variables. L: 0 T: 0 P: 0 C: 3		
After the control of	Understand the basic Solve simple engineer Compare and contrast Analyze the autocorrular Understand concepts Semester IV Sem Ompletion of this concepts Understand the applied Understand the appl	Stochastic Process urse, the students should be able to concepts of probability theory and random process ering problems with the knowledge of two dimensions of the various random processes. The various random proces	cess. Dispersional random variables. Dispersional random var		



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4	Design and analyze U	JJT relaxation oscillator and boot-strap sweep circu	uits		
Course Outcome	Semester IV Sem	(B20EC18) Analog and Digital Communications lab	L: 0 T: 0 P: 3 C: 1.5		
After the co		urse, the students should be able to			
1	Understand the different types of modulation techniques.				
2	Understanding the multiplexing and coding schemes.				
3	_	al modulation and demodulation techniques.			
4	** *	lation schemes and coding for various applications			
Course Outcome	Semester IV Sem	(B20EC19) Hardware Design Lab	L: 0 T: 0 P: 2 C: 1		
After the co	ompletion of this co	urse, the students should be able to			
1	Design their own pro	jects on PCB up to industrial grade.			
2	Understand the Design	gn concepts of various Analog circuits and their app	plications.		
3	Design and analyze t	he different Digital logic circuits.			
4	Understand the Ardu	ino Uno board and to interface various real time ap	plication circuits.		
Course Outcome	Semester IV Sem	(B20EC20) Project Based Learning-2	L: 0 T: 0 P: 2 C: 1		
After the co	ompletion of this co	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.	·		
4	• •	earning concept models for societal perceptive.			
5		among multidisciplinary environment and engages	lifelong learning.		
Course	Semester	(B20EC23) Linear & Digital IC	T 2 T 0 D 0 C 2		
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		ntional amplifiers with linear integrated circuits.			
2		ve filter configurations based on frequency respon-	se and construct using 741		
3	•	the concepts of timer using IC 555, basic principle	of PLL.		
4	_	ADC and DAC techniques			
5		al and Sequential circuits using ICs.			
Course Outcome	Semester V Sem	(B20EC24) Digital Signal Processing	L: 3 T: 0 P: 0 C: 3		
		urse, the students should be able to			
1		types of the discrete signals and systems.			
2	-	FFT and interrelation between DFT and various tr	ansforms.		
		acteristics of FIR filters and classify the different ty			
3	techniques.	in a second control of the second control of	1		
4		filters for a given specifications and Apply the kno	wledge to real world		
5	Understand different	types of signal processing architectures.			
Course Outcome	Semester V Sem	(B20EC25) Control Systems	L: 3 T: 0 P: 0 C: 3		
		urse, the students should be able to	1		
1		ept of feedback and analyze the control system con	ponents by their		
	1				



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	Mathematical modeli	ing.		
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 stability of the			
_	Test system Controllability and Observability using state space representation and applications of			
5	state space representa	ation to various systems.	**	
Course	Semester	(B20EC26) Electronic Measurements and	L: 3 T: 0 P: 0 C: 3	
Outcome	V Sem	Instrumentation (Professional Elective – I)	L. 3 1. 01. 0 C. 3	
After the co		urse, the students should be able to		
1		mental concepts, different terminology related	to measurements and	
1	principles of instru			
2		ons of the various instruments required in measure	surements.	
3		ment techniques for different types of tests.		
4	•	ment for various parameters measurement.		
5	Apply knowledge of	of different oscilloscopes like CRO, DSO and d	isplay devices.	
Course	Semester	(B20EC27) Computer Networks		
Outcome	V Sem	(Professional Elective – I)	L: 3 T: 0 P: 0 C: 3	
		,		
After the c		urse, the students should be able to		
1	•	n to understand World Wide internet concepts.		
2		monstrate and explore the basics of Computer Netw	orks and various	
	protocols.	1 10 010		
3	•	to administrate a network and flow of informat	10n.	
4	•	ferent internetworking protocols.		
5		e different Internet Transport Protocols.		
Course	Semester	(B20EC28) Basic JAVA Programming	L: 3 T: 0 P: 0 C: 3	
Outcome	V Sem	(Professional Elective – I)		
After the co		urse, the students should be able to		
1		of OOP concepts and solve real world problem	ns using OOP	
	techniques.			
2		iplinary applications using the concept of inher		
3		tithreading concepts and develop efficient app		
4	-	oplications and develops applets for web application		
5		sing JDBC connectivity to access data from da	tabase and execute	
	different queries to			
Course	Semester	(D20MD04) N/ 1.15	T. 27 AD AC C	
Outcome	V Sem	(B20MB01) Managerial Economics &	L: 3 T: 0 P: 0 C: 3	
		Financial Analysis		
		urse, the students should be able to		
1	•	are, scope and importance of Managerial Econo		
Know what is demand, analyze demand ar		and analyze demand and how electroity of dem	and is used for pricing	
2			and is asea for pricing	
2	decisions and to eva	aluate methods for forecasting demand.		
3	decisions and to eva			
3	decisions and to ever Know how production to analyze cost.	aluate methods for forecasting demand. on function is carried out to achieve least cost comb	ination of Inputs and how	
	decisions and to ever Know how production to analyze cost. Understand the character	aluate methods for forecasting demand.	ination of Inputs and how different form of business	



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Course	Semester	(B20EC29) Linear & Digital IC			
Outcome	V Sem	Applications Lab	L: 0 T: 0 P: 2 C: 1		
	ompletion of this course, the students should be able to				
1	Design circuits using operational amplifiers for various applications.				
3		ent logical gates & decoders, flip-flops.			
	***	of OP-AMPS to design various analog circuits.			
4	_	ligital integrated IC's.	Γ		
Course Outcome	Semester V Sem	(B20EC30) Digital Signal Processing 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	Analyze signals using	g the discrete Fourier transform (DFT).			
2	Understand Convolut	ion process.			
3	Understand FFT algo	rithm for efficient computation of DFT.			
4	Design IIR & FIR filt	ters.			
Course	Semester	(B20EN03) Advanced English	I 0 T 0 D 2 C 1 5		
Outcome	V Sem	Communication skills lab	L: 0 T: 0 P: 3 C: 1.5		
		urse, the students should be able to			
1	_	discussion to present their viewpoints briefly	and effectively		
1		riting and felicity in written expression in Rés			
2		itting and tenerty in written expression in Kes	ume / Curriculum vitae		
2	/ reports.	4 4 4 4 4 1 1 1 4 4 4 4			
3	•	atly with appropriate body language in intervie			
4		building skills and capabilities for effective de	ecision making.		
Course Outcome	Semester V Sem	(B20EC31) Project Based Learning-3	L: 0 T: 0 P: 2 C: 1		
		urse, the students should be able to	I		
1		al and engineering concepts in projects.			
2		at include critical thinking, communication and creater	ativity		
3	_	connections across content of the course.	attvity.		
4	·	earning concept models for societal perceptive.			
			lifelen e le emin e		
5		mong multidisciplinary environment and engages	interiong rearning.		
Course	Semester	(B20EC32) Microprocessors &	L: 3 T: 0 P: 0 C: 3		
Outcome	VI Sem	Microcontrollers	2.0 1.01.0 0.0		
After the co	ompletion of this co	urse, the students should be able to			
1	Illustrate the	internal organization of	popular 8086/8051		
	microprocessors/mi	crocontrollers.			
	_	and software interaction and integration.			
2		ssors and microcontrollers based systems and	develop microcontroller		
	1 -	-	1		
3	based systems for real time applications. Understand microcontroller 8051 and its programming.				
4		organization classification and their applications.			
5		interfacing etc of various devices with microproce	ssors and external world		
		interfacing etc of various devices with interoproce	boots and external world.		
Course	Semester	(DANECTA) VI CL Danie	L: 3 T: 0 P: 0 C: 3		
Outcome	VI Sem	(B20EC33) VLSI Design			
After the co		e, the students should be able to			
	I =				
1 2	Design digital appli	cations using Verilog HDL nology and basic electrical properties of MOS			



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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 co	ompletion of this co	urse, the students should be able to		
1		s like antenna efficiency, beam efficiency, radiation	n resistance etc. in the	
	design of an antenna.			
2	antenna pattern meas	ys, illustrate antenna measurements and arrange a surements in the laboratory.	•	
3	independent and Ape			
4	Classify the different estimate the parameter	wave propagation mechanisms, determine their chers involved.	aracteristic features and	
5		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 co	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	design fault safe circuits.	
4	Understand the conce BIST technique.	epts of Design for Testability with various testabilit	y measures including	
5	Study the various Sta	ndard IEEE Test Access Methods required for testi	ing 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 co	ompletion of this co	urse, the students should be able to		
1	Understand and analy	ze the constructional parameters of opticalfibres.		
2	Design an optical sys	tem.		
3		ue to attenuation, absorption, scattering and bendin	g.	
4	Compare various opti	cal detectors and choose suitable one for different	applications.	
5	Develop the concepts of optical system design.			
Course	Semester	(B20EC37) Digital Image Processing	L: 3 T: 0 P: 0 C: 3	
Outcome	VI Sem	(Professional Elective – II)		
After the co		urse, the students should be able to		
1		of digital image fundamentals and image transform	s.	
2		hancement in spatial and frequency domain.		
3		ent methods to restore an image.		
4	Analyze image segme	entation techniques and morphological image proce	essing techniques.	



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5	Analyze the different	image compression techniques.			
Course	Semester	Semester (B20EC38) Radar Systems (Professional L: 3 T: 0 P: 0 C: 3			
Outcome	VI Sem	Elective – III)	L: 5 1: 0 P: 0 C: 5		
After the co	ompletion of this co	urse, the students should be able to			
1	Illustrate the importance of radar fundamentals and analysis of the radar equation.				
2	Understand the work	ing principle of CW and FM-CW radar and its appl	ications.		
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 n	noisy signal.		
Course	Semester				
Course Outcome	VI Sem	(B20EC39) Speech Processing	L: 3 T: 0 P: 0 C: 3		
Outcome	VI Selli	(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	Demonstrate the diffe	erent time domain models of speech processing.			
3		epts of linear predictive coding for speech processir	ng.		
4	Analyze the different	techniques of speech processing			
5	Make use of different	speech and speaker recognition techniques and Hi	dden Markov.		
	G .				
Course	Semester	(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		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		models and features of Machine Learning.	_ _		
Course	Semester		T 0 T 0 D 0 C 4		
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			
1		on High end Simulation tools like Mentor Graphics,	, Tanner EDA etc.		
2		s at different levels using programming concepts.			
3	Implement any type of				
4	Program any availabl	e FPGA and CPLD using implementation tool.			
Comme	Compact	_			
Course	Semester	(B20EC42) Microprocessors &	L: 0 T: 0 P:2 C:1		
Outcome	VI Sem	Microcontrollers Lab			
After the co	ompletion of this co	urse, the students should be able to			
1	Demonstrate experim	nentally basic programming of Microprocessor.			
2	Recall the microproce	essor interfacing with various peripherals for variou	us applications.		
3	Apply the basic progr	ramming of microcontroller.			
4		ssor interfacing with various peripherals for various	s applications.		
Course	Semester				
Outcome	VI Sem	(B20EC43) Project Based Learning-4	L: 0 T: 0 P: 2 C:1		
		urse, the students should be able to			
	1	,			



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	1			
1	Apply the fundamental and engineering concepts in projects.			
2	Develop the skills that include critical thinking, communication and creativity.			
3	Identify meaningful connections across content of the course.			
4	Design and develop learning concept models for societal perceptive.			
5		mong multidisciplinary environment and engages	lifelong learning.	
Course	Semester	(B20MC05) Logical Reasoning and		
Outcome	VI Sem	Quantitative Aptitude	L: 2 T: 0 P: 0 C: 0	
		urse, the students should be able to		
		easoning and mathematical analysis methodologie	es to understand and solve	
1	problems.			
2		correctly arrive at meaningful conclusions rega and formulas in order to solve for the desired varia		
3		mation correctly, determine which mathematical	model best describes the	
	data, and apply the m	lodel correctly.	and a supplementation of the sign	
4		hematical language and notation to explain the r ving problems using mathematical or statistical tec		
5		natical skills in various general aspects to solve rea		
	improve their mather	matical skins in various general aspects to solve rea	i 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		ficance of microwaves and microwave transmission	n lines.	
2	Identify the different	wave guide components and applications		
3		ristics of various microwave tubes.		
4	Learn the different ty	pes of microwave solid state devices.		
5	Gain knowledge of m	nicrowave Measurement.		
Course	Semester		I 2 T 0 D 0 C 2	
Outcome	VII Sem	(B20EC45) Embedded Systems	L: 3 T: 0 P: 0 C: 3	
After the co	ompletion of this co	urse, the students should be able to		
1	Understand and design	n embedded systems.		
2	Understand the archit	tecture of Arm processors.		
3	Develop a system usi	ng IO devices and interfacing to external world.		
4	Understand types of 1	memory.		
5	Understand embedde	d firmware design approaches.		
Course Outcome	Semester VII Sem	(B20EC46) Wireless and Mobile Communication	L: 3 T: 0 P: 0 C: 3	
outcome	VII Sem	(Professional Elective – IV)		
After the co	mpletion of this co	urse, the students should be able to		
1		ents due to multi path fading channel.		
2	^	ce of the fundamental techniques to overcome the d	lifferent fading effects.	
3		annel and Non co-channel interference.	and the state of t	
4	-	for signal and traffic, diversity techniques and mol	bile antennas.	
5		ne functioning of frequency management, Channe		
Course	Semester		I • 3 T• 0 D• 0 C• 3	
Course	Semester		L: 3 T: 0 P: 0 C: 3	



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Outcome	VII Sem	(B20EC47) CMOS Circuit Design			
		(Professional Elective – IV)			
After the co	ompletion of this co	urse, the students should be able to			
1	Understand the fundamentals of VLSI design flow & interchange formats of VLSI design tools.				
2	Develop the understanding to analyze circuit characterization & its performance estimation.				
3	families In VLSI.	nding to analyze the combinational circuit design u			
4		of sequential circuit design in VLSI for various de			
5	Analyze low power d	esign strategies suitable for various design applica	tions in VLSI.		
Course Outcome	Semester VII Sem	(B20EC48) Artificial Intelligence (Professional Elective – IV)	L: 3 T: 0 P: 0 C: 3		
After the co	ompletion of this co	urse, the students should be able to			
1	assumptions etc	AI concepts like the AI technique, level of	models, there underlying		
2		epts of AI search techniques			
3		presentation techniques			
4		actures of representation			
5	Evaluate AI search te	chniques, Create Expert systems	1		
Course Outcome	Semester VII Sem	(B20EC49) Sensor Networks (Professional Elective – V)	L: 3 T: 0 P: 0 C: 3		
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		us protocols in sensor networks.			
4	Identify the infrastruc	eture and establishment of sensor networks.			
5	Explore various senso	or network platforms and tools.			
Course Outcome	Semester VII Sem	(B20EC50) Satellite Communication (Professional Elective – V)	L: 3 T: 0 P: 0 C: 3		
After the co	ompletion of this co	urse, the students should be able to			
1	Understand the histocommunication	orical background, basic concepts and frequenc	y allocations for satellite		
2	Understand the sately system.etc.	lite sub systems like Telemetry, tracking, comma	and and monitoring power		
3		atellite Multiple Access techniques			
4	Understand the earth station technology and terrestrial interface networks.				
5	Understand the applic	cations of Satellites and GPS system.			
Course Outcome	Semester VII Sem	(B20EC51) Robotics and Automation (Professional Elective – V)	L: 3 T: 0 P: 0 C: 3		
1	Understand the basic	components and specifications used in robotics an	d automation.		
2	Understand the basic components and specifications used in robotics and automation. Understand and implement the different types of motors and sensors during designing of robotics				



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3	Use manipulators, Actuators and Grippers and their design considerations in robotics and automation.				
4	Understand the basic concepts of AVR microcontrollers.				
5	Implement the programming and interfacing concepts of AVR microcontroller in robotic 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	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	eessor		
3		nemory, interacting to external world and			
4	Analyze the different time applications.	t 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	Identify and summari work and relate them	ze an appropriate list of literature review, analyze to current project.	previous researchers'		
3	Present the project ou presentation skills.	atlining 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	devices 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	work and relate them		previous researchers'		
3		ork plan and procedures.			
4	Present the project ou presentation skills.	atlining the approach and expected results using go	od oral and written		
5	Undertake problem ic	lentification, formulation and solution.			
6		eative thinking in the design of engineering project nunication engineering domain but if possible to ot			



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,	domains as well.		
7		a functional product prototype while working in a t	eam
8		owledge, skills and attitudes of a professional engin	
9		engineers and the community at large in written and	l oral forms.
10	Consider the busines	ss 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 co	ompletion of this co	ourse, the students should be able to	
1		T, FFT, DSP system and Explain the DSP computa	ntional building blocks and
2	Distinguish between	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		& its use depending on application	
3	Actel FPGAs archite	tanding to analyzes RAM programmable Xilinx & ectures for applications	
4	_	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	_	of IOT from a global context.	
2	_	plocks of Internet of Things and its characterist	ics
3	Learn the basic con		
4		hon programming using Raspberry.	
5		eb applications and cloud servers for IOT.	
Course	Semester	**	T 0/D 0 D 2 C 4
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		cuments and give oral presentations related to t	he work completed.
2	Demonstrate the a	bility to collaborate with others as they work speaking, researching).	
3		f self-efficacy, personal goals, and motivation	in improving academic
3	life		
4	life	viors and characteristics of an effective learner	
	life Describe the behav	viors and characteristics of an effective learner f fast and rapidly changing by self learning	



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Course	Semester		L: 0 T: 0 P: 16 C: 8
Outcome	VIII Sem	(B20EC60) PROJECT PHASE - II	L. 01. 01. 10 C. 8
After the co	ompletion of this co	ourse, the students should be able to	
1	Demonstrate a sou	nd technical knowledge of their selected	project topic.
2	Identify and summ	arize an appropriate list of literature revi	ew, analyze previous
2	researchers' work	and relate them to current project.	
3	Formulate clearly	a work plan and procedures.	
4	Present the project	outlining the approach and expected res	ults using good oral and
	written presentatio		
5		n identification, formulation and solution	
		creative thinking in the design of engine	
6		communication engineering domain but i	if possible to other
	interdisciplinary de		
7		p a functional product prototype while w	
8		nowledge, skills and attitudes of a profes	sional engineer when working
		ng as a team leader.	
9		n engineers and the community at large in	
10	Consider the busin	ess context and commercial positioning	of designed devices or systems
Course	Semester		
Outcome	VII or VIII Sem	(B20CE55) Disaster Preparedness	
outcome		Planning Management (Open Election	
1		n various types, stages, phases in disaster ma	
2		ypes of natural disaster, Mitigation and Mana	agement Systems
3		ypes of manmade disasters and its effects	
4		sing technology and GIS in disaster mitigation	
5	Know the concepts of	of risk, warning and forecasting methods in o	disaster management
Course	Semester	(DANCETEC) F	
Outcome	VII or VIII Sem	(B20CE56) Environmental Managen	nent L: 3 T: 0 P: 0 C: 3
		(Open Elective)	
1		ed for Environmental Management	. 1 1
2	-	es of Environment Management system and s	standards
3		hodologies for impact assessment	
4		arious Environment management plan	00000000
5	identify the technique	ues and control measures for Environment m	anagement
Course	Semester	(D20CE57) H. I. Dlamina (Onco	
Outcome	VII or VIII Sem	(B20CE57) Urban Planning (Oper	L: 3 T: 0 P: 0 C: 3
		Elective)	
1		ance of proper urban planning for a healthy of	спу
2	Apply basic method		
3	Describe housing de		m o oiter
4	<u> </u>	port and non-motorized transport facilities fo	•
5	Describe smart city	developments in India and abroad and its var	rious 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 elect	ric heating and welding	
2	Gain the knowledge	on illumination system.	
3	Understand the electr	ical installation, estimation and costing.	
4	Understand the impor	rtance of power factor.	
5	Gain the knowledge	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	- ·	
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 glob	al and national energy scenario.	
2	Understand the conce	ept of solar energy.	
3	Know the basics of w	vind 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, geothermal.	like sun,
2	Use different renewal	ble energy sources to produce electrical power mir sources to produce electrical energy	nimize the Use of
3	·	the conventional energy resources are depleted	
4	Understand direct end		
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	e of robotics in real time human life applications.	
2	Analyze the concept	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 spra	ay painting.
5	Relate the Robot App	olication in Manufacturing.	
Course Outcome	Semester VII or VIII Sem	(B20ME33) Mechatronics	L: 3 T: 0 P: 0 C: 3
1	Use the control system	m, mechatronics design systems and measurement	systems.



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2	Work on various actu	ating systems.	
3		rom one form to another form.	
4		ontrollers and micro processors.	
5		rogramming 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 transfor	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 pro	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	Estimate the impairm	ents due to multi path fading channel.	
2	Explain an Importance	ee of the fundamental techniques to overcome the	e different fading effects.
3	Distinguish the co-ch	annel and Non co-channel interference.	
4	Inspect cell coverage	for signal and traffic, diversity techniques and m	nobile antennas.
5	Relate and explain the handoff.	e functioning of frequency management, Channe	el assignment and types of
Course	Semester	(B20EC49) Sensor Networks (Open	L: 3 T: 0 P: 0 C: 3
Outcome	VII or VIII Sem	Elective)	2.01.01.00.0
1			
	Understand the overv	Elective)	
1	Understand the overv Explore the various a	Elective) iew of sensor &networks.	
1 2	Understand the overve Explore the various a Understand the various	Elective) riew of sensor &networks. rchitectures of sensors & network	
1 2 3	Understand the oververse Explore the various a Understand the various Identify the infrastructure.	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks.	
1 2 3 4	Understand the oververse Explore the various a Understand the various Identify the infrastructure.	Elective) riew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks.	L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 Course	Understand the overver Explore the various a Understand the various Identify the infrastruct Explore various sense Semester VII or VIII Sem Understand the function	Elective) riew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. reture and establishment of sensor networks.	L: 3 T: 0 P: 0 C: 3 instruments and bio signals.
1 2 3 4 5 Course Outcome	Understand the overve Explore the various as Understand the various Identify the infrastruction Explore various sensor Semester VII or VIII Sem Understand the function Discuss the various is mechanical activities	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwoof heart.	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and
1 2 3 4 5 Course Outcome	Understand the overve Explore the various a Understand the various Identify the infrastructory Explore various sense Semester VII or VIII Sem Understand the function Discuss the various in mechanical activities Compare various con	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwoof heart. cepts of Cardiac Instrumentation and gain the kr	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and
1 2 3 4 5 Course Outcome 1 2 3 4	Understand the overve Explore the various a Understand the various Identify the infrastruction Explore various sense Semester VII or VIII Sem Understand the function Discuss the various is mechanical activities Compare various con Analyze the Therapeu	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical internal, external Bio electrodes and relations betwoof heart. cepts of Cardiac Instrumentation and gain the kratic Equipment and their operation.	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about
1 2 3 4 5 Course Outcome 1 2 3	Understand the overve Explore the various a Understand the various Identify the infrastruction Explore various sense Semester VII or VIII Sem Understand the function Discuss the various is mechanical activities Compare various con Analyze the Therapeu	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwoof heart. cepts of Cardiac Instrumentation and gain the kr	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about
1 2 3 4 5 Course Outcome 1 2 3 4	Understand the overve Explore the various a Understand the various Identify the infrastruct Explore various sense Semester VII or VIII Sem Understand the function Discuss the various in mechanical activities Compare various con Analyze the Therapeu Acquires knowledge Semester VII or VIII Sem	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwork of heart. cepts of Cardiac Instrumentation and gain the krutic Equipment and their operation. about neuro-muscular Instrumentation like ECG (B20CS19) Data base Management Systems (Open Elective)	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about
1 2 3 4 5 Course	Understand the overve Explore the various a Understand the various Identify the infrastructory Explore various sensor Semester VII or VIII Sem Understand the function Discuss the various in mechanical activities Compare various con Analyze the Therapeu Acquires knowledge Semester VII or VIII Sem Perceive the fundame	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwor heart. cepts of Cardiac Instrumentation and gain the kratic Equipment and their operation. about neuro-muscular Instrumentation like ECG (B20CS19) Data base Management Systems (Open Elective) ental concepts of database management.	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about EMG and EEG. L: 3 T: 0 P: 0 C: 3
1 2 3 4 5 Course Outcome 1 2 3 4 5 5 Course Outcome 1 2 3 4 5 5 Course Outcome	Understand the overve Explore the various a Understand the various Identify the infrastructory Explore various sensor Semester VII or VIII Sem Understand the function Discuss the various in mechanical activities Compare various con Analyze the Therapet Acquires knowledge Semester VII or VIII Sem Perceive the fundame Analyze database mogiven case study.	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. cture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwork of heart. cepts of Cardiac Instrumentation and gain the kratic Equipment and their operation. about neuro-muscular Instrumentation like ECG (B20CS19) Data base Management Systems (Open Elective) ental concepts of database management. dels & Entity Relationship models and to draw to	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about EMG and EEG. L: 3 T: 0 P: 0 C: 3 the E-R diagram for the
1 2 3 4 5 Course Outcome 1 Course Outcome 1	Understand the overve Explore the various a Understand the various Identify the infrastruct Explore various sensor Semester VII or VIII Sem Understand the function Discuss the various in mechanical activities Compare various con Analyze the Therapet Acquires knowledge Semester VII or VIII Sem Perceive the fundame Analyze database mogiven case study. Apply relational Data	Elective) iew of sensor &networks. rchitectures of sensors & network us protocols in sensor networks. eture and establishment of sensor networks. or network platforms and tools. (B20EC61) Biomedical Instrumentation (Open Elective) ions of bio amplifiers, characteristics of medical nternal, external Bio electrodes and relations betwor heart. cepts of Cardiac Instrumentation and gain the kratic Equipment and their operation. about neuro-muscular Instrumentation like ECG (B20CS19) Data base Management Systems (Open Elective) ental concepts of database management.	L: 3 T: 0 P: 0 C: 3 instruments and bio signals. ween electrical and nowledge about EMG and EEG. L: 3 T: 0 P: 0 C: 3 the E-R diagram for the ebra expressions for queries.



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5	Compare the basic Damethods 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 t	using OOP techniques.
2	Solve the inter-discip	linary applications using the concept of inherita	nce.
3	Develop robust and fa	aster applications by applying different exception	n handling mechanisms.
4	Understand the multi-	threading concepts and develop efficient applica	tions.
5	Design GUI based ap	plications and develops applets for web applications	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	Compare and contras	t symmetric and asymmetric encryption algorith	ms.
3	Implementation of me	essage authentication, hashing algorithms.	
4	Explore E-Mail secur	rity, S/MIME Functionality.	
5	Develop intrusion det	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		the ways in which the cloud can be programme	
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	ing using Raspberry.
4	& Sensor Networks.	on areas of IoT. Realize the revolution of Intern	
5	Determine the Marke IoT.	t perspective of IoT. Develop Python web applie	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	•	formulate an efficient problem space for a problem	em expressed in English.
2	•	select a search algorithm for a problem.	
3		epresenting knowledge using the appropriate tec	_
4		apply AI techniques to solve problems of Game	
5	Possess the Expert Sy	ystems, Machine Learning and Natural Language	Processing.
Course Outcome	Semester VII or VIII Sem	(B20AI29) Introduction to Machine Learning (Open Elective)	L: 3 T: 0 P: 0 C: 3
1		derlying machine learning.	
2	Learn beyond binary	classification.	
3	Recognize and imple	ment various genetic algorithms.	
4	Construct algorithms	to learn tree, to learn linear, non-linear models a	nd Probabilistic models.
5	Able to analyze the d	ata.	
Course Outcome	Semester VII or VIII Sem	(B20AI30) Neural Networks (Open Elective)	L: 3 T: 0 P: 0 C: 3
1		ural networks of various architectures	
2		Forward and feed backward.	
3	Design the training of		
4	Learn various learnin	<u> </u>	
5	Develop the testing o pattern recognition ap	f neural networks and do the perform analysis of oplication.	these networks for various
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 and	l cybercrimes.
2	YY 1 . 11 !		
	Understand basic cry	ptography and stenography.	
3		ptograpny and stenograpny. Ilities, threats and cybercrimes posed by criminal	ls.
	Explore the vulnerability various security various security.		entify various types of tools
3	Explore the vulnerability various secure and methods used in protection. Semester VII or VIII Sem	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and ide cybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective)	entify various types of tools
3 4 Course Outcome	Explore the vulnerability various securand methods used in protection. Semester VII or VIII Sem Understand the basic	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science.	entify various types of tools s to maintain security
3 4 Course Outcome 1 2	Explore the vulnerabilities Identify various securand methods used in protection. Semester VII or VIII Sem Understand the basic Learn about types of	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science. data and data pre processing.	entify various types of tools s to maintain security
3 4 Course Outcome 1 2 3	Explore the vulnerabilities and methods used in protection. Semester VII or VIII Sem Understand the basic Learn about types of Understand the techn	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science. data and data pre processing. iques for data analytics.	entify various types of tools s to maintain security
3 4 Course Outcome 1 2 3 4	Explore the vulnerability various securand methods used in protection. Semester VII or VIII Sem Understand the basic Learn about types of Understand the technic Learn the statistical from	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science. data and data pre processing. iques for data analytics. undamentals related to Data Science.	entify various types of tools s to maintain security
3 4 Course Outcome 1 2 3	Explore the vulnerability various securand methods used in protection. Semester VII or VIII Sem Understand the basic Learn about types of Understand the technic Learn the statistical from	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science. data and data pre processing. iques for data analytics.	entify various types of tools s to maintain security
3 4 Course Outcome 1 2 3 4	Explore the vulnerability various securand methods used in protection. Semester VII or VIII Sem Understand the basic Learn about types of Understand the technic Learn the statistical from	ilities, threats and cybercrimes posed by criminal rity challenges phased by mobile devices and idecybercrime, develops the secure counter methods (B20DS24) Introduction to Data science (Open Elective) concepts of Data Science. data and data pre processing. iques for data analytics. undamentals related to Data Science.	entify various types of tools s to maintain security



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2	Learn the concents of	Visualizing Distributions.	
3		isualizing Proportions and Nested Proportions.	
4		Visualizing Associations and Time series data.	
5			
3	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 impor	rtance 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 available digital forer	on and preservation of digital evidence. Evaluate asics tools.	the effectiveness of
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
	VII or VIII Sem		
Outcome	Outline the fundamer Define the social Res	(Open Elective)	ement. Iders and build the suitable
Outcome 1	Outline the fundament Define the social Resorganization structure Know importance of	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole	ement. Iders and build the suitable on and layout decisions. Licts using SQC techniques
Outcome 1 2	Outline the fundamer Define the social Res organization structure Know importance of and Identify the basic Know how PERT and	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of productions.	ement. Iders and build the suitable on and layout decisions. Lects using SQC techniques ce concepts.
Outcome 1 2 3	Outline the fundamer Define the social Resorganization structure Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp	(Open Elective) Itals of management and contributions to manage ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production productions of marketing mix and Human Resourced CPM different and to construct network by productions.	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary
1 2 3 4	Outline the fundamer Define the social Resorganization structure Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resourced CPM different and to construct network by proto accomplish a successful project. Orary management practices and analyze how the	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary
Outcome 1 2 3 4 5 Course	Outline the fundamer Define the social Res organization structure Know importance of and Identify the basic Know how PERT and managing the efforts Appraise all contemp management practice Semester VII or VIII Sem	(Open Elective) Itals of management and contributions to manage ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resource to accomplish a successful project. Orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Exper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3
Outcome 1 2 3 4 5 Course	Outline the fundamer Define the social Res organization structure 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	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production concepts of marketing mix and Human Resourced CPM different and to construct network by proto accomplish a successful project. Orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective)	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Exper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3
Outcome 1 2 3 4 5 Course Outcome	Outline the fundament Define the social Resorganization structure 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 Entreport	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resourced CPM different and to construct network by proton accomplish a successful project. Orary 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	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3
Outcome 1 2 3 4 5 Course Outcome 1 2	Outline the fundamer Define the social Res organization structure 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	(Open Elective) Itals of management and contributions to manage ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resource CPM different and to construct network by proto accomplish a successful project. Orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective) Es, Qualities, Skills and Functions of Entrepreneurs reneur Scenario in India and abroad.	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3 L: siness.
1 2 3 4 5 Course Outcome 1 2 2 3	Outline the fundamer Define the social Res organization structure 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 Summarizes necessity Interprets about Gove	(Open Elective) Itals of management and contributions to management ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resourced CPM different and to construct network by proton accomplish a successful project. Orary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective) Teneur Scenario in India and abroad. The property of	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3 L: siness. Lip promotion schemes.
1 2 3 4 5 Course Outcome 1 2 2 3 4	Outline the fundamer Define the social Res organization structure 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 Summarizes necessity Interprets about Gove	(Open Elective) Itals of management and contributions to manage ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resource to accomplish a successful project. Torary management practices and analyze how the sone applicable in modern business and service (B20MB03) Entrepreneurship Development (Open Elective) Torary Skills and Functions of Entrepreneurship possible in India and abroad. To business ethics and ethical guidelines in bustness and subsides and Entrepreneurship portions.	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3 L: siness. Lip promotion schemes.
1 2 3 4 5 Course	Outline the fundamer Define the social Res organization structure 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 Summarizes necessity Interprets about Gove Prioritizes corporate s Semester VII or VIII Sem	tals of management and contributions to manage ponsibilities of an organization towards stakehole and to identify factors influencing plant location materials management, evaluate quality of production process of marketing mix and Human Resourch CPM different and to construct network by proto accomplish a successful project. To accomplish a	ement. Iders and build the suitable on and layout decisions. Lets using SQC techniques be concepts. Oper planning organizing an ese contemporary organizations. L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C: 3 Arr. Siness. Lip promotion schemes. Ompany secretaries.



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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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Bollikunta, Khila Warangal (Mandal), Warangal Urban-506 005 (T.S), www.vaagdevi.edu.in

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Comman	VaardCarraastar	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Cradita 1
Course	Year/Semester	Machine Modelling and		Credits: 4
Outcome	I/I Sem	Analysis(A943101)	Total: 4	
After the completion	on of this course, the student	,	l	l
1		ds and assumptions in modeling of r	nachines.	
2	Recognize the diff	Ferent frames for modeling of AC ma	chines.	
3	Illustrate the volta	ge and torque equations in state space	e form for differe	nt machines
4		ematical models of various DC made		
	function of the DC			
5	Study various tran	sformations adopted in 3 phase macl	nines and explore	its starting
	methods	1 1	1	C
6	Analyze the devel	oped models in various reference fra	mes through simu	lation study
7	·	e dynamics in various operating con		
8		uits analysis with d-q model of mach		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Modern Control Theory	Total: 4	Createst :
		(A943102)	10001	
	on of this course, the student			
1		ms of basic and modern control sys	tem for the real t	ime analysis
	and design of con			
2		athematical preliminaries for modeli		m
3		ables analysis for any real time syste		
4		-linear system model using various to	echniques	
5		t of optimal control to any system.		
6		for its stability, controllability and o		
7	Implement basic p	principles and techniques in designin	g linear control sy	stems.
8	Formulate and	solve deterministic optimal cont	trol problems in	n terms of
	performance indic			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Power Electronic Devices and	Total: 4	
After the consulation	on of this course, the student	Circuits (A943103)		
1			on of modern nov	ver
1	electronics device	aracteristics and principle of operations	on or modern pow	CI
2		res of various power electronic devices	nec .	
3	•	concepts of different power converte		eation
4	-	river circuits and its heat management		allOII
5		f source and load inductance on the		\n
6	•			
	· · · · · · · · · · · · · · · · · · ·	gn the switched mode regulator for v		ррпсаноп
7		ower factor improvement controllers		
8	_	nic simulation packages for analysin	g and designing p	ower
Control	converters	Subject Name (Subject Code)	T . 4 T. A D. A	C 1'4 - 4
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 completion	on of this course, the student		1 41 1 0	1 C
1	stepper motor.	ctional features, principle of operation	and methods of	control of
2	Realize the need for	or stepper motors and the various app	lications in indus	stries.
		ybrid stepping motor		
2		of the operational characteristics and	the applications	of Switched
3	Reluctance Motor		11	
4	Know the various	s types of PMBLDC motors, rotor pos	ition sensors, me	thods of
4	control and their a	pplications		
5	Get a clear idea of	the features, control and the applicat	ions of PMSM	
6	Explore the conce	pt of linear induction motor and devel	lop a double side	d LIM from
U	rotory induction n	notor		
7	Study the construction	ctional details of permanent magnet as	xial flux machine	s (PMAF)
8	Explore the applic	ations of various special machines in	day to day applie	cations
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			
1	1	ower handling capabilities of HVDC		
2	*	configurations and conversion	principles of s	static power
	converters			
3		er and inverter operations, commu	itation process	at converter
	stations.			
4	***	ters for harmonic elimination in HVD	C link	
5	*	ontrols adapted in HVDC converters		
6		nstability problems in HV AC and DC	_	
7	•	er voltage problems in multi-terminal		
8	-	ous converter faults and protection cir		T
Course	Year / semester	Subject Name (Subject Code) Programmable Logic Controllers	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem	and their Applications (A943106)	0 Total: 4	
After the completion	on of this course, the student			
1		ive knowledge of using advanced con	trollers in measu	rement and
	control instrument			
2	Illustrate about da	ata acquisition - process of collecting	information from	n field
	instruments.			
3	Analyze Programi	mable Logic Controller (PLC), IO Mo	dules and interna	al features.
4	Comprehend Prog	ramming in Ladder Logic, addressing	g of I/O.	
5	Apply PID and its	s Tuning.		
6		gic programming for simple process		
7		nd test programs developed for digital	and analog oper	rations
8		diagram representation on industrial a		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem	Microcontrollers and Applications	0 Total: 4	
		(A943107)		
After the completion	on of this course, the student	s should be able to		

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1 Relate the basic architecture and addressing modes of a microcontroller. 2 Distinguish types of computers & microcontrollers and explain the principles of down design to microcontroller 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 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 application Course Year / semester Subject Name (Subject Code) Embedded Systems (A943108) Lt. 4 T: 0 P: Credit Outcome II Understand the basics of an embedded system Lt. 4 T: 0 P: Embedded Systems (A943108) Understand the operating systems concepts, types and choosing RTOS Design, implement and test an embedded system for any type of applications Understand types of memory and interacting to external world Learn embedded ifrimware design approaches 8 Use ICE and software tools to address the issues in embedded systems Course Year / semester Jugital Control Systems (A943109) Lt. 4 T: 0 P: O Total: 4 After the completion of this course, the students should be able to Understand types of memory and interacting to external world Tile Sem Jugital Control Systems (A943109) Apply Rowledge of mathematics, Z-plane analysis to discrete time control systems. Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. Know sampling and reconstruction, Z-transforms. 5 Replace the conventional control system with Digital control systems. 6 Evaluate to Apply Z-plane analysis of discrete time control systems. 7 Apply state feedback controllers and observers
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Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit Microcontroller , assembly language code for high-level language structures suc IF-THENELSE and DO-WHILE 4
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Gain working knowledge of ports and interrupts Gain working knowledge of ports and interrupts
7 Gain working knowledge of ports and interrupts 8 Introduce the need and use of interrupt structure, timers in respective application Course Outcome After the completion of this course, the students should be able to 1 Understand the basics of an embedded system 2 Explore various issues in embedded software development and applications 3 Learn the method of designing an embedded system for any type of applications 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 Learn embedded firmware design approaches 8 Use ICE and software tools to address the issues in embedded systems Course Outcome After the completion of this course, the students should be able to 1 Deduce the control system to block diagram for various analysis 2 Acquire a strong foundation in sampling and reconstruction Z-transforms. 3 Apply knowledge of mathematics, Z-plane analysis to discrete time control systems. 4 Know sampling and reconstruction, Z-transforms. 5 Replace the conventional control system with Digital control systems 6 Evaluate to Apply Z-plane analysis of discrete time control systems 7 Apply state feedback controllers and observers
Solution Subject Name (Subject Code) Credit Course Outcome If Sem Subject Name (Subject Code) Embedded Systems (A943108) L: 4 T: 0 P: 0 Total: 4
Course Outcome
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7 Apply state feedback controllers and observers
Tr J
8 Analyse the system stability using root locus, bode and Nyquist plots
Course Year / semester Subject Name (Subject Code) L: 4 T: 0 P: Credit
Outcome I/I Sem Optimization Techniques 0 Total: 4
(A943110)
After the completion of this course, the students should be able to Study the need of optimisation in electrical engineering problems
1 Study the need of optimisation in electrical engineering problems 2 Learn the conventional or classical optimisation techniques
I corn to formulate the problem with constrained and unconstrained cases
3 Learn to formulate the problem with constrained and unconstrained cases 4 Explore various modern intelligent entimisation techniques
4 Explore various modern intelligent optimisation techniques
4 Explore various modern intelligent optimisation techniques 5 Apply these techniques to real world problems such as transportation problem,
4 Explore various modern intelligent optimisation techniques

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7	Apply methods of	sensitivity analysis and validate post	processing result	ts
8	***	eal time optimization problems.	processing resur	
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	Cicuits. 4
	n of this course, the student		o roun i	1
1	Deduce the contro	l system to block diagram for various	analysis	
2		oundation in sampling and reconstruc		S.
3		of mathematics, Z-plane analysis to		
	systems.			
4	Know sampling ar	nd reconstruction, Z -transforms.		
5		ntional control system with Digital co	ontrol system.	
6		Z-plane analysis of discrete time con		
7		ack controllers and observers	· ·	
8	11.	n stability using root locus, bode and	d 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)		
	n of this course, the student		1 4 1 1	
1		enewable energy sources to produce e		
2	•	ristics of PV cell- photo voltaic modu	1	
3		f wind energy conversion systems and		
4	_	Vave energy conversion machines - O	cean Thermal En	ergy
	conversion scheme		1 1 0 1	11
5		hybrid energy systems such as geother		IIS
6		of various renewable energy sources of		
7		nergy and to avoid the environmental	pollution	
8		mental effects of energy conversion	T	T
Course	Year / semester	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P:	Credits: 4
Outcome	I/I Sem n of this course, the student	,	0 Total: 4	
1		ower handling capabilities of HVDC	lines	
2	Explore various			static power
2	converters	configurations and conversion	principles of s	static power
3		er and inverter operations, commu	itation process	at converter
	stations.	er and inverter operations, comme	itation process	at converter
4		ers for harmonic elimination in HVD	C link	
5	11 0	ontrols adapted in HVDC converters	C IIIK	
6		nstability problems in HV AC and DC	7 system	
7		r voltage problems in multi-terminal		
8		ous converter faults and protection cin		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Analysis of Power Electronic	Total: 4	Cicuits. 4
		Converters (A943114)	I Julii T	
After the completio	n of this course, the student			
1		characteristics and principle of o	peration of mo	dern power
	semiconductor de	vices.		

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2	Comprehend the c	oncepts of different power converter	rs and their applica	ations
3		ortance of AC voltage controllers and	**	
	industrial applicat		•	
4		n switched mode power electronic co	onverters for vario	ous
	industrial applicat			
5		Ith modulated inverters which are use	ed in variable spec	ed drives
6		e device for a particular converter to		
7		conic simulation packages for ana	1 0,	ning power
	converters.	1 6	, ,	<i>O</i> 1
8	Choose appropria	te power converter topologies and	design the power	r stage and
		ers for various applications		C
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4
Outcome	I/I Sem	Embedded Systems (A943115)	Total: 4	
After the completio	n of this course, the student			•
1	Understand the ba	sics of an embedded system		
2	Explore various is	sues in embedded software developm	nent and application	ons
3	Learn the method	of designing an embedded system fo	r any type of appl	ications
4	Understand the op	erating systems concepts, types and	choosing RTOS	
5	Design, implemen	t and test an embedded system		
6	Understand types	of memory and interacting to externa	al world	
7		irmware design approaches		
8	Use ICE and softv	vare tools to address the issues in em	bedded systems	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4
Outcome	I/I Sem	Power Converters Simulation Lab (A943116)	Total:4	
After the completio	n of this course, the student	,	1	1
1	Able to simulate f	ull converter circuits for various type	es of loading	
2	Acquire programn	ning knowledge to study the systems	dynamics in state	space
	model			
3	Able to assess the	frequency response of the system		
4	Analyse the system	n stability and PID controller applica	ation for steady sta	ate system
	operation.			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4
Outcome	I/I Sem	Seminar-I (A943117)	Total:4	
Course	Year/Semester	Subject Name (Subject Code)	L: 4 7	Γ: 0 P: 0 C:
Outcome	I/II Sem	Power Electronic Converters (A943	3201) 4	
After the completio	n of this course, the student			
1		s advanced power electronics device		
2		dvanced modulation techniques and i		
3		ration of multi-level inverters with	switching strateg	gies for high
	power application			
4	Comprehend the d	lesign of resonant converters and swi	tched mode powe	r supplies.
5		n various topologies converter circui	its	
6	Develop and analy	ze various converter topologies.		
	Develop and analyze various converter topologies.			
7 8	Design AC or DC	switched mode power supplies.		

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Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Power Electronic Control of DC Drives	4
Outcome	1/11 Selli	(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		ous and discontinuous modes of operation of si	ingle phase semi
	and full converter		0 1
4	Study the continuo	ous and discontinuous modes of operation of the	nree phase semi and
	full converter for		1
5	Perform steady sta	ate analysis of three phase converter controlled	DC motor drive
6		arrent and speed controllers	
7	-	ate analysis of chopper controlled DC motor dri	ive
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 completion	on of this course, the student		1 C
1	_	orque characteristics variable voltage and variab	ole frequency
2	operation	C: 1 .: 1 .: 1 .: 1 .: 1 .: 1 .: 1 .: 1	11 1 '
2		on of induction motor in constant torque and fie	id weakening
2	regions		
3		ator side controls employed for induction drives	8
4		flux control in current fed inverter drive	
5		ency of the drive by applying optimization con	
6	<u> </u>	es of vector control methods in rotor of induction	
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 completion	on of this course, the student		· · · · · · · · · · · · · · · · · · ·
1		t terms and concepts of electric power quality i	in power systems.
2		opplications of non-linear load.	1''
3		y the difference between system failures, outage	e and interruptions
4		ort and long interruptions	37 1,
5		calculate the magnitude the single and three pl	iases voitage sag in
(the system	goto the movies and literand his	
6		gate the power quality problems	
7		opplication of FACTS device on DG side.	
8		t characteristics of electric power quality in po	1
Course	Year / semester	Subject Name (Subject Code) Advanced Digital Signal Processing	L: 3 T: 0 P: 0
Outcome	I/II Sem	(A943205)	C:3
After the completion	 on of this course, the student		
1		ital knowledge of analysing and processing of c	ligital systems
2		ship between continuous time and discrete time	
	systems	1	<i>O</i>
	1 2		

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3	Study the fundame	entals of time, frequency and Z-Plane analysis	and their
	interrelationships.		
4	Study and design	digital filters form analysis to synthesis	
5	Explore few real v	world signal processing applications	
6	Get acquainted wi	th FFT algorithms, multi-rate signal processing	techniques.
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Switched Mode Power Supplies (SMPS)	3
		(A943206)	
After the completio	n of this course, the student	oncepts of power electronics for designing conv	vartars
2		esign considerations.	erters.
3	Explore various de Explore various co		
4		ment practical circuits for UPS, SMPS.	
5		fect of Electromagnetic interference (EMI).	
6 Course	Year / semester	rious protection aspects for the converters. Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Flexible AC Transmission Systems	3
Outcome	1/11 Sem	(A943207)	3
After the completio	n of this course, the student	,	
1	Know the concept	s and types of FACTS controllers	
2	Learn various con	verters employed for FACTS controllers	
3	Study the impact of	of FACTS devices in the power flow in the AC	system
4	Learn various shu	nt compensation using SVC and STATCOM	
5	Learn various seri	es compensators such as TCSC, TSSC	
6	Explore the conce	pt of UPFC and its application.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	High-Frequency Magnetic Components	3
After the completion	n of this course, the student	(A943208)	
1		entals of magnetic devices	
2		rties of magnetic core materials	
3		effects that exists the round conductor carrying	AC currents
4	•	sy stored in coupled inductors of transformers	The currents
5		rmers for fly-back converters in CCM	
6		tted inductors and self capacitance for high frequency	wency applications
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)	3
	n of this course, the student	s should be able to	
1	Basics of machine	e theory of all types of machines	
2		modeling of all electrical machines	
3	Apply of Lagrange	e's equation solution of Electro dynamical equa	ations.
4	Understand the	basic mathematical analysis of electrical	machines and its
	characteristics.	-	
5	Understand behav	ior of electrical machines under steady state an	d transient state.
6		nic modeling of electrical machines	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Instrumentation & Control (A943210)	3
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After the completio	n of this course, the student		
1		ethods of power generation	
2		portance of instrumentation in power generation	
3		easuring and supervising systems involved in	thermal power plant
	*	boiler and turbine units	
4		s controls employed in boiler	
5		rature and pressure controls in turbine	
6	•	power plant instrumentation	T
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Intelligent Control (A943211)	3
After the completio	n of this course, the student		
1		ture of Intelligent control	
2		ificial neural network and its mathematical mo	odel
3		neural network with various configurations.	
4		orithm for various optimisation problems	
5		different system with fuzzy logic controller	
6	Explore various po	ower system problem and apply GA, NN and F	Fuzzy controller
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Smart grid technologies (A943212)	3
	n of this course, the student		
1		e of an electricity market in either regulated or	deregulated market
	conditions.		
2		dvantages of DC distribution and developi	ing technologies in
	distribution		
3	Discriminate the	rade-off between economics and reliability of	of an electric power
	system.		
4		ous investment options (e.g. generation capa	cities, transmission,
		d-side resources, etc) in electricity markets.	
5	·	opment of smart and intelligent domestic syste	
6	Recite the structur	e of an electricity market in either regulated or	deregulated market
	conditions.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3
.6		(A943213)	
After the completio	on of this course, the student	n soft computing techniques such as artificial 1	neural networks
1	Fuzzy logic and ge	1 0 1	ncurai nciworks,
2	, , ,	~	z naural natvyorka
2		s of feed forward neural networks and feedback	
3		fuzziness involved in various systems and cor	iiprenensive
		y logic control and to design the fuzzy rules	
4	-	knowledge on genetic algorithm including th	ree genetic
	operators		A.T
5	-	ower system problems which can utilize these	AI techniques
6		pility using AI techniques	T
Course	Year / semester	Subject Name (Subject Code) Poliobility Engineering (A042214)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Reliability Engineering (A943214)	3
After the completion	n of this course, the student	s should be able to	

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1	T- :14:6-41		f
1	building	neration system model and recursive relation	for capacitive model
2		valent transitional rates, cumulative probability	ty and cumulative
2	*	valent transitional rates, cumulative probability	ly and cumulative
	frequency	. 1 1 1 1 1	*1 .* 1
3		ive probability and cumulative frequency of	non-identical
		nd merging generation and load	
4		is approaches to evaluate operating reserves a	and bulk power
	generation reserve		
5	Analyse the reliab	ility indices on radial and weakly meshed dis	tribution networks
6	Study the effect of	f short circuits in substation and switching sta	ations.
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Energy Auditing, Conservation &	3
		Management (A943215)	
After the completion	n 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	pment
4	Detect the benefits	s of carrying out energy audits.	
5	Analyze the powe	r factor and to design a good illumination sys	tem
6	Determine pay bac	ck periods for energy saving equipment.	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:
Outcome	I/II Sem	Power Converters and Drives Lab	2
		(A943216)	
After the completion	n of this course, the student		
1	_	measurement and implement closed loop con	
2		proved control of thyristor drive for PMDC r	notor over
	conventional contr		
3	Learn to generate	PWM signals using DSP	
4	Explore the invert	er controls for solar PV systems	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4
Outcome	I/II Sem	Seminar-II (A943217)	C:2
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 0
Outcome	II/I Sem	Comprehensive Viva-Voce (A943301)	C:4
3 44404440			1 = 7 -

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Comma	VoordCorregatore	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Course	Year/Semester	Advanced Power System Analysis (A953101)	
Outcome	I/I Sem on of this course, the student	• • • • • • • • • • • • • • • • • • • •	3
1		ods and assumptions in modeling of machines.	
2		Ferent frames for modeling of AC machines.	
3			liffament machines
4		ge and torque equations in state space form for o	
4	-	nematical models of various machines like, in	iduction motor and
		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) Advanced Power System Protection	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	(A953102)	3
After the completio	on of this course, the student		
1		sic function of a circuit breaker, all kinds of circ	uit breakers and
	relays		
2	·	and circuit breakers under fault condition	
3		nal details of static relays and importance of dual	lity of comparators
	in them.		
4		n of static relay applied for over current protecti	on
5		ic relay for transformer and transmission line pro-	
6	117	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
	on of this course, the student	s should be able to	7
1		basic and modern control system for the rea	l time analysis and
	design of control	•	Ĭ
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	rvabilitv.
5		principles and techniques in designing linear con	·
6		lve deterministic optimal control problems in te	
	indices.	opumu convor processis in co	This of portornames
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	EHV AC Transmission (A953104)	4
	on of this course, the student	s should be able to	7
1		ent aspects of Extra High Voltage A.C and D.C	Γransmission
2	•	AC transmission system components, protection	
	level for over volt	• • • • • • • • • • • • • • • • • • • •	
3		stical procedures for line designs, scientific and e	engineering
		1	U O
		er systems.	
4	Principles in power	er systems. 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	Design the EHV c	ables 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
After the completion	n of this course, the student		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Advanced Digital Signal Processing	3
A6	Caller	(A953106)	
1	on of this course, the student	nderstanding of using advanced controllers in me	accurament and
1	control instrument		casurement and
2			n from field
2		ata acquisition - process of collecting information	ii ii oiii iieid
2	instruments.	mahla I ania Cantuallan (DI C). IO Madulas and i	into and of footstands
3		mable Logic Controller (PLC), IO Modules and i	internal features.
4		ramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its	· ·	
6	-	adder logic programming for simple process	.
Course	Year / semester	Subject Name (Subject Code) Power Quality (A953107)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	• • •	4
	n of this course, the student		t
$\frac{1}{2}$		architecture and addressing modes of a microco	
2		of computers & microcontrollers and explain the	e principles of top
2		icrocontroller software development	120.1%
3		ably language programs for the 8-bit, 16-bit and	
		assembly language code for high-level language	structures such as
4	IF-THENELSE ar		
4		O interface and to discuss timing issues	, DEOG C
5	Develop Real time Applications of Microcontrollers & Demonstrate RTOS for		
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	
6		re applications using Microcontrollers. Subject Name (Subject Code)	T 4 T 4 D 4 G
Course	Year / semester	Microcontrollers and applications (A953108)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	2.2	3
	n of this course, the student		ntroller
$\frac{1}{2}$		architecture and addressing modes of a microco of computers & microcontrollers and explain the	
2		icrocontroller software development	e principles of top
3		ably language programs for the 8-bit, 16-bit and	1 22 hit
3		• • • • •	
		assembly language code for high-level language	structures such as
4	IF-THENELSE ar		
4		O interface and to discuss timing issues	, DTOC C
5	-	e Applications of Microcontrollers & Demonstra	ie KIOS Ior
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	
6		re applications using Microcontrollers.	I 4E 4D 4G
Course	Year / semester	Subject Name (Subject Code) Distribution Automation (A953109)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem		3
After the completio	n of this course, the student	s should be able to structure of power system automation and its ev	olution
1	Learn the need 01	structure of power system automation and its ev	OlutiOII.

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2	Classify various p	ower system automation schemes	
3	Learn to implement	nt power system automation and protection using	g SCADA.
4		nce of EMS in power system operation.	<i>y</i>
5		ture of PLC and its application in power system	automation
6		schemes of distribution automation and substati	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/I Sem	Optimization Techniques (A953110)	4
After the completio	n of this course, the student		
1		optimisation in electrical engineering problems	
2		ional or classical optimisation techniques	
3		e the problem with constrained and unconstrained	d cases
4		nodern intelligent optimisation techniques	
5		iques to real world problems such as transportati	on problem,
	travelling salesma	n problem	
6	•	tations in these techniques	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Digital control systems (A953111)	3
4	n of this course, the student		
1		l system to block diagram for various analysis	C
2		oundation in sampling and reconstruction Z-tran	
3		of mathematics, Z-plane analysis to discrete tin	ne control systems.
4		nd reconstruction, Z -transforms.	
5	-	ntional control system with Digital control syste	
6	11.	Z-plane analysis of discrete time control system	
Course	Year / semester	Subject Name (Subject Code) Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem n of this course, the student		3
1		enewable energy sources to produce electrical en	erav
2		eristics of PV cell- photo voltaic modules and its	
3		f wind energy conversion systems and bio-mass	
4		Vave energy conversion machines - Ocean Thern	
'	conversion schem		nai Energy
5		hybrid energy systems such as geothermal and f	iiel cells
6		of various renewable energy sources on environment	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	HVDC Transmission (A953113)	3
	n of this course, the student	s should be able to	
1	Study the basic po	ower handling capabilities of HVDC lines	
2	Explore various c	onfigurations and conversion principles of stat	ic power converters
3	Learn the rectifier	and inverter operations, commutation process a	t converter stations.
4	Apply AC/DC file	ters for harmonic elimination in HVDC link	
5	Explore various c	ontrols adapted in HVDC converters	
6	Identify various in	nstability problems in HV AC and DC system	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/I Sem	Analysis of power Electronic converters	3
		(A953114)	

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1 Understand the characteristics and principle of operation	ion of modern power
semiconductor devices.	
2 Comprehend the concepts of different power converters and the	heir applications
3 Analyze and design switched mode regulators for various indu	ustrial applications
4 Knowledge on various converter topologies	
5 Choose appropriate device for a particular converter topology	· .
6 Use power electronic simulation packages for analyzing	
converters.	
Course Year / semester Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome I/I Sem Embedded Systems (A953115)	3
After the completion of this course, the students should be able to	
1 Understand the basics of an embedded system	
2 Learn the method of designing an embedded system for any ty	ype of applications
3 Understand the operating systems concepts, types and choosing	ng RTOS
4 Design, implement and test an embedded system	
5 Understand types of memory and interacting to external world	d
6 Learn embedded firmware design approaches	
Course Year / semester Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:
Outcome I/I Sem Power Systems Lab-I (A953116)	2
After the completion of this course, the students should be able to	
1 Able to demonstrate the symmetrical and unsymmetrical fault	in the generator.
2 Realise the Ferranti effect in the transmission line and implem	nent feeder protection
under over current operation by constructing the circuits	
3 Study the operation various static relays for over current and o	over voltage condition
4 Visualise the differential protection of transformer for externa	al and internal faults
Course Year/Semester Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome I/II Sem Power System Dynamics (A953201)	3
After the completion of this course, the students should be able to	·
1 Learn the basics of system dynamics and able to analyse stead	ly state stability and
transient stability	
Able to model synchronous machine to analyse steady state of	peration analyse its
dynamics of operation.	
Model the excitation system analyse the dynamics of the sync	chronous machine
connected to infinite bus.	
4 Examine the small signal stability of the system using Routh's	s Hurwitz criterion
5 Know the need of PSS in control signals	
6 Dynamic compensator analysis of single machine infinite bus without PSS.	system with and
Course Year / semester Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome I/II Sem Flexible AC Transmission Systems (FACT	$(S) \begin{vmatrix} 2.41.01.00. \\ 4 \end{vmatrix}$
(A953202)	
After the completion of this course, the students should be able to	
1 Know the concepts and types of FACTS controllers	
2 Learn various converters employed for FACTS controllers	
3 Study the impact of FACTS devices in the power flow in the	AC system

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4	Learn various shu	nt compensation using SVC and STATCOM	
5	Learn various serie	es compensators such as TCSC, TSSC	
6	Explore the conce	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)	
After the completion	n of this course, the student		
1		wledge on restructuring of power industry and n	
2		on fundamental concepts of congestion manage	ment
3		rious 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		I
Course	Year / semester	Subject Name (Subject Code) Programmable Logic Controllers and their	L: 4 T: 0 P: 0
Outcome	I/II Sem	Applications (A953205)	C:4
After the completion	n of this course, the student	11 '	
1		ive knowledge of using advanced controllers in	measurement and
	control instrument		
2		ata acquisition - process of collecting information	n from field
	instruments.	and designation process of concerning information	11011111010
3		nable Logic Controller (PLC), IO Modules and i	internal features.
4		ramming in Ladder Logic, addressing of I/O.	
5	Apply PID and its		
6	1 1 0	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
Gutcome	1/11 50111	(A953206)	
After the completion	n of this course, the student		
1		entals of magnetic devices	
2		rties of magnetic core materials	
3		effects that exists the round conductor carrying A	AC currents
4		y stored in coupled inductors of transformers	
5	Design of transfor	mers for fly-back converters in CCM	
6	Design the integra	ted inductors and self capacitance for high frequ	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Outcome	I/II Sem	Reactive Power Compensation and	4
A6		Management (A953207)	
Arter the completion	n of this course, the student		
2	·	sity of reactive power compensation	
	Describe load com	1	an arratama
3	• • • • • • • • • • • • • • • • • • • •	es of reactive power compensation in transmission	on systems
4		bution side and utility side reactive power.	
5	Understand issues	related to power system stability and control.	

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6	Detect reactive po	wer compensation techniques & their practical	importance
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Power System Reliability (A953208)	3
After the completio	n of this course, the student		1
1	To identify the gen	neration system model and recursive relation for	r capacitive model
	building		
2	calculate the equiv	valent transitional rates, cumulative probability	and cumulative
	frequency		
3	Evaluate cumulat	ive probability and cumulative frequency of nor	n-identical
	generating units a	nd merging generation and load	
4	-	is approaches to evaluate operating reserves and	l bulk power
	generation reserve		r
5		ility indices on radial and weakly meshed distri	bution networks
6		f short circuits in substation and switching static	
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	13
1		sity of reactive power compensation	
2	Describe load com	• • •	
3		es of reactive power compensation in transmissi	ion systems
4		bution side and utility side reactive power.	ion systems
5		related to power system stability and control.	
6		wer compensation techniques & their practical	importance
()	L Detect teactive do		
	_		. *
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210)	. 1
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to	. 1
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the	L: 4 T: 0 P: 0 C:
Course Outcome After the completio 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generatio leasuring and supervising systems involved in the boiler and turbine units	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the standard turbine units as controls employed in boiler	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the soiler and turbine units as controls employed in boiler rature and pressure controls in turbine	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6	Year / semester I/II Sem of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the soiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation	L: 4 T: 0 P: 0 C: 4
Course Outcome After the completion 1 2 3 4 5 6 Course	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the solier and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the soiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211)	L: 4 T: 0 P: 0 C: 4
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation sportance of instrumentation in power generation seasuring and supervising systems involved in the soiler and turbine units as controls employed in boiler rature and pressure controls in turbine subject Name (Subject Code) Intelligent Control (A953211) s should be able to	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion	Year / semester I/II Sem n of this course, the student Survey various me 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 architect	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the soiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) In school be able to ture of Intelligent control	L: 4 T: 0 P: 0 C: 4 n hermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the soiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) Intelligent Control (Entre Intell	L: 4 T: 0 P: 0 C: 4 n hermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) should be able to ethods of power generation portance of instrumentation in power generation easuring and supervising systems involved in the boiler and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) should be able to ture of Intelligent control cificial neural network and its mathematical modeneural network with various configurations.	L: 4 T: 0 P: 0 C: 4 n hermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 4 5 4 5 4 5 6 4 4 5 6 4 6 4 6 6 6 6 6	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic ard Train and test the	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation aportance of instrumentation in power generation acasuring and supervising systems involved in the boiler and turbine units as 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 cificial neural network and its mathematical module neural network with various configurations. Orithm for various optimisation problems	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 5 5 5 6 5 6 Course Outcome After the completion 1 5 5 5 5 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control cificial neural network and its mathematical module neural network with various configurations. Orithm for various optimisation problems I different system with fuzzy logic controller	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 6 6 6 6 6	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation easuring and supervising systems involved in the soiler and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control efficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems different system with fuzzy logic controller ower system problem and apply GA, NN and Fu	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) schould be able to ethods of power generation portance of instrumentation in power generation the easuring and supervising systems involved in the soiler and turbine units scontrols employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schould be able to ture of Intelligent control cificial neural network and its mathematical module in the system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: del L: 3 T: 0 P: 0 C: 3 del Lzy controller L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation the easuring and supervising systems involved in the subject and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control cificial neural network and its mathematical module neural network with various configurations. Porithm for various optimisation problems I different system with fuzzy logic controller Dower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: d n nermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem n of this course, the student Survey various me 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 basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem n of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation the easuring and supervising systems involved in the subject and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control cificial neural network and its mathematical module neural network with various configurations. Porithm for various optimisation problems I different system with fuzzy logic controller Dower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: del L: 3 T: 0 P: 0 C: 3 del L: 3 T: 0 P: 0 C: 3

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	conditions.			
2	Understand the	advantages of DC distribution and developing	ng technologies in	
	distribution			
3	Discriminate the trade-off between economics and reliability of an electric power			
	system.			
4	Differentiate vari	ous investment options (e.g. generation capac	cities, transmission,	
		d-side resources, etc) in electricity markets.		
5		opment of smart and intelligent domestic system	S.	
6		re of an electricity market in either regulated or		
	conditions.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3	
		(A953213)		
After the completion	on of this course, the student	s should be able to on soft computing techniques such as artificial ne	ural natworks	
1	Fuzzy logic and g		urai networks,	
2		s of feed forward neural networks and feedback	neural networks	
		fuzziness involved in various systems and comp		
3	-	•	renensive	
4		y logic control and to design the fuzzy rules knowledge on genetic algorithm including thre	a ganatia anaratara	
5				
6		ower system problems which can utilize these Al	techniques	
		bility using AI techniques Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Course Outcome	Year / semester I/II Sem	Reliability Engineering (A953214)	1: 3 1: 0 P: 0 C: 3	
	on of this course, the student		3	
1		neration system model and recursive relation for	capacitive model	
	building	•	1	
2	calculate the equiv	valent transitional rates, cumulative probability a	nd cumulative	
	frequency	•		
3		ive probability and cumulative frequency of non-	-identical	
	generating units a	nd merging generation and load		
4		is approaches to evaluate operating reserves and	bulk power	
	generation reserve	;		
5	Analyse the reliab	ility indices on radial and weakly meshed distrib	ution networks	
6	Study the effect of	f short circuits in substation and switching station	ns.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Energy Auditing, Conservation &	3	
After the consulation		Management (A953215)		
1	on of this course, the student	y of conservation of energy		
2	Generalize the ma			
2	Generalize the me		nt -	
3	Illustrate the facto	rs to increase the efficiency of electrical equipme	ent	
3 4	Illustrate the facto Detect the benefits	rs to increase the efficiency of electrical equipmes of carrying out energy audits.		
3 4 5	Illustrate the factor Detect the benefits Analyze the power	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system		
3 4 5 6	Illustrate the factor Detect the benefits Analyze the power Determine pay back	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system ock periods for energy saving equipment.	1	
3 4 5	Illustrate the factor Detect the benefits Analyze the power	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system		

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Outcome	I/II Sem		2	
After the completion	on of this course, the student	ts should be able to		
1	Study the characte	eristics of microprocessor based relays		
2	Able to protect the feeder from faulty condition using over current relay operation			
3	Study the Charact	teristics of IDMT Electromagnetic Over Current Relay		
4	Study the phase farelay	nilure and phase reversal protection with static ne	egative sequence	
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> for the academic year 2020-2021 onwards

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	
, ,		<u> </u>	
2	Define the basic of	nterpret and make the use of the best CMO	S design techniques for
2		alysis & design of Combinational& Sequential l	
3	*	rent types of memories and compare perform	<u> </u>
		o they can be able to think & justify how to i	
	taking different stru		
4		z justify which dynamic logic circuit can be	used investigate CMOS
~	circuits.	CMCC 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1
5	constraints requiren	s CMOS techniques and also other device technont	nologies based on circuit
Course	Semester Semester	CMOS Analog Integrated Circuit	L: 3 T: 0 P: 0 C: 3
			2.51.01.00.5
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	formance or behavior of
2	Analog VLSI circu		- 1. '
2	specifications.	racterize analog devices and systems to	acmeve performance
3	•	ferent topologies involved in the CMOS amplif	ier design
4		issues & measurement techniques related to Cl	<u> </u>
	amplifier design.	•	•
5	Design & analyze Specifications.	the comparator for different topologies to achie	ve performance
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.	design flow, timing, and
2	1 -	sics of MOS transistors required for MOS based	l circuit & layout design.
3	Know the differen	t design technique for CMOS Combinational (Circuit Design & able to
		gn technique for given performance specification	
4		different design technique for CMOS Sequenti esign technique for given performance specifica	
5	Understand the de VLSI based system	esign flow from simulation to synthesizable / in design.	mplementation level for
Course	Semester	(Program Elective-I) VLSI Signal	L: 3 T: 0 P: 0 C: 3
Outcome	I Sem	Processing (M20VL04)	



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After the co	mpletion of this c	ourse, 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 techni structures.	ques of fast convolution & algorithmic strengt	th reduction in the filter	
4	Perform pipelining speed & low power	g & parallel processing on recursive filter strer.	ructures to achieve high	
5	Use of proper tech	niques for parallel processing design for scaling	and round off noise.	
Course	Semester	(Program Elective-I) VLSI Technology		
Outcome	I Sem	(M20VL05)		
After the co	mpletion of this c	ourse, the students should be able to		
1		ferent MOS technologies.		
2		ious techniques involved in the VLSI fabrication		
3	Analyze the conce design in VLSI.	epts, transistor structures, interconnects & desig	gn rules related to layout	
4		ferent doping & diffusion mechanism.		
5	Understand the rackaging of VLS	nuances of design rules, scaling, transistors, I devices.	resistors, capacitors &	
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	ourse, the students should be able to		
1	Understand the pre	eliminaries required for VLSI system design.		
2		purpose methods for combinational optimization	n.	
3		oncept of Layout Compaction, Placement, Flo	oor planning& Routing,	
	modeling & simul	ation involved in VLSI system design.		
4		pt related to synthesis & verification in VLSI sy		
5		n cycle of for FPGA and partitioning-routing co	•	
6	Explain the algori modules.	thms for partitioning, floor planning, placemen		
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	ourse, the students should be able to		
1	Know the Basic C	oncept of Embedded Systems.		
2		re of typical embedded system.		
3	Know the embedd			
4	1	RTOS based Embedded system design & related		
5	Appreciate the n embedded.	nethods for task communication for the dev	velopment of a typical	
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	ourse, the students should be able to	1	



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1 2	•	ysics of and design elements of silicon MOSFE dy the physics behind the operation of integral		
2	bipolar transistor.	ay the physics beinna the operation of integra	ated diodes & integrated	
3	Analyze& study the physics behind the operation of integrated diodes & integrated bipolar transistor.			
4	Understand the VI	SI fabrication techniques.		
5	To design circuits	using Hetero Junction Devices with physical in	sight of their functional.	
Course	Semester	English For Research Paper Writing	L: 2 T: 0 P: 0 C: 0	
Outcome	I Sem	(M20AC01)		
After the co	mpletion of this c	ourse, the students should be able to		
1	Develop the conte	ent, structure and format of writing a research	paper.	
2	Understand the re	search methodology in research paper writing	<u>. </u>	
3	Analyze and prac	tice writing a Research Paper.		
4	Know how to & v	where to get published the research work.		
Course	Semester	Research Methodology (M20MC01)	L: 2 T: 0 P: 0 C: 2	
Outcome	I Sem			
After the co	mpletion of this c	ourse, the students should be able to		
1	Appreciate the flor	w of research methodologies in the research wo	rk.	
2		Concepts Related to Research Design.		
3		writing skills and Patenting.		
4		ch Proposal and Research Report & Research G	rant Proposal.	
5		portance of Intellectual Property.	*	
Course	Semester	HDL Programming Laboratory	L: 0 T: 0 P: 4 C: 2	
Outcome	I Sem	(M20VL09)		
1	Apply the knowled	lge in Simulation and Synthesis of Digital Circu	uits.	
2		nbinationalandSequentialcircuitsusingVerilogH		
3		n Modeling with Tasks and Functions.		
4		ircuits using FPGA/CPLD boards.		
Course		Digital IC Design Laboratory	L: 0 T: 0 P: 4 C: 2	
Outcome	I Sem	(M20VL10)		
After the co	mpletion of this c	ourse, the students should be able to		
1	Design CMOS inv	erters, logic circuits and transmission gates to s	pecifications.	
2	Design latches and flip-flops as the basic circuit for Random-Access- Memory (RAM) and Read-Only-Memory (ROM) cells.			
3	Understand the Design of Bi-CMOS Inverter, logic circuits.			
4		t of Different logic circuits.		
Course	Semester	CMOS Mixed Signal Circuit Design	L: 3 T: 0 P: 0 C: 3	
Outcome	II Sem	(M20VL11)		
After the co	mpletion of this c	ourse, the students should be able to	I	
1		l circuits like DAC, ADC, PLL etc &Gain knowle &To acquire knowledge on design differen		



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	Ι				
_	signal mode.				
2	•	st and linear test engineers to the mixed signa	•		
		and mixed signal test methods. Sampling The	ory, Frequency Domain		
		al Signal Processing.			
3		mental concepts to different test methods and o			
		together with debugging, noise reduction	and device interface		
4	techniques.	1.1.1.1.1116.0000	1. 6		
4		ory and design skills of CMOS op-amps, vo	•		
	•	circuits, sample-and-hold circuits, and A/D &			
5		eation systems and consumer electronic products			
3	<u> </u>	xed-signal IC blocks: comparators and data co own and bottom-up design methodologies.	inverters & System level		
Course			L: 3 T: 0 P: 0 C: 3		
Course	Semester	VLSI Design Verification and Testing	L: 51: UP: UC: 5		
Outcome	II Sem	(M20VL12)			
After the co		ourse, the students should be able to			
1	Understand the ne	eed for testing in VLSI & different testing issu	ies.		
2	Gain the knowle	edge of testing and verification in VLSI	design process, ATPG		
	concepts for comb	pinational and sequential circuits.			
3	Apply knowledge	of testability measures for testing of digital s	ystems.		
4	Apply knowledge	e of test-pattern generation & Design for te	stability techniques for		
	testing of digital s	1 0	, ,		
5		undary scan standards & testing techniques for	or CMOS IC's.		
Course	Semester				
Course	Schiester	(Program Elective-III) Low Power	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem	(Program Elective-III) Low Power VLSI Design (M20VL13)	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem		L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem mpletion of this c	VLSI Design (M20VL13) ourse, the students should be able to			
Outcome After the co	II Sem mpletion of this c Understand the n	VLSI Design (M20VL13)			
Outcome After the co	mpletion of this c Understand the ne VLSI system.	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources	of power dissipation in		
Outcome After the co	mpletion of this c Understand the navLSI system. Appreciate the co	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources encept of Low-Power Design Approaches in V	of power dissipation in //LSI system design.		
Outcome After the co	mpletion of this c Understand the navLSI system. Appreciate the co Design low voltage	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources encept of Low-Power Design Approaches in Vege low power adders for given performance specific process.	of power dissipation in LSI system design. pecification.		
Outcome After the co	mpletion of this c Understand the n VLSI system. Appreciate the co Design low voltag Optimize the po	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources encept of Low-Power Design Approaches in V	of power dissipation in LSI system design. pecification.		
Outcome After the co	mpletion of this c Understand the n VLSI system. Appreciate the co Design low voltag Optimize the podesign.	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources neept of Low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies	of power dissipation in LSI system design. becification. at different levels of		
Outcome After the co	II Sem mpletion of this c Understand the now VLSI system. Appreciate the cool Design low voltage Optimize the poolesign. Design low-power	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for Low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at	of power dissipation in LSI system design. Decification. at different levels of different design level.		
Outcome After the co	mpletion of this c Understand the n VLSI system. Appreciate the co Design low voltag Optimize the podesign.	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at (Program Elective-III) Optimization	of power dissipation in LSI system design. becification. at different levels of		
Outcome After the co	II Sem mpletion of this c Understand the non- VLSI system. Appreciate the co Design low voltage Optimize the podesign. Design low-power Semester	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for Low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at	of power dissipation in LSI system design. Decification. at different levels of different design level.		
Outcome After the co 1 2 3 4 5 Course	II Sem mpletion of this c Understand the now VLSI system. Appreciate the cool Design low voltage Optimize the poolesign. Design low-power	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at (Program Elective-III) Optimization	of power dissipation in LSI system design. Decification. at different levels of		
Outcome After the co 1 2 3 4 5 Course Outcome	II Sem mpletion of this c Understand the n VLSI system. Appreciate the co Design low voltag Optimize the por design. Design low-powe Semester II Sem	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low-Power Design Approaches in Vege low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design	of power dissipation in LSI system design. Decification. at different levels of different design level.		
Outcome After the co 1 2 3 4 5 Course Outcome	II Sem mpletion of this c Understand the now VLSI system. Appreciate the cool Design low voltage Optimize the poodesign. Design low-power Semester II Sem mpletion of this c	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low-Power Design Approaches in V ge low power adders for given performance spewer of multiplier using different strategies or CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14)	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3		
Outcome After the conditions of the conditions	II Sem mpletion of this c Understand the nover the color of the color	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low-Power Design Approaches in V ge low power adders for given performance specified were of multiplier using different strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits.		
Outcome After the co 1 2 3 4 5 Course Outcome After the co 1	mpletion of this control Understand the not VLSI system. Appreciate the control Design low voltage Optimize the portion design. Design low-power Semester II Sem mpletion of this control Gain knowledge Analyze method	vLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources ncept of Low-Power Design Approaches in V ge low power adders for given performance sp wer of multiplier using different strategies r CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization techniques involved in VL ds of optimization to engineering students	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. ents, including linear		
Outcome After the conditions of the conditions	II Sem mpletion of this c Understand the now VLSI system. Appreciate the coopering low voltage optimize the poopering low-powers Semester II Sem mpletion of this coopering and the coopering low-powers semester II Sem mpletion of this coopering low-powers semester II sem mpletion of this coopering low-powers semester gain knowledge Analyze method programming, not	VLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources need for low power Design Approaches in Vige low power adders for given performance spewer of multiplier using different strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization to engineering stude onlinear programming, and heuristic method	of power dissipation in LSI system design. Description at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. Ents, including linear les.		
Outcome After the co 1 2 3 4 5 Course Outcome After the co 1	II Sem II Sem Understand the nan VLSI system. Appreciate the condesign low voltage Optimize the posterior of the semester II Sem	vLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources ncept of Low-Power Design Approaches in V ge low power adders for given performance sp wer of multiplier using different strategies r CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization techniques involved in VL dls of optimization to engineering stude onlinear programming, and heuristic method nce between theory, numerical computation	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. ents, including linear is. on, problem setup for		
Outcome After the conditions of the conditions	mpletion of this c Understand the non- VLSI system. Appreciate the condition Design low voltage Optimize the pondesign. Design low-power Semester II Sem mpletion of this condition of this condition of this condition of the co	vLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources ncept of Low-Power Design Approaches in V ge low power adders for given performance sp wer of multiplier using different strategies r CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization techniques involved in VL ds of optimization to engineering stude onlinear programming, and heuristic method nce between theory, numerical computation inization software, and applications to engineering	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. ents, including linear les. on, problem setup for pering systems.		
Outcome After the conditions of the conditions	mpletion of this c Understand the nover the country of the country	vLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources ncept of Low-Power Design Approaches in V ge low power adders for given performance sp wer of multiplier using different strategies r CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization techniques involved in VL dls of optimization to engineering stude onlinear programming, and heuristic method nce between theory, numerical computation	of power dissipation in LSI system design. Decification. at different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. ents, including linear les. on, problem setup for pering systems.		
Outcome After the conditions of the conditions	II Sem II Sem Understand the now VLSI system. Appreciate the condesign low voltage Optimize the posterior of this condesign. Design low-power Semester II Sem II	vLSI Design (M20VL13) ourse, the students should be able to eed for low power circuit design & sources ncept of Low-Power Design Approaches in V ge low power adders for given performance sp wer of multiplier using different strategies r CMOS memories using various strategies at (Program Elective-III) Optimization Technique In VLSI Design (M20VL14) ourse, the students should be able to on Optimization techniques involved in VL ds of optimization to engineering stude onlinear programming, and heuristic method nce between theory, numerical computation inization software, and applications to engineering	of power dissipation in LSI system design. Decification. At different levels of different design level. L: 3 T: 0 P: 0 C: 3 SI circuits. Ents, including linear les. On, problem setup for deering systems. fficient conditions for		



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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>		
1	Appreciate the different clocking logic styles in VLSI system design as per specification.				
2	Understand circu	iit design margining & design variability for V	LSI circuit.		
3	Appreciate the co	oncept of latching strategies to optimize the spe	eed of the system.		
4	Gainknowledgeo	ninterfacetechniquesinvolvedinhighspeedVLS	Icircuits.		
5	Analyze the close speed processing	cking styles in design to optimize the timing	issues to support high		
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	To learn the fund	amentals of ASIC and its design methods.			
2	To gain knowledg	ge on programmable architectures for ASICs & p	hysical design of ASIC.		
3	Understand the profession of the profession.	rogrammable ASIC Logic Cells & selection of so	uitable ASIC Logic cells		
4	Analyze ASIC flo	oor planning, placement and routing in VLSI Des	ign.		
5	Appreciate conce	pt of optimization algorithms in the design of an			
Course	Semester	(Program Elective-IV) System On	L: 3 T: 0 P: 0 C: 3		
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		nemory design for SoC.			
4		nect structure for different topologies.			
5		Embedded system on FPGA.	T 0 T 0 D 0 C 0		
Course	Semester	(Program Elective-IV) Semiconductor	L: 3 T: 0 P: 0 C: 3		
Outcome	II Sem	Memory Design & Testing (M20VL18)			
After the co	mpletion of this	course, the students should be able to			
1	Know the design their design.	of MOS memories and the various precautionar	ry methods to be used in		
2	Learn overview of memory chip design, DRAM circuits, voltage generators, performance analysis and design issues of ultra-low voltage memory circuits.				
3	Acquire knowledge about High-Performance Subsystem Memories & Analyze 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 on reliability of semiconductors and their testing.				
Course	Semester	Stress Management (M20AC02)	L: 2 T: 0 P: 0 C: 0		
Outcome	II Sem				



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After the co	mpletion of this c	ourse, the students should be able to		
1	Enhance of Physic	al strength and flexibility.		
2	Learn to relax and focus.			
3	Relieve physical a	nd 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	ourse, the students should be able to	<u> </u>	
1	Design Various Cl	naracteristics of MOS Logic.		
2		mplifier circuits using CMOS Logic.		
3		rcuits using Different Logic Styles.		
4		Different logic circuits.		
Course	Semester	Mixed Signal VLSI Laboratory	L: 0 T: 0 P: 4 C: 2	
Outcome	II Sem	(M20VL20)		
After the co	 	ourse, the students should be able to		
1 2		mplifier circuits using CMOS Logic.		
3		omplex circuits using Different Logic Styles.		
3 4		Different logic circuits.	CAD to ala	
Course	Semester	uits are to be designed and implemented using Mini Project (M20VL21)	L: 0 T: 0 P: 4 C: 2	
		Willia Toject (W20 V L21)	L. 0 1. 01. 4 C. 2	
Outcome	II Sem			
After the cor	mpletion of this co	urse, the students should be able to		
1		knowledge and skills in engineering and ap	oply it effectively on a	
2	project.	du at David a marant Dua a a ain alu dia ahu da atin atha	ovel MiniDusie et	
<u>2</u> 3		ductDevelopmentProcessincludingbudgetingthr	ougniviiniProject.	
		ctivities of the Miniproject.		
4		c hardware and software implementation skills.		
5		tes and conflicts within and outside individually	7.	
6		l report based on the Miniproject.		
7		seminar based on the Mini Project work carried		
Course	Semester	(Program Elective-V)	L: 3 T: 0 P: 0 C: 3	
Outcome	III Sem			
		High Speed VLSI Architectures for		
		DSP Applications (M20VL22)		
After the cor	npletion of this co	urse, the students should be able to		
1	Apply the concep design.	t of unfolding for optimization of critical pa	ths in the VLSI system	
2		architectures in optimized way for given specifi	cation in VLSI Design	
3	Apply the redund	ant arithmetic for optimization of adder & m		
		nal processing application.		
4	Analyze the use	of synchronous & asynchronous pipelining	ng in to optimize the	



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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	
Outcome	III Selli		
		(M20VL23)	
After the cor	mpletion of this	course, the students should be able to	
1	Understand the	limitations of the MOSFETs & potential of nano	electronics.
2		understanding of the relation between novel be	
		ntum behavior of the matter at the nano scale as	well as the breakdown of
2	received scaling		
3		ctures of carbon nanotubes & its applications.	
4		concept of molecular electronics in nanoscale faborinciple of spintronic.	rication technologies
Course	•	(Program Elective-V)	L: 3 T: 0 P: 0 C: 3
Course			L. 3 1. 01. 0 C. 3
Outcome	III Sem	RF Circuit Design (M20VL24)	
After the con	mpletion of this	course, the students should be able to	
1	Understand the	performance parameters / specifications of the RI	F Circuits.
2		ze the filter design.	
3	Understand &	evaluate the performance of various specifica	ations of high frequency
		, Mixer, Oscillators & Power Amplifiers.	
4		source of nonlinearity, noise, process technol-	
·	•	dividual blocks of receiver & on receiver perform	
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	course, the students should be able to	,
1	Understand the	Fundamentals of Neural Networks & Feed Forwa	ard Networks.
2	Design & analyz	ze the Associative Memories & ART Neural Net	works.
3		valuate the performance of Fuzzy Logic & System	ms.
4		Genetic Algorithms.	
5		ze Hybrid Systems.	
6		Computing concepts, technologies, and applicat	
7		underlying principle of soft computing wi	tn its usage in various
Course	application. Semester	(Open Elective) Graph Theory &	L: 3 T: 0 P: 0 C: 3
Outcome	III Sem	Optimization Techniques (M20MA02)	
1	Understand the	various types of graph Algorithms and graph theo	ory properties.
2		 complete problems. 	y properties.
3		features of the various tree and matching algorith	ms.
4		applications of digraphs and graph flow.	
5		linear 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	l.		
4	Develop a method	to use energy from solid wastes.			
5		nethods of disposal of hazardous solid waste.			
Course	Semester	Dissertation Phase-I (M20VL25)	L: 0 T: 0 P: 20 C:10		
Outcome	III Sem				
After the cor	npletion of this co	urse, the students should be able to			
1	International Jour	ct Phase-I, the students should select a reconal, preferably IEEE, ACM, Springer in the the area of specialization.			
2	work done and rev	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	It is mandatory that the students should refer National and International Journals and conference proceedings while selecting a topic for their Project.				
4		be given for introduction to the topic, literature ong with some preliminary work carried out on	3 · 1		
5		ubmit a copy of Phase-I Project report cover nting the features of work to be carried out in F			
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	Use specialized kn	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 sound technical knowledge of selected project topic.			
5		kills and attitude of a professional engineer.			
6	Summarize an app to current project.	propriate list of literature review, analyze previ	ious 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			



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 prequations using m	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 nature	e of sequence and series to identify the converg	ence.	
4		single-variable functions graphically and compata and Gamma functions.	outationally. Analy	yzeimproper
5	Calculate Partial without constraint	derivatives, Jacobian and extrema of functions is.	s of multiple varia	ableswith or
Course Outcome	Semester I Sem	Subject Name (Subject Code) 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		I
1		batteries and corrosion		
2		water treatment and		
3		polymers and their us		
4		vledge of principles and concepts of phase rule	and surface chem	istry
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 o	f Drawings, dimensioning, scales and conic sec	tions.	
4		eations of this knowledge in Computer Graphics		
5	Compare the conv	ersion of isometric views to Orthographic view	/S.	
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	ourse, the students should be able to		
1		now problems are posed and how they ca	n be analyzed t	for obtaining
2	Understanding th	ne 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 Methodology	and implement different types of file struc	tures using stand	lard	
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	ourse, the students should be able to	L		
1	_	strengths and weaknesses in English usage	in formal and inf	ormal	
	contexts.	gronging and weathlesses in English asage	Ioiiimi uiid iii	0111111	
2		ortably in their individualized contexts			
3		research skills in English speaking and writ	ing		
4		abulary, pronunciation, receptive and expre		nglish	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.	
Outcome	I Sem	PROGRAMMING FOR PROBLEM	L:0 T:0 P:3	5	
Outcome		SOLVING LAB (B20CS02)	L.0 1.01.3		
After the c	completion of this c	ourse, the students should be able to			
1	To provide the nece methodologies.	essary knowledge on general engineering proble	em solving		
2		ry foundations for step by step computer progra n C programming language.	am development a	nd to present	
3		ents to write modular and readable C Programs			
<u>4</u> 5		ces the essential concepts like abstract data type			
_	with the help of file			processing	
6	Semester	udents to write working programs to solve prob		Credits: 1	
Course		Subject Name (Subject Code)	No. of Hours	Credits: 1	
Outcome	I Sem	ENGINEERING WORKSHOP (B20ME04)	L:0 T:0 P:2		
After the o	completion of this c	ourse, the students should be able to	1		
1		ntal knowledge of various trades and their usag	e in real time App	lications	
2		Welding, Black smithy, Fitting, Machine shop			
3	engineering and me	is for analyzing power tools in construction and chanical engineering		lectrical	
4	Apply basic concep	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	ourse, the students should be able to			
1		ntal concepts of ordinary differential equations			
2	•	olution of a non homogeneous differential equiproblems of Engineering.	ations and applyi	ng itsconcepts	

<u> </u>						
3	Evaluate the multip	le integrals in various coordinate systems.				
4	* * *	of gradient, divergence and curl to formulate E	<u> </u>	ms.		
5	Analyze line, surfa	ce and volume integrals using fundamental theo				
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	pletion of this cou	rse, the student shall be/shall		•		
1	Learns about transf	Formation concepts in Mechancis				
2	Gains knowledge of improvements	on basics of rigid body dynamics and lasers whi	ch leads to new in	novations and		
3	The knowledge of	physics relevant to engineering is critical for con	nverting ideas into	technology		
4	•	An understanding of Physics also helps engineers understand the working and limitations of existing devices and techniques, which eventually leads to newinnovations and improvements				
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		rse, the student shall be/shall				
1	-	ic concepts of engineering mechanics and force	Systems			
2		on developed in motion of bodies				
3		and moment of inertia for simple and composite	bodies			
4		s of mechanics for solving problems of particles		otion		
5	* * *	ork 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 1.01.2			
After com	pletion of this cou	rse, the student shall be/shall				
1	Defining the funda	mentals of writing Python scripts				
2	Expressing the Cor	e Python scripting elements such as variables ar	nd conditional con	trol structures		
3	Implement the Pyth	non scripting using looping statements.				
4	Apply Python func	tions to facilitate code reuse				
5	Extending how to v	work with modules and packages				
Course	Semester	Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0	Credits:3		
Outcome	II Sem	BASIC ELECTRICAL AND	L:3 1:0 P:0			
	H Sem	ELECTRONICS ENGINEERING (B20EE01)				
After com	pletion of this cou	rse, the student shall be/shall				
1	Analyze circuit the	orems, mesh and nodal analysis, series and para	llel networks, Ele	ctrical power		
2	•	AC circuits, reactance, Impedance, Susceptance				
3	Learn the working	principle of DC motors, Transformers				
4	Study the character	ristics of PN Junction diode and zener diode				
5		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	1.01.01.3			

	<u> </u>	ELECTRONICS ENGINEERING LAB		
		(B20EE02)		
		(BZ0EB0Z)		
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 l	KCL laws
2	Identify the optima	l loading onmachines		
3	Analyze the perform	mance of DC machines		
4		e the performance and operation of semi condu	cting devices	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	II Sem	PHYSICS LAB (B20PH05)	L:0 T:0 P:3	
After com	•	rse, the student shall be/shall		
		rse helps the student how to operate different ec	minments related t	o engineering
	_	udent to develop experimental skills to design r		
2		ens the student about modern equipment like So		
3		to these experiments, the student can compare to		
-	experiment	F		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
		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	<u> </u>	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		ations and the properties of cast irons and steels		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Sem	MECHANICS OF SOLIDS (B20ME08)	L:3 T:0 P:0	
After com	nletion of this cou	rse, the student shall be/shall	!	I
1	•	cepts of stress and strain in mechanics of solids	and material pror	nerties
		ntal concepts of shear force & bending moment		
	11 0	overhanging beam with point loads, UDL, grad		
	combination		, , ,	
3	Apply the fundame	ntal concepts of Bending stresses & shear stress	ses for different Bo	eams
4	Apply the different	methods to determine the deflection & slope of	different beams 1	ike double
		Area moment method & Macaulay's method		
		equation to determine stresses in Thick cylinder	s and to understan	d the concept
	of torsion and its ap	oplication to circular shafts.	T	
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	III Sem	THERMODYNAMICS (B20ME09)	L:3 T:0 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1	Understand the bas	ic thermodynamic principles and their applicati	ons	
2	~ ~ ~	hermodynamics for different thermal systems.		
3		n and steam tables to find the properties of pure		
4	Calculate different	properties of perfect gases, real gases and mixtu	ires of perfect	

5	Analyse different p	power 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		
1		s conventions used in machine drawing		
2	Identify the design	and use of various machine components		
3		conclusions about a given drawing		
4		ply and part drawings for various machine comp	onents	
5	Apply the First ang	gle projection to machine parts		.
Course	Semester	Subject Name (Subject Code) BASICS OF ARTIFICIAL	No. of Hours L:2 T:0 P:0	Credits:2
Outcome	III Sem	INTELLIGENCE (B20CS26)		
After com	pletion of this cou	rse, the student shall be/shall		
1		to formulate an efficient problem space for a pr	oblem expressed ii	n English
2		to select a search algorithm for a problem		
3		terization time and space complexities		
4		r representing knowledge using the appropriate		
5		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) ENGLISH FOR EFFECTIVE	No. of Hours L:2 T:0 P:0	Credits:2
Outcome	III Sem	COMMUNICATION (B20EN01)		
After com		rse, the student shall be/shall		
1		digital text to summarize it for future reference		
2		ke notes according to their n		
3		age effectively in spoken and written forms		
4	II.	fidently in various contexts and different culture		
5	Acquire basic profi speaking skills	iciency in English including reading and listening		
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		sustained happiness through identifying the ess	entials of human v	alues and
2		ect understanding between profession and happi	ness	
3	It helps students ur	nderstand practically the importance of trust, mu hing interaction with nature		uman
4		appropriate technologies and management patte	erns to create harm	ony in
7		ersonal life		
	professional and pe		No. of Hours	Credits:1.5
Course Outcome		Subject Name (Subject Code) MECHANICS OF SOLIDS LAB (B20ME12)	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	Semester III Sem pletion of this cou Perform material to	Subject Name (Subject Code) MECHANICS OF SOLIDS LAB (B20ME12)		Credits:1.5

3	Perform Hardness t	test to find hardness of components		
4		f springs with all parameters		
5		test on Beams and can analyze the Beams		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	III Sem	METALLURGY LAB (B20ME13)	L:0 T:0 P:3	
	<u> </u>	rse, the student shall be/shall		
1	•	sic Crystal structures of various materials		
2		grain boundary, crystal structure of different ma	terials	
3		icture of various materials		
4	•	ical properties of various Metals and Non-Metal	S	
5	Ţ	ical properties of ferrous and Nonferrous alloys		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	IV Sem	PROBABILITY AND STATISTICS (B20MA07)	L:3 T:1 P:0	
After com	pletion of this cou	rse, the student shall be/shall		
1		ory and deals with modelling uncertainty in order	er to evaluate the	probability of
	real world events			
2		robability distributions and its applications, and	use these techniqu	ies to generate
2		l and Poisson Distributions	, 1, C N	1
3	•	of continuous probability distributions to genera	ate data from Nor	mai
4	Distributions	and magnessian analysis in audou to actimate the	a matuma and the at	man ath of the
4		and regression analysis, in order to estimate the petween two variables	e nature and the st	rengin of the
5		ce interval to estimates population parameters to	test the hypothes	ric
			No. of Hours	Credits:3
Course	Semester	Subject Name (Subject Code) FLUID MECHANICS AND HYDRAULIC	L:3 T:0 P:0	Cicuits.5
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	e to understand f	luid flow
	principles and their		,e to unacistana i	idia 110 W
2		nental knowledge of the mechanics of fluid at re	st and in motion	
3		omena by developing and using the principles, l		
4	Analyze fluid intera	actions with natural and constructed systems		
5	Associate fundame	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	
	npletion of this cou	rse, the student shall be/shall		<u> </u>
1		cept and working of two and four strokes I.C. ex	noines	
2		and abnormal condition for the combustion of		also the
-		effect the combustion characteristics		
3		ne performance of the engine with different para	meters	
4		out compressors and their classifications		
5		as compressor on the basis of their working and	requirement and o	can use
	suitable one.	9	-	

Г	T			G 11. A
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	KINEMATICS OF MACHINES	L:3 T:0 P:0	
		(B20ME16)		
After com	pletion of this cou	rse, the student shall be/shall		
1		nechanisms involved in machines		
2	Develop familiarity	y with application of kinematics theories to real-	world machines	
3		elations between distance, time, velocity and acc		
4		cal linkage analysis, determine cam profiles		
5		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)		
A C4				
		rse, the student shall be/shall		. 1
1		lge of casting, welding joints and forces and pov	ver requirements i	n metal
2	forming processes	1, 1, 0, 11	1 ' C 1	1 .
2		solidification, pattern allowances, gating and ri-	ser design of molo	i cavity,
2	aspects of casting.	1 1	.1 . 1.6 .	
3		alculations of forces and power requirements in		
4		pplication of welding using the arc welding, gas	welding, resistance	e welding,
	soldering and brazi	<u> </u>		
5	Survey the defects	occurring in forging operation		
Course	Semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5
Outcome	IV Sem	FLUID MECHANICS AND HYDRAULIC	L:0 T:0 P:3	
Outcome	TV Seni	MACHINERY LAB (B20ME19)		
After com	pletion of this cou	rse, the student shall be/shall		
1	_	of fluid mechanics and hydraulic machines and t	translates this kno	wledge for
		I flow principles and their application to experin		
2		by using components vacuum gauge, pressure g		s, pipes,
	motors, pumps & t		,8.,	71 1 ,
3		theoretical values with the real parameters		
4		and the experimental analysis in turbines and pu	mps with paramet	ers such as
		water, speed of brake drum.	r r	
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)		
	14. 641.	/		
	_	rse, the student shall be/shall		
1		mowledge and concepts of various experiments		
2		materials (similar/dissimilar) using welding		
3		ots of extrusion and design of die		
4	1 ,	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	
After com	pletion of this cou	rse, the student shall be/shall	•	
1		point & fire point of liquid fuels		
2	•	n percentage for liquid fuels		
3		sity of Liquid lubricants		
	mastrate the viscos	or Diquid Idoricanto		

Apply different methods to determine the calorific value of fuels
 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	Semester	Subject Name (Subject Code)	No. of Hours		
Outcome	I Sem	ADVANCED THERMODYNAMICS (M20TE01)	L:3 T:0 P:0	Credits: 3	
After the c	completion of this c	ourse, the students should be able to			
1		levance of Evaluation of thermodynamic pro			
2	Know the applica	ntions of Energy properties of real gases, Van	our pressure, Cla	iusius	
3	Apply Psychometric mixture properties and psychometric chart, Air conditioning processes, cooling towers				
4	levels of tables. Er	on Reactions, Enthalpy of formation. Entrop nergy of formation, Heat reaction			
5		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	ons Of In Viscid Flow Of Incompressible Flu	ids		
2	Apply Basic Law	s Of Fluid Flow			
3	Understanding T	he 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 stud	y skills on Production of Low Temperature.			
3	diagrams – limita	y skills on Steam Jet refrigeration system, Retitions and applications.			
4		on Construction of Psychometric chart, Requermodynamics of human body	irements of Comf	fort Air –	
5	* *	ith Parameters influencing the Effective Ten anditioning systems	nperature. Summe	er, 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	Understand the F	undamentals of turbo machines and their app	olications	
		team nozzle and steam turbine in power plan		of their flow
2	on performance of	1 1		
3	•	s with the fundamental of thermodynamics co	oncepts for gas dy	ynamics.
4		bout type and working principle of centrifug		,
		mental concept of Axial flow compressors ar	•	of cascade
5	systems		o different type o	
	Systems	Subject Name (Subject Code)		
Course	Semester	ENERGY MANAGEMENT	No. of Hours	Credits: 3
Outcome	I Sem	(M20TE05)	L:3 T:0 P:0	Credits. 3
After the c	ompletion of this c	ourse, the students should be able to		
1		Need Of Energy Management And Its Princip	nles	
2		uirement Of Energy Audit And Its Concepts		
3		ots Of Economic Analysis And Its Scope.	•	
4		Of Evaluation Of Projects.		
5		y		
3	Survey Fundame	ntal Concept Energy Audit		
Course	Semester	Subject Name (Subject Code)	No. of Hours	G 114 2
Outcome	I Sem	GAS TURBINES (M20TE06)	L:3 T:0 P:0	Credits: 3
		ourse, the students should be able to		
1		ications and classifications of gas turbines		
2		lifferent processes for improving the perform		
3		and Real cycle gas turbines and concept of i		iciency.
4		bout fundamental equations and laws of rota		
5	Learn the basic and advanced concepts and working principles of different type of			
	compressors		1	
Course	Semester	Subject Name (Subject Code)	No. of Hours	
Outcome	I Sem	NON CONVENTIONAL ENERGY	L:3 T:0 P:0	Credits: 3
Outcome	1 Sem	SOURCES (M20TE07)	2.3 1.01.0	
After the c	ompletion of this c	ourse, the students should be able to		
1	Know About Sol	ar Energy Applications: Solar Water Heating	g. Space Heating,	Active And
1	Passive Heating 1	Energy	-	
2	Group Structure	Of Earth, Geothermal Regions, Hot Springs.	Hot Rocks	
3		em In Thermionic & Thermoelectric Genera		rator.
4	Compare Fusion,	Fusion Reaction, P-P Cycle, Carbon Cycle,	Deuterium Cycle	, Condition
4		usion, Fuel Cells And Photovoltaic.	•	
5	Relate Energy So	urces. Plant Productivity, Biomass Wastes,	Aerobic And Ana	erobic
3	Bioconversion Pr	rocessed		
Comme	Corrector	Subject Name (Subject Code)	No of II	
Course	Semester	EQUIPMENT DESIGN FOR	No. of Hours L:3 T:0 P:0	Credits: 3
Outcome	I Sem	THERMAL SYSTEMS (M20TE08)	L:3 1:0 P:0	
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	at exchanger and	get idea
2	about double pipe	~	Č	-
	1 1			

3	Understand the wasingle vapors.	orking principle of steam condenser and exp	lore the condensa	ation of
4	Get Knowledge a	about processes like vaporization, evaporation tents used for these processes	n and reboiling ar	nd study
5	To understand th	e working principle of cooling tower		
Course Outcome	Semester I Sem	Subject Name (Subject Code) ADVANCED THERMAL ENGINEERING LAB (M20TE09)	No. of Hours L:0 T:0 P:4	Credits: 2
After the c	ompletion of this c	ourse, the students should be able to		
1	Understand the A	analysis of air conditioning unit.		
2		Analysis of heat pipe.		
3		ormance analysis of flat plate collector.		
4		ormance analysis of evacuative tube concent	rator	
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 c	ompletion of this c	course, the students should be able to		
1	Understand the A	analysis of flow profile on the designed nozzl	le.	
2		Designing the diffuser and Analysis of flow p		gned diffuser.
3		analysis of fluid flow on over curved surface.	•	
4		analysis of force exerted by the fluid jet on fi		
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 c	ompletion of this o	ourse, the students should be able to		
1	Understand abou	t Intellectual Property Right		
2	Compose and wr rights.	ite quality research reports and attain familia	rity with intellect	ual property
3	Estimate research	n problem formulation.		
4	Analyze research	related information.		
5	Discuss new and	better products for economic growth and soc	cial 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 c	ompletion of this c	course, the students should be able to	1	
1	_	Need Of Energy Management And Its Princip	ples.	
2		uirement Of Energy Audit And Its Concepts		
3	· ·	epts Of Economic Analysis And Its Scope.		
4	11 7	hods Of Evaluation Of Projects.		
5		hancing Creativity By Self Development Pro	gram 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 c	ompletion of this o	ourse, the students should be able to		
1		eneral heat Conduction equation.		
	•	*		

2	Know the Lumpe	ed system analysis		
3		ations of fluid flow		
4	•	e concept of free convection, boiling and cor	ndensation	
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	completion of this c	course, the students should be able to		
1		ign and operating Parameters		
2		Γhermo-chemistry of Fuel-Air mixtures.		
3		e effect of Volumetric Efficiency on the perf	formance of the en	ngines.
4		on Mean velocity and turbulent characteristic		<u> </u>
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	completion of this c	ourse, the students should be able to		
1	To understand the	e main concept of cryogenic systems.		
2	To know the imp	ortance and applications of gas liquefaction		
3	Understand the w	orking of liquefaction systems for various ty	pes of gases	
4	Equip students w	ith the knowledge of gas separation systems	and purification s	systems.
5		edge on cryogenic refrigeration systems	-	•
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	completion 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 fundar	_	
3		edge on the effect of nozzle design on the pe		propulsion.
4		e combustion chemistry of fuels used in rock		•
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	completion of this c	ourse, the students should be able to		
1	Know about Ava hydrogen, and an	ilability and properties of alternate fuels, gen amonia.	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 Engir		
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		e Difference Method, Finite Volume Method	Finite Element I	Method	
2		n Methods Of Elliptical Equations	i, i iiiice Eicinciic i	······································	
3	Understand Boundary Layer Equations For Laminar, Turbulent Flow				
	Solve Numerical On Burgers Equations: Explicit And Implicit Schemes, Runge- Kutta				
4	Method.				
5	Apply Knowledg Methods.	Apply Knowledge On Formulations Of Incompressible Viscous Flows By Finite Difference Methods			
Course Outcome	Semester II Sem	Subject Name (Subject Code) THERMAL AND NUCLEAR POWER PLANTS (M20TE17)	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	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				
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	Credits. 3	
After the c	ompletion of this c	ourse, the students should be able to			
1		andamental principles of measuring instrume	ents		
2		ing principle of all the instruments used to d			
3	•	inced thermometers for different type of open		•	
4	•	by direct or indirect methods.	autons.		
5		e on principles used for process control			
<u> </u>	Impart knowicug	Subject Name (Subject Code)			
Course	Semester	ADVANCED INTERNAL	No. of Hours		
Outcome	II Sem	COMBUSTION ENGINES LAB	L:0 T:0 P:4	Credits: 2	
Outcome	H Selli	(M20TE19)	L.0 1.01.4		
After the c	completion of this c	ourse, the students should be able to			
1		ffect of change in compression ratio on the p	erformance of die	esel& petrol	
2		et of change in fuel injection timing on the pe	erformance of dies	sel engine	
3	•	analysis Flame propagation analysis of gaseo		ongino.	
4		e of fuels and analyze its effect on the perfor		nd petrol	
_	Ose different type	•		na petroi	
Course	Semester	Subject Name (Subject Code) MODELING AND ANALYSIS LAB-II	No. of Hours	Credits: 2	
Outcome	II Sem	(M20TE20)	L:0 T:0 P:4	Creuits: 2	
After the c	ompletion of this c	ourse, the students should be able to			
1	_	al stress analysis of piston head of diesel eng	ine for real condit	ion.	
2		and exhaust valve for diesel engine.			
3		nal stress of crank rod of diesel engine for re	al operating cond	itions.	
4	•	t of thermal stress on the intake and outlet va			
•					

Semester	Subject Name (Subject Code)	No. of Hours	
			Credits: 2
22 0 0 111	WRITING (M20AC01)	200 200 200	
ompletion of this c	course, the students should be able to		
To understand the	e nuances of language and vocabulary in wri	ting a Research P	aper.
To develop the co	ontent, structure and format of writing a research	arch paper.	
To enable the stu	dents to evolve original research papers with	out subjected to p	olagiarism
Somostor	Subject Name (Subject Code)	No. of Hours	
	ADVANCED MATERIALS FOR		Credits: 3
	THERMAL SYSTEMS (M20TE22)	1.3 1.01.0	
ompletion of this c	course, the students should be able to		
Understand the fu	undamentals of different type of testing meth	ods.	
Analyse Impact I	Behavior Heat Treatment of Steels and Cast I	rons.	
Impart knowledg	e on fundamentals of Nuclear Power Plant and	nd Their Materials	S
survey about mat	terials in Fuel cells and Solar Cells Electro ca	ıtalyst.	
Compare the Mat	terials in Thermal Power Generation.		
C4	Subject Name (Subject Code)	N. CII	
	COMPUTER SIMULATION OF SI &		Credits: 3
III Sem	CI ENGINES (M20TE23)	L:3 1:0 P:0	
ompletion of this c	course, the students should be able to		
Impart knowledg	e on importance of computer simulation of I	C engines.	
To understand the	e concept of Wiebe's function in SI engine n	nodeling.	
			engines.
	*	•	
Equip students w	rith knowledge of heat transfer to the surroun	ding from the IC	engines
a			
	Subject Name (Subject Code)	NI CIT	
Semester	Subject Name (Subject Code) ADVANCED FINITE ELEMENT	No. of Hours	Credits: 3
Semester III Sem		No. of Hours L:3 T:0 P:0	Credits: 3
III Sem	ADVANCED FINITE ELEMENT		Credits: 3
III Sem ompletion of this c	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to	L:3 T:0 P:0	
III Sem ompletion of this c Understand The l	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Ap	L:3 T:0 P:0	
III Sem ompletion of this c Understand The l	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle	L:3 T:0 P:0	
ompletion of this condensated The Landysis And Understand The Landysia And Understand	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems.	L:3 T:0 P:0 plications Of FEN	Л.
ompletion of this control Understand The Industrial Analysis And Understand The Industrial Structure Inpart Knowledge	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. ge On Hermite Shape Functions, Stiffness Ma	L:3 T:0 P:0 plications Of FEN	Л.
ompletion of this control Understand The Industrial Analysis And Understand The Industrial Structure Inpart Knowledge	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. ge On Hermite Shape Functions, Stiffness Mannent modeling of Axi-symmetric solids	L:3 T:0 P:0 plications Of FEN	Л.
ompletion of this control Understand The Industrial Analysis And Understand The Industrial Structure Inpart Knowledge	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. ge On Hermite Shape Functions, Stiffness Ma	L:3 T:0 P:0 plications Of FEN	A. Vector.
ompletion of this condensated The Landysis And Understand The Landysis Apply Finite elements	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. Ge On Hermite Shape Functions, Stiffness Mannent modeling of Axi-symmetric solids Subject Name (Subject Code)	plications Of FEM	Л.
ompletion of this of Understand The I Analysis And Un Observe 1-D Stru Impart Knowledg Apply Finite elem	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. ge On Hermite Shape Functions, Stiffness Manent modeling of Axi-symmetric solids Subject Name (Subject Code) ADVANCED OPTIMIZATION	plications Of FEM atrix, And Load V	A. Vector.
ompletion of this condensated The Inderstand Indeed Inderstand Index Ind	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. ge On Hermite Shape Functions, Stiffness Manent modeling of Axi-symmetric solids Subject Name (Subject Code) ADVANCED OPTIMIZATION TECHNIQUES & APPLICATIONS	plications Of FEM atrix, And Load V	A. Vector.
ompletion of this control Understand The It Analysis And Understand The It Analysis And Understand The It Impart Knowledge Apply Finite elemnster III Sem	ADVANCED FINITE ELEMENT ANALYSIS (M20TE24) course, the students should be able to Basic Concepts, Historical Back Ground, Apaderstand Virtual Energy Principle actural Problems. Ge On Hermite Shape Functions, Stiffness Mannent modeling of Axi-symmetric solids Subject Name (Subject Code) ADVANCED OPTIMIZATION TECHNIQUES & APPLICATIONS (M20MA01)	plications Of FEM atrix, And Load V No. of Hours L:3 T:0 P:0	A. Vector.
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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		
2	Identify the Impo	ortance of Ethics in Business		
3	Categorize Cyber	Crime and Legal Aspects.		
4	Analyze Busines	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 Pr	oject Management.		
2	Project Planning. Execution and implementation.			
3	Significance of teams in projects.			
4	Project evaluate techniques.			
5	Role of Schedulin	ng and Network Analysis in Project Planning	<u></u>	

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4		
Outcome	I Sem	LINEAR ALGEBRA AND CALCULUS (B20MA01)	L:3 T:1 P:0			
On successf	ul completion of th	is course, students will be able to:				
1		Understand the principles of matrix to calculate the characteristics of system of linear equations using multiple methods.				
2	Determine Eigen va	alues, Eigenvectors of matrices.				
3	·	of sequence and series to identify the converge				
4		ingle-variable functions graphically and compute and Gamma functions.	itationally. Analys	se improper		
5	Calculate Partial de	rivatives, extreme of functions of multiple vari				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0	Credits:3		
Outcome	I Sem	MODERN PHYSICS (B20PH01)	L.3 1.01.0			
On success	sful completion of	f this course, students are able to:				
1	Understands the base	sic concepts and hypothesis of quantum mecha	nics			
2	Describes the chara	cteristics and working of lasers and their use in	various fields.			
3	Analyze and apply	the concepts of wave optics for accurate determination	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 evaluate	uates the carrierco	ncentration of		
	given semiconductors for device applications					
5	Apply the concepts	of the light propagation in optical fibres in opt	icalcommunicatio	n systems		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING(B20EE01)	L:3 T:0 P:0			
After the o	completion of this c	ourse, the students should be able to				
1	Analyze circuit the	orems, mesh and nodal analysis, series and par	allel networks, Ele	ectricalpower.		
2	Gain knowledge on Factor	AC circuits, reactance, Impedance, Susceptance	e and Admittance	andPower		
3	Learn the working	principle of DC motors, Transformers				
4	Study the character	istics of PN Junction diode and zener diode				
5	Learn the basic of A	Amplifiers and Rectifiers.				
Course	Year / 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 o	completion of this c	ourse, the students should be able to				
1	Understanding how	problems are posed and how they can be analy	zed for obtainings	solutions.		
2		cing, branching, looping and decision making s				
3		rent operations on arrays and creating and using	g of functionsto so	olve problems		
4		exploring the various methods of memory allo	-	- Problems		
5		ad implement different types of file structures u		nodology.		
L	7 0 1 71					

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
		Subject Name (Subject Code) ENGINEERING DRAWING		Credits: 2	
Outcome	I Sem	(B20ME01)	L:0 T:0 P:4		
After the	completion of this o	course, the students should be able to			
1	1 Understand various commands, modify the applications and object properties in AUTOCAD				
2	Analyse the Projec	tions of Points and solids			
3	Estimate the use of	drawings, dimensioning, scales and conic sect	ions		
4	Compare the Conve	ersion 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	completion of this o	course, the students should be able to			
1		ency of tuning for and AC supply with the help	of stretched string	S	
2	_	s compare the intensity distribution of interf			
3		ristics of electrical and electronic circuits and e		_	
	parameter		1		
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	Toem	SOLVING LAB(B20CS02)	2.0 1.01.5		
After the	completion of this o	course, the students should be able to			
1		tructure of the C Programming, data types, dec	laration and usage	of variables,	
		nd all related concepts.			
2	•	nd any algorithm and Write the C programming			
3	Implement Program time problems	ns using functions, pointers and arrays, and use	the pre-processors	s to solvereal	
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 VECTOR CALCULUS(B20MA02)	L:3 T:1 P:0		
After the a	completion of this (course, the students should be able to			
1		ntal concepts of ordinary differential equations	to real time proble	ems	
2		solution of a non homogeneous differential equ			
	inEngineering prob				
3	0 0 1	ole integrals in various coordinate systems.			
4	Apply the concepts	of gradient, divergence and curl to formulate I	Engineering proble	em	
5	Analyse line, surface	ce and volume integrals using fundamental theorem	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	completion of this o	course, the students should be able to			
1		electro chemical cells, different batteries			
2	The knowledge of principles and concepts in corrosion & it's control methods.				
3	The knowledge of	Water treatment.			
4	_	Amino acids, Proteins and Nucleic acids			
5	_	principles and concepts in Forensic drug chem	istry and it's analy	vsis.	
,	The knowledge of principles and concepts in Potensie drug elicinistry and it's analysis.				

Course Outcome	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4		
	TT C	DATA CEDITOTIBLE AND		Creatist 1		
	II Sem	DATA STRUCTURES AND ALGORITHMS(B20CS04)	L:4 T:0 P:0			
After the c	completion of this c	ourse, the students should be able to				
		chniques of algorithm analysis				
2	Examine the linear	and non linear data structures.				
3	Develop Priority Q	ueues and Balanced Trees				
4	Understand Hashing	Inderstand Hashing Techniques and Graph applications				
5	Apply suitable algor	rithms for sorting Technique				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:4		
Outcome	II Sem	PYTHON PROGRAMMING(B20CS03)	L:4 T:0 P:0			
After the c	e completion of this course, the students should be able to					
1		mentals of writing Python scripts.				
2	Expressing the Core	e Python scripting elements such as variables a	and flow control st	ructures.		
3	Apply Python funct	ions to facilitate code reuse.				
		vork with lists and sequence data.				
5	Implement file oper	rations such as read and write and Adapting the	code robust byha	ndling errors		
	and exceptions prop		·	· ·		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5		
Outcome	II Sem	DATA STRUCTURES AND	L:0 T:0 P:3			
		ALGORITHMS LAB(B20CS08)				
After the c	completion of this c	ourse, the students should be able to				
		ar data structures such as List, Stack, Queue an				
2	Implement non-line	ear data structure such as Trees, Graphs and its	sapplications			
3	Apply suitable algor	rithms for sorting Techniques				
4	Choose appropriate	algorithm for Searching and Hashing				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5		
Outcome	II Sem	PYTHON PROGRAMMING LAB(B20CS07)	L:0 T:0 P:3			
After the c	completion of this c	ourse, the students should be able to				
		e Python scripting elements such as variables a	and flow control st	ructures.		
2	Apply Python funct	ions to facilitate code reuse				
3	Extending how to v	work with lists and sequence data.				
4	Implement file ope	rations such as read and write and Adapting the	e code robust byha	andling errors		
	and exceptions prop	perly.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5		
Outcome	II Sem	ENGLISH LANGUAGE AND	L:0 T:0 P:3			
		INTERACTIVE COMMUNICATION SKILLS LAB(B20EN02)				
After the c	completion of this c	course, the students should be able to				
		nces of English language through audio-visual	experience and gr	roupactivities.		
1						
	Speak with clarity and confidence which in turn enhances their employability skills.					
2	-	Develop their listening skills so that they may appreciate its role in developing LSRW skills				
2 3	Develop their listen		n developing LSR	W skills		
3	Develop their listen		evelop their listening skills so that they may appreciate its role in developing LSRW skills nguage and improve their pronunciation.			

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1.5	
Outcome	II Sem	ENGINEERING & IT	L:0 T:0 P:3	Creuits. 1.3	
Outcome	II Selli	WORKSHOP LAB(B20ME03)	L:0 1:0 F:3		
After the o		course, the students should be able to			
1		ntal knowledge of House wiring and soldering	and their usage in	real time	
2	Applications.	1			
3	-	ain knowledge on electronic components and measuring instruments. se basic concepts of computer hardware for assembly and disassembly.			
	•	•	eiiibiy.		
4	Use Microsoft tool	s for exercise.	T	T	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	III Sem	DESIGN AND ANALYSIS OF ALGORITHMS(B20CS10)	L:3 T:0 P:0		
After the o	completion of this c	course, the students should be able to	l		
1		o few known methods of solution processes, bu	ild new solution a	lgorithms,	
	_	otic performance of algorithms and to write rig		-	
	algorithms.				
2		e data structures and algorithm design methods	for specified class	ses of	
	applications;				
3		hoice of data structures and algorithm design n	nethods would imp	pact the	
4		grams and how to compare them.		:	
4	backtracking and b	ch as the greedy method, divide and conquer, d	ynamic programii	ing,	
5		o deal with logarithmic type, polynomial type a	and non-nolynomi	al type of	
3		and Synthesis of efficient algorithms in comm			
	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			
I	Understand the bas algebra.	ic concepts of different Number systems and b	asic theorems usir	ig inBoolean	
2	· ·	cuits using basic logic gates by reducing the Bo	oolean expression	s with thehelp	
	of Karnaugh Map.		-	-	
3	Analyze various ty	pes of combinational and sequential circuits.			
4		pes of sequential circuits.			
5	Understand the inte	ernal organization of popular8086 microprocess	sors	r	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	III Sem	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE(B20CS11)	L:3 T:0 P:0		
		COMI OTER SCIENCE(B20CS11)			
After the o	completion of this o	course, the students should be able to			
1	Evaluate the notion	s of propositions, predicate formulae, Rules of	inference.		
2	Illustrate and descr	ibe various types of Relations and Functions.			
3	Apply knowledge of	of Mathematics, Combinations & Permutations	, Binomial Multin	omial	
	theorems, Pigeon hole principles				
4	Develop to solve th	ne recurrence relations by using various method	ls		
5	-	concepts of graph theory and apply for real time			
	2 STOCK O THE OUSIG	erceive the basic concepts of graph theory and apply for real time examples.			

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Course	Year / semester	Subject Name (Subject Code) JAVA PROGRAMMING	No. of Hours	Credits: 3	
Outcome	III Sem	(B20CS12)	L:3 T:0 P:0		
After the	completion of this	course, the students should be able to			
1	Understand the use	e of OOP concepts and solve real world problem	ns using OOP tecl	nniques.	
2	Solve the inter-disc	ciplinary applications using the concept of inher	ritance.		
3	Develop robust and	d faster applications by applying different except	otion handling me	chanisms.	
4	Understand the mu	ltithreading concepts and develop efficient app	lications.		
5	Design GUI based	applications and develops applets for web appl	ications.		
Course	` ' '				
Outcome	III Sem	ENGLISH FOR EFFECTIVE COMMUNICATIONS(B20EN01)	L:2 T:0 P:0		
After the	completion of this	course, the students should be able to			
1		digital text to summarize it for future reference	•		
2	Read the text to ma	ke notes according to their needs.			
3	Use English langua	age effectively in spoken and written forms.			
4	Communicate conf	idently in various contexts and different culture	es		
5	Acquire basic prof	iciency in English including reading and listeni	ng comprehensior	n, writing and	
	speaking skills.				
Course		Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	TIT Cores	DIGITAL LOGIC DESIGN & MICRO PROCESSORS LAB(B20EC10)	L:0 T:0 P:3		
After the	completion of this	course, the students should be able to			
1	Demonstrate various flops.	us types of logic gates (AND, OR, NOT, NAN	D, NOR, XOR,X	NOR) and flip	
2	_	n various types of combinational and sequential	circuits.		
3	Develop microproc	cessor based programs for Arithmetic and Logic	cal Operations		
4	Develop microprod	cessor based programs for various problems.			
Course	Year / semester	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		course, the students should be able to			
1	*	ppropriate algorithm design techniques for solv	ing problems.		
2		m in an effective manner			
3		terative and recursive algorithms			
4		the performance of algorithms.	F	T	
Course		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	completion of this	course, the students should be able to			
1	Use the Java SDK	environment to create, debug and run simple Ja	va programs.		
2	Write Java program	ms to implement error handling techniques usin	g exception handl	ing	
3	Develop multithre	aded applications with synchronization.			
4	Design simple Gra	phical User Interface applications and event dri	iven programming	Ţ.	

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Course		Subject Name (Subject Code) OPERATING SYSTEMS	No. of Hours	Credits:3	
Outcome	IV Sem	(B20CS16)	L:3 T:0 P:0		
After the a	rompletion of this	course, the students should be able to	<u> </u>		
1		Operating Systems architectures, IO structures,	Network Structure	:	
2	_	I memory, paging and memory allocation techni			
3		revention and Deadlock Detection algorithms a	_		
		s a File manager, I/O manager, Process manage	_	orining or win	
4		Understand the overview of Disk Storage Structure.			
5		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	l	
1		epts in formal language theory, grammars, auto	omata theory(DFA	&NFA).	
_	_	ry, and complexity theory.			
2		on rules of regular expressions and grammars, i	including context:	free and	
	context: sensitive	-	C		
3		own automata and context free, regular, normal	form grammars to	odesign	
	computer language	_	C	C	
4		or various problems using a theoretical comput	er (Turing machin	ne)for a	
	computer language		_		
5	Explain the relation	nship among language classes and grammars wi	ith the help of		
	Chomsky Hierarch	y, and Distinguish between decidability and und	decidability.		
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	0.2 0.0.25	
After the o	rompletion of this	course, the students should be able to			
		ucture, function of various functional units of co	omputer.		
2		sic design of Computer, and its organization			
3	Perceive control ur	it operations and Micro Program example.			
4	Understand differen	ent computer arithmetic algorithms for various a	arithmetic operation	on	
5	Identity and compa	are different methods of input-output.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS(B20CS19)	L:3 T:0 P:0		
After the	completion of this	course, the students should be able to			
1		mental concepts of database management.			
2	Analyze database ı	models & Entity Relationship models and to dra	w the E-R diagrai	n forthe given	
	case study.				
3		atabase Theory, and be able to write relational	algebra expression	ns forqueries	
4	Apply Normalizati	on Process to construct the database and explain	n Basic Issues of T	ransaction	
	processing	•			
5	Compare the basic	Database storage structures and access technique	ıes: File		
	_	ing methods including B- Tree and Hashing			
	1				

				_	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	IV Sem	PROBABILITY AND	L:3 T:0 P:3		
1.07		STATISTICS(B20MA07)			
_		course, the students should be able to	1 (701	1 1 111 6	
1	real world events.	ory and deals with modeling uncertainty in order			
2		robability distributions and its applications, and l and Poisson Distributions.	use the technique	es togenerate	
3	Use the techniques Distributions.	Use the techniques of continuous probability distributions to generate data from Normal Distributions.			
4	linear relationship	Perform correlation and regression analysis, in order to estimate the nature and thestrength of the inear relationship between two variables.			
5	Construct confiden	ce interval to estimates population parameters t	o test the hypothe	sis.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	IV Sem	OPERATING SYSTEMS LAB(B20CS20)	L:0 T:0 P:3		
After the o	completion of this	course, the students should be able to			
1		ling algorithms, Page replacement algorithms.			
2	Explain Bankers A	Algorithm for Dead Lock Avoidance & Dead Lo	ock Prevention		
3	Describe the conce	pts of paging and segmentation.			
4	Make use of Linux	commands			
Course	+	Subject Name (Subject Code)	No. of Hours	Credits: 1.5	
		DATABASE MANAGEMENT SYSTEMS		Credits: 1.5	
Outcome	IV Sem	LAB(B20CS21)	L:0 T:0 P:3		
After the o		course, the students should be able to			
1		hema for given Application.			
2		lel to Relational Model.			
3	Apply the normalize	zation techniques for development of application	n software to real	isticproblems.	
4	Construct SQL que	ries to retrieve information from database			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	IV Sem	WEB TECHNOLOGIES LAB(B20CS22)	L:0 T:0 P:3		
After the co	ompletion of this co	ourse, the students should be able to			
1	Design and implent technical know-how	nent dynamic websites with good aesthetic sens	e of designing an	d latest	
2		te and apply the role of languages like HTML, of	CSS, XML, JavaS	Script, PHPand	
		orkings of the web and web applications		1 /	
3	Î.	b pages using JavaScript			
4	Build web applicat	1 0 1			
		Subject Name (Subject Code)	NI CII	G 114 2	
Course	Teal / 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	Define Software Envarious process mo	ngineering and list core principles of software e	ngineering and ur	nderstand	
2		tanding of software requirements and be able to	prepare SRS doc	ument.	
3	Understand software design engineering process using structural and object oriented approaches and be able to model				
4		chniques of verification and validation in the pr	rocess of software	edevelopment,	
	Apply the testing s	trategies on different level of implementation (unit, integration,	.)	
5	Understand and ab for a software deve	le to compute quality measures and develop a selopment.	oftware quality as	ssurance plan	
	•	-			

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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 ft on the co	mmlation of this or	COMPUTER NETWORKS(B20CS30)				
		ourse, the students should be able to				
1	Illustrate basic cor reference model.	llustrate basic computer network technology, functions of each layer in the OSI and TCP/IP eference model.				
2		e on error control and flow control mechanisms	J.			
3		subnetting and routing mechanisms.				
4		es and Operations of TCP/UDP, congestion cor	ntrol and OoS Tec	hniques.		
5		he essential protocols of application layer, a				
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 c	completion of this	course, the students should be able to				
		tanding of data warehouse, designing and using	g data in data ware	chouse using		
		ing concepts and develops understanding of dat				
	_	k of Association rule mining, association rule m e sample data sets, evaluate these methods base	•	d their		
4	Develop an unders application on som	standing of classification and prediction, class e sample data sets, evaluate these methods base	sification methoded on need			
5		al understanding of clustering, various clustering ta sets, evaluate these methods based on need.	ng methods and the	neir application		
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	mpletion of this co	ourse, the students should be able to	1			
		to formulate an efficient problem space for a pr	ohlem expressed	in Fnolish		
2	·	to select a search algorithm for a problem.	objetii enpresseu	211511911		
3	•	r representing knowledge using the appropriate	technique			
		to apply AI techniques to solve problems of Ga				
	•	Systems, Machine Learning and Natural Langu				
Course	İ	Subject Name (Subject Code)	No. of Hours	Credits:3		
		COMPILER DESIGN(B20CS31)		Ci cuits.5		
Outcome	VSem	(PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0			
After the co	empletion of this co	ourse, the students should be able to				
1	Apply the knowled	ge 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	analysis in the context of the compilation process	SS.			
4	•	ble format for the language defined by a gramn				
5		generation algorithm				
	1) T	No. of Hours	Cnodita:2		
Course		Subject Name (Subject Code) PRINCIPLES OF PROGRAMMING		Credits:3		
Outcome	V Sem	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	<u>I</u>		
1	Able to analyze syr	ntax-related concepts including context-free gravith function implementations.	ammars, parse tree	es, semantic		
2		ign issues of various reference types and its im	plementation relat	ed to these		
3	Able to understand	the concepts of Abstraction and Encapsulation s Language Examples.	constructs of class	ses, interfaces,		
4		nd the nature and implementation of object-orie	ented languages.			
5		he Functional Programming Languages and Log		Languages.		
	r - 212 to Compare ti		5 1 · · · · · · · · · · · · · · · · ·			

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	V Sem	NETWORK PROGRAMMING (B20CS33) (PROFESSIONAL ELECTIVE-I)	L:3 T:0 P:0		
After the co	mpletion of this co	Durse, the students should be able to			
1	Demonstrate advar	aced knowledge of OSI layers, TCP & UDP cor	ncepts		
2		narize the TCP socket functions and Byte Order			
3	ŭ	Make use of TCP client server applications and analyze I/O Multiplexing and socket options.			
4		Elementary UDP sockets and Address conversion			
		er networking information, Pseudo -Terminals		s Control	
3	Terminals.	r networking information, 1 seedo - 1 criminais	, reminar mode.	s, control	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	V Sem	DATA COMMUNICATIONS AND COMPUTER NETWORKS LAB(B20CS34)	L:0 T:0 P: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 detec	ction and error correction codes.			
3	Implement and ana	alyze routing and congestion issues in network	design.		
4	Implement Encodin	ng and Decoding techniques used in presentation	n layer.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5	
Outcome	V Sem	ARTIFICIAL INTELLIGENCE LAB (B20AI04)	L:0 T:0 P:3		
After the co	ompletion of this co	ourse, the students should be able to			
1	Demonstrate Know	rledge 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	ign heuristics		
	Develop intelligent systemsfor game p	algorithms for constraint satisfaction problems laying.	and also design ir	ntelligent	
4	• •	y to represent various real life problem domains	using logicbased	techniques	
		orm inference or planning.	8 18 11 11	1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0	
Outcome	V Sem	INDIAN CONSTITUTION(B20MC03)	L:2 T:0 P:0	Creatis.	
After the co	 	ourse, the students should be able to			
		ndamental rights and duties of a citizen			
2		strative structure of the Indian union			
3	· ·	of state government and make use of positions			
4	• •	ous department and local administrations respo	neihilitiee		
5	_	ous department and local administrations responsible commission and its roles	onsionities		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	W Sem	MACHINE LEARNING (B20AI06)	L:3 T:0 P:0		
After the co	empletion of this co	ourse the students should be able to :			
1	Explain the theory	underlying machine learning			
2	Learn beyond bina	ry classification.			
3	Recognize and imp	lement various genetic algorithms.			
4		ns to learn tree, to learn linear, non-linear model	s and Probabilisti	c models.	
5		data using R Programming			
	J	<i>C O O</i>			

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Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	CLOUD COMPUTING (B20CS36)	L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to		
1		nd various service delivery models of a cloud co	omputing architect	ture.
2	Ability to understand the ways in which the cloud can be programmed and deployed			
3	<u> </u>	ud Computing Architecture and Management	1 2	
4	Understanding clou	ad service Models		
5		nd 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	 	ourse, the students should be able to		
1	•	n of IoT from global context.		
2		blocks of Internet of Things and its characterist	ics	
3		cepts of Python. Implement the python program		berry.
4		eation areas of IoT. Realize the revolution of Ir		
	Cloud &Sensor Ne			20,1008,
5	Determine the Mar	rket perspective of IoT. Develop Python web a	pplications and cle	oud servers
	for IoT.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	SOFTWARE PROJECT MANAGEMENT	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE-II)		
After the co	 	(B20CS38) Durse, the students should be able to		
1		software economics, phases in the life cycle o	f software develor	ment project
1	•	project control and process instrumentation.	i software develop	ment, project
2	-	re economics, software development life cycle,	artifacts of the pr	ocess.
_		oints, project organization and responsibilities,		
	instrumentation	1		•
3	Choose the right so responsibilities.	oftware development approach. Compare various	us project organiza	ations and
4	Analyze the major	and minor milestones, artifacts and metrics for	management and	technical
	perspective.			
5	Design software	product using conventional and modern]	principles of sof	tware project
	management.			T
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VI Sem	NETWORK SECURITY AND	L:3 T:0 P:0	
		CRYPTOGRAPHY (B20CS39) (PROFESSIONAL ELECTIVE-II)		
After the o	completion of this o	course, the students should be able to		
1	Identifies various t	ypes of vulnerabilities, attacks, mechanisms and	d security services	
2	Compare and contr	rast symmetric and asymmetric encryption algo-	orithms.	
3	Implementation of message authentication, hashing algorithms and able to understand kerberos.			
4	Explore the attacks	and controls associated with IP, transport level	, web and E-mail	security.
5	Develop intrusion of	detection system, solutions for wireless network	ks and designing of	of varioustypes
	of firewalls.	firewalls.		

	1					
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	, <u> </u>	course, the students should be able to				
1	•	Implement Web service client and server with interoperable systems like core distributed computing, J2EE, SOA, WSDL, UDDI and EBXML				
2		ze the principles of SOAP.				
3		Perceive the implement Web Services life cycle, Anatomy of WSDL definition document.				
4	•	semantics of web services. Working with UDDI				
_	UDDIdata structur	•	, programming wi	tili ODDI,		
5		bility between different frameworks. Design we	eb based application	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			
Outcome	VI SCIII		L.0 1.01.3			
After the o	completion of this	course, the students should be able to				
1	Discuss different a	pplication on Machine Learning problems.				
2		gorithms on Machine Learning mentioning its				
3		mance of Machine Learning algorithms with di	fferent parameters	\$		
4	Understand the late	est issues raised by current researchers.	1	1		
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			
	112011					
After the co		ourse, the students should be able to				
1		mputing fundamentals, technologies, application Oracle VM Virtual box.	ons and implement	ation of		
2	Development knov	vledge of cloud computing using Amazon Web	Services like Cor	npute, Storage		
	and Networking.					
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	ıvailable systems ı	ısingAmazon		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1.5		
		INTERNET OF THINGS LAB(B20CS42)	L:0 T:0 P:3	Credits:1.2		
Outcome	VI Sem	,	L:0 1:0 P:3			
After the co	ompletion of this co	ourse, the students should be able to				
1		y of life of humans through IoT technology for t	hat student closer	interaction		
	between the experi	ment and the society.				
2	Identify the Compo	onents that forms part of IoT specific Application				
3		t appropriate IoT Devices and Sensors based on	* *			
4	Improve the Pythor	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 QUANTITATIVE APTITUDE(B20MC05)	L:2 T:0 P:0			
After the c	completion of this	course, the students should be able to	1	I		
1		reasoning and mathematical analysis methodol	ogies to understar	nd and solve		
	problems.		<u> </u>			
2	•	e correctly arrive at meaningful conclusions	regarding their a	nswers and		
_	* * * *	ons and formulas in order to solve for the desire				
3		ormation correctly, determine which mathemat		escribes the		
	data, and apply the	•	iicui inodei best u	cocinoca the		
4		·		Irrin o. 41- al-		
4	• • • •	athematical language and notation to explain the	•	lying their		
		solving problems using mathematical or statisti				
5	Improve their math	nematical skills in various general aspects to sol	ve real time proble	ems.		

				1
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 o	completion of this	course, the students should be able to		
1		sics of Artificial Neural Networks.		
2	Describe the various	us Learning Networks and Special Networks.		
3	Understand the De	ep Neural Network.		
4	Develop different	parameters for Regularization for Deep Learning	g.	
5	Design Optimized	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 o	completion of this	course, the students should be able to		
1		ure, scope and importance of Managerial Econo	mics.	
2	Know what deman	d is, analyze demand and how elasticity of dema		cingdecisions
3		tion function is carried out to achieve least cost	combination of	
	Inputsand how to		-	
4		racteristics of different kinds of markets and ou ation and analyze how capital budgeting technic ns.		m
5		are final accounts and how to interpret them, and	alyze and interpre	etfinancial
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SOFTWARE TESTING(B20CS44) (PROFESSIONAL ELECTIVE – III)	L:3 T:0 P:0	
After the o	completion of this	course, the students should be able to		
1	_	uitable for a software development for different	domains	
		*	domains.	
2		ng based on the document.		
3	Identify suitable te	sts to be carried out.		
4	Validate test plan a	and test cases designed.		
5	Use of automatic to	esting tools.		
Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) SOFTWARE ORIENTED ARCHITECTURE (PROFESSIONAL ELECTIVE – III) (B20CS45)	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	Design various ser			
2		didate derived from existing business documenta	ation.	
3	Design the compos			
4		services for technology abstraction.		
5	Principles of Servi			
Course	<u> </u>	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	SCRIPTING LANGUAGES (B20CS46) (PROFESSIONAL ELECTIVE – III)	L:3 T:0 P:0	Credits:3
After the c	completion of this	course, the students should be able to		1
1		ng and the contributions of scripting languages.		
2		cripts to automate system administration.		
3		f the strengths and weakness of Perl, TCL and R	Ruby: and select a	n
	_	ge for solving a given problem.	inoj, and beleet a	
4		ning skills in scripting language		
5		applications by various tools and expose to o	create advanced	applications
	on web application			11

	T		T	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	BUSINESS INTELLIGENCE & BIG DATA (PROFESSIONAL ELECTIVE – IV) (B20CS47)	L:3 T:0 P:0	
A Cton the e	ommintion of this			
		course, the students should be able to tions, definitions and capabilities of Bigdata.		
1 2	_	, concepts, architectures and challenges in Big of	data anvironment	Outling the
2		ts, and enabling technologies of big data analyt		. Outline the
3		ts on Handoop Ecosystem in Big data.	105.	
4	3	educe programming in Big data Analytics.		
5		data technologies in business intelligence using cial networking, Web 2.0, reality mining, and c		a, location-
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	REINFORCEMENT LEARNING (B20AI15) (PROFESSIONAL ELECTIVE – IV)	L:3 T:0 P:0	
After the c	completion of this o	course, the students should be able to		
1		reatures of Reinforcement Learning.		
2	Apply the different	algorithms and define the policy.		
3	Analyze multiple c metrics.	riteria for analyzing RL algorithms and evaluat	e algorithms on tl	nese
4		ility traces, Eligibility traces used for sampling.		
5	Create Function Ap	pproximation Methods.		1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VII Sem	CYBER SECURITY & ETHICAL	L:3 T:0 P:0	
0 0.000	, , ,	HACKING (B20CS48)		
		(PROFESSIONAL ELECTIVE – IV)		
After the o	completion of this o	course, the students should be able to		
1	Outline key terms cybercrimes.	s and concepts in cyber law, intellectual pro	perty and	
2		erabilities, threats and cybercrimes posed by	criminals.	
3	_	curity challenges phased by mobile devices.		
4	Identify various typ	pes of tools and methods used in cybercrime, de n security protection	evelops the secure	counter
5		* *		
		r security risk management policies in order tical information and assets.	r to adequately p	orotect an
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	VII Sem	MINI PROJECT & INTERNSHIP	L:0 T:0 P:0	
		(B20CS49)		
1	Enhance students	'knowledge in current technology		
2	Develop leadersh	ip ability and responsibility to execute the g	given task	
3	Enhance their em	ployability skills along with real corporate	exposure	
4		appleted task and compile the report.		
Course		Subject Name (Subject Code) DEEP LEARNING LAB (B20AI13)	No. of Hours	Credits:1.5
Outcome	VII Sem	DECEMBER (DECEMBER)	L:0 T:0 P:3	
After the o		course, the students should be able to		
1		ics of Artificial Neural Networks.		
2	Describe the variou	s Learning Networks and Special Networks		
3	Understand the Dec	ep Neural Network.		
4	Develop different r	parameters for Regularization for Deep Learnin	g.	
		*	-	

Course Outcome	Year / semester VII Sem	Subject Name (Subject Code) MAJOR PROJECT PHASE-I (B20CS50)	No. of Hours L:0 T:0 P:8	Credits:4
1	Identify the proble	em by applying acquired knowledge.	ı	
2	· · · · ·	gorize executable project modules.		
3	`	ools for designing project modules.		
4		nodules through effective team work after e	officient testing	
		apleted task and compile the project report.	Therefore testing	
		1 1 0 1		
Course Outcome	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	ompletion of this c	ourse, the students should be able to		
		ance of ethics and values in life and society.		
2	Develop moral resp	onsibility and mould them as best professionals	5.	
3	Create ethical vision	n and achieve harmony in life.		
4	Provide a critical pe	erspective on the socialization of men and women	en	
		ant issues related to gender in contemporary In		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome		DESIGN PATTERNS (B20CS51)	L:3 T:0 P:0	
Outcome	VIII SCIII	(PROFESSIONAL ELECTIVE – V)	L.3 1.01.0	
After the c	completion of this c	ourse, the students should be able to		
1	Identify the appropr	riate design patterns to solve object oriented de	sign problems.	
	, ,	nent appropriate solutions to recurring program		
		ation and specifications, including design patte	ern catalogs and e	xisting
	source code.			
		lements of structural patterns and their implement		
4		ements of creational patterns and their implem		
		lements of behavioral patterns and their implen	nentation along w	ith growth in
	the field of using de			<u> </u>
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Selli	BLOCK CHAIN TECHNOLOGIES (B20CS52)	L:3 T:0 P:0	
A 64 47		(PROFESSIONAL ELECTIVE – V)		
		ourse, the students should be able to	l dogontuoli-atia	
2		mentals of blockchain, history, technology and ic concepts and its use in blockchain.	uecentranzation.	
		understand structure of blockchain, alternatives	to proof of work	
				•
4		ntracts, solidity and Web3 to implement blockc	hain	
5	1.	tions of blockchain and its challenges		1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	vill seili	PRINCIPLES OF ROBOTICS(B20AI24) (PROFESSIONAL ELECTIVE – V)	L:3 T:0 P:0	
		ourse, the students should be able to		
1		e Process Automation & Bot Creation.		
2	***	Bots Upload and Credentials.		
3	Analyze devices to	Develop and Runtime Clients and Device Pool	ls.	
	Develop Bot creato	r using XML commands.		
5	Create work flow d	esigner		

	1		T	1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	COMPUTER VISION (B20AI26)	L:3 T:0 P:0	
		(PROFESSIONAL ELECTIVE – VI)		
		course, the students should be able to		
1		ment of algorithms and techniques.	1.1	
3	<u> </u>	ret the visible world around us with real time p		tuantian
3		ental concepts on multi-dimensional signal procual geometric modeling, stochastic optimizatio		traction,
4		up and contribute in research developments in the		er vision.
5		applications ranging from Biometrics, Me		
		of visual content, to surveillance, advanced ren		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	VIII Sem	DATA PRIVACY & SECURITY(B20DS21) (PROFESSIONAL ELECTIVE – VI)	L:3 T:0 P:0	
After the a	completion of this	course, the students should be able to		L
1		us types of Substitution ciphers.		
2		techniques to break the ciphers and unde	rstands transposi	tion
	techniques.	1	1	
3	•	rast block cipher and stream cipher algorithms		
4	Implementation of public key cryptog	asymmetric key cryptographic algorithms and raphy.	understand key m	anagement in
5		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	
0 4400 0 1110	, 111 S 111	(PROFESSIONAL ELECTIVE – VI)		
		(B20AI19)		
		course, the students should be able to		
1	Show sensitivity to grammars.	linguistic phenomena and an ability to model t	them with formal	
2	0	rry out proper experimental methodology for tra	aining and evalua	ting empirical
	NLP systems		C	<i>C</i> 1
3		probabilities, construct statistical models over		and
	•	s using supervised and unsupervised training m	ethods.	
5		olement, and analyze NLP algorithms		
		erent language modelling Techniques.	T	
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 o	completion of this	course, the students should be able to		
1	•	chnical topics from interested domains.		
2	· · · · · · · · · · · · · · · · · · ·	icability of modern tools and technology.		
3		fy the technical aspects of the chosen topic	in a systematic a	pproach
4	Develop Presenta	tion and Communication skills.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:8
Outcome	VIII Sem	MAJOR PROJECT PHASE-II(B20CS54)	L:0 T:0P:16	
After the o	completion of this	course, the students should be able to		
1	_	em by applying acquired knowledge.		
2		gorize executable project modules.		
3	·	tools for designing project modules.		
4		modules through effective team work after	efficient testing	
5		npleted task and compile the project report.		
	madorate the con	upicieu task and compne the project report.		

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
On successf	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:		
	ful completion of	this course, students are able to:		
On success	ful completion of	this course, students are able to:		
1	ful completion of	this course, students are able to:		
1 2	ful completion of	this course, students are able to:		
1 2 3	ful completion of Year / semester	this course, students are able to: Subject Name (Subject Code)	No. of Hours	Credits:3
1 2 3 4	•	·	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	·		Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the contact t	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome 1 2 3	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course 3 4	Year/semester I Sem	Subject Name (Subject Code)		Credits: 3

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
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1 2	ful completion of	this course, students are able to:		
1 2 3	ful completion of Year / semester	this course, students are able to: Subject Name (Subject Code)	No. of Hours	Credits:3
1 2 3 4	•	·	No. of Hours L:3 T:0 P:0	Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	·		Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the contact t	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome 1 2 3	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course 3 4	Year/semester I Sem	Subject Name (Subject Code)		Credits: 3

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
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1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
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1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the contact t	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
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1 2 3 4 Course Outcome 1 2 3	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course 3 4	Year/semester I Sem	Subject Name (Subject Code)		Credits: 3

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
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1	ful completion of	this course, students are able to:		
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1 2 3	ful completion of Year / semester	this course, students are able to: Subject Name (Subject Code)	No. of Hours	Credits:3
1 2 3 4	•	·	No. of Hours L:3 T:0 P:0	Credits:3
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1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
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1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome 1 2 3	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course 3 4	Year/semester I Sem	Subject Name (Subject Code)		Credits: 3

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
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Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
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1 2 3 4 Course Outcome After the course	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome 1 2 3	Year/semester I Sem	Subject Name (Subject Code)		Credits:3
1 2 3 4 Course Outcome After the course 3 4	Year/semester I Sem	Subject Name (Subject Code)		Credits: 3

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem	MATRICES AND CALCULUS(B22MA01)	L:3 T:1 P:0	
Outcome	1 Sem		2.3 1.11.0	
On successf	ful completion of th	is course, students will be able to:		
1	,	representation of a set of linear equations ar	nd to analyse the	solution of
	the system of equ		•	
2		lues and Eigen vectors. Reduce the quadrat	tic form to canor	ical form
	using orthogonal			
3	Solve the applicat	tions on the mean value theorems.		
4		'. 1 ' D. 1C C	··	
4	Evaluate the impr	oper integrals using Beta and Gamma func	tions	
5		alues of functions of two variables with/ without	ıt constraints. Eva	luate the
	multiple integrals a	nd apply the concept to find areas, volumes.		~
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem	ENGINEERING CHEMISTRY (B22CH01)	L:3 T:1 P:0	
On success	sful completion of	f this course, students are able to:		
1	Students will acq	uire the basic knowledge of electrochemica	al procedures rel	ated
	to corrosion and i	S .	1	
2	The students are	able to understand the basic properties of v	water and its usa	ige
	in domestic and	industrial purposes		
3	They can learn t	he fundamentals and general properties of	polymers and o	ther
	engineering mater			
4	•	potential applications of chemistry and pr	ractical utility in	l
	order to become	good engineers and entrepreneurs.		
			1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	PROGRAMMING FOR PROBLEM	L:3 T:0 P:0	
		SOLVING(B22CS01)		
A 64 41	l-4: 64l-:			
After the o	_	course, the students should be able to	T	.1
1		ns and to draw flowcharts for solving probl	ems. To convert	tne
2	-	narts to C programs.		
	10 use arrays, por	inters, strings and structures to write C prog	grams.	
2				
3		nd implement different types of file structures u	•	••
		problem into functions and to develop modu	ılar reusable cod	e.
	Searching and sor	ting problems		
4	To decompose a r	problem into functions and to develop modu	ılar reusable cod	le.
5		•		
	Searching and son			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem	BASIC ELECTRICAL ENGINEERING(B22EE03)	L:2 T:0 P:0	
		ENUMBERMO(D22EEU3)		

	Analyze circuit theorems, mesh and nodal analysis, series and parallel networks,					
1	Analyze circuit the Electrical power	neorems, mesh and nodal analysis, series ar	nd parallel netwo	rks,		
2	Gain knowledge on AC circuits, reactance, Impedance, Susceptance and					
_	Admittance and Power Factor					
3	Learn the working principle of DC motors, Transformers					
4		onstruction and performance characteristics	s of Electrical			
	Machines	sistraction and performance characteristics	of Electrical			
5	Introduce compor	nents of Low Voltage Electrical Installation	ns			
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) COMPUTER AIDED ENGINEERING GRAPHICS(B22ME03)	No. of Hours L:1 T:0 P:4	Credits: 3		
After the o	completion of this c	course, the students should be able to				
1		aided drafting tools to create 2D and 3D ob	jects sketch coni	cs and		
2	Appreciate the ne	ed of Sectional views of solids and Develo	pment of surface	es of solids		
3	Read and interpre	t engineering drawings				
4	Conversion of ort using computer at	hographic projection into isometric view a ided drafting	nd vice versa ma	inually and b		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1		
Outcome	I Sem	ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)	L:0 T:0 P:2			
After the o	completion of this c	course, the students should be able to	1			
1	Know the working	g principles of functional units of a basic C	Computer			
2	Understand programmers problem solving.	ram development, the use of data structu	ures and algoritl	nms in		
3	Know the need an	nd types of operating system, database system	ems.			
4		gnificance of networks, internet, WWW ar		•		
5	Understand Autor	nomous systems, the application of artificia	al intelligence.	G 114 4		
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) ENGINEERING CHEMISTRY LABORATORY(B22CH02)	No. of Hours L:0 T:0 P:2	Credits:1		
After the c	ompletion of this c	course, the students should be able to	1			
1		•				
2	Able to determine the hardness of water Able to perform methods such as conductometry, and potentiometry in order find out the concentrations or equivalence points of acid, and P ^H of unknown solutions.					
3	Students are able	to prepare polymers like bakelite and nylo	n-6,6.			
4	Estimations sapor	nification value, and viscosity of lubricant of	oils.			
Course	Year / semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	No. of Hours L:0 T:0 P:2	Credits: 1		
Outcome	1 och	SOLVING LABORATORY(B22CS03)				

1	Understand basic structure of the C Programming, data types, declaration and usage of variables, control structures and all related concept.					
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	_	e structures and implement programs on fi ing and searching techniques.	les and Impleme	ent		
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 o	course, the students should be able to				
1	Verify the basic e	lectrical circuits through different laws and	theorems			
2	Analyse the trans	ient responses of R, L and C circuits for DO	Cexcitation			
3	Create resonance	condition in series R-L-C circuit				
4	Analyze the performance Induction Motor.	rmance of DC shunt motor, single phase tr	ansformer and T	Three-phase		
	madetion Motor.					

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4		
Outcome	II Sem	ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B22MA02)	L:3 T:1 P:0			
After the o	completion of this c	course, the students should be able to				
1		e given differential equation of first order is ex	act or not.			
2	Solve higher differential equation and apply the concept of differential equation to real world problems.					
3	L .	ncepts of differential calculus to vector function	ons in a simple and	l natural		
4	Extend the basic co fashion.	ncepts of differential calculus to vector function	ons in a simple and	l natural		
5	Evaluate the line, s	urface and volume integrals and converting the	m from one to and	other.		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) APPLIED PHYSICS(B22PH01)	No. of Hours L:3 T:1 P:0	Credits:4		
			L.3 1.11.0			
After the o		ourse, the students should be able to				
1	Mechanics and v	cal world from fundamental point of view lisualize the difference between conductor, sification of solids.				
2		f semiconductor devices in science and eng	gineering Applic	ations		
3	Explore the funda applications.	mental properties of dielectric, magnetic m	naterials and ener	gy for their		
4	Appreciate the fea	atures and applications of Nano materials.				
5	Understand variou Fields.	us aspects of Lasers and Optical fibre and the	heir applications	in diverse		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP(B22ME01)	No. of Hours L:0 T:1 P:3	Credits:2.5		
After the o	completion of this c	course, the students should be able to				
1	_	e on machine tools and their operations.				
2	Practice on manual	facturing of components using workshop tr	ades including p	luming,		
	fitting, carpentry,	foundry, house wiring and welding.				
3		suitable tools for different trades of Engin	eering processes	including		
	<u> </u>	removing, measuring, chiseling.				
4	Apply basic electr	rical engineering knowledge for house wiri	ng practice.			
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENGLISH FOR SKILL ENHANCEMENT	No. of Hours L:2 T:0 P:0	Credits:2		
		(B22EN01)				
After the o	_	course, the students should be able to	furac			
2		apportance of vocabulary and sentence structures for the				
2	Choose appropria communication.	te vocabulary and sentence structures for the	ieir orai andwritt	en		
2		understanding of the miles of functional on	0.000.000			
3 4		understanding of the rules of functional gr				
5		ension skills using known and unknown pa				
	Take an active par various contexts	rt in drafting paragraphs, letters, essays, ab	stracts, précis an	dreports in		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ELECTRONIC DEVICES AND CIRCUITS (B22EC02)	No. of Hours L:2 T:0 P:0	Credits: 2		

After the	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.				

			T	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	completion of this o	course, the students should be able to				
1		nation of the Planck's constant using Photo elec-	ctric effect and ide	entify the		
		is n-type or p-type by Hall experiment.				
2	Appreciate quantum physics in semiconductor devices and optoelectronics.					
3	Gain the knowledg	e of applications of dielectric constant.				
4	Understand the var	iation of magnetic field and behavior of hyster	esis curve.			
	Gain the knowledg	e of decay of chargeand determine time consta	ant 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.	1	L		
2		gs, Lists, Tuples and Dictionaries in Python	1.			
3	,	icture of exception handling for all general pur				
4	Verify programs u	using modular approach, file I/O, Python st	andard library. In	mplement		
	DigitalSystems us					
~				G 111 4		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
		Subject Name (Subject Code) ENGLISH LANGUAGE AND		Credits:1		
Course Outcome	Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS	No. of Hours L:0 T:0 P:2	Credits:1		
		ENGLISH LANGUAGE AND		Credits:1		
Outcome	II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS		Credits:1		
Outcome	II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to	L:0 T:0 P:2			
Outcome After the o	II Sem completion of this of Understand the no	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02)	L:0 T:0 P:2			
Outcome After the o	completion of this of Understand the nugroupactivities.	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-	L:0 T:0 P:2			
Outcome After the o	completion of this of Understand the nu groupactivities. Neutralize their activities.	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to unances of English language through audio-	L:0 T:0 P:2 visual experience	ee and		
Outcome After the o	Understand the nugroupactivities. Neutralize their according to the control of this control of the control of t	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-	L:0 T:0 P:2 visual experience	ee and		
Outcome After the o	Understand the nugroupactivities. Neutralize their activities bevelop their lists skills oflanguage	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation.	L:0 T:0 P:2 visual experience	ee and		
Outcome After the of the original states and the original states are also as a second state of	Understand the nugroupactivities. Neutralize their activities develop their lists skills oflanguage Involve in speaking	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its	L:0 T:0 P:2 visual experience role in developing	ce and		
Outcome After the of t	Understand the nugroupactivities. Neutralize their activities between their lists skills of language. Involve in speaking Speak with clarity	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. ng activities in various contexts.	L:0 T:0 P:2 visual experience role in developing	ce and		
Outcome After the of the control of the course of the cou	Understand the nugroupactivities. Neutralize their activities bevelop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the	visual experience role in developing the remployability No. of Hours	ee and ng LSRW skills.		
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their acceptable of language Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	L:0 T:0 P:2 visual experience role in developing the complexity of the complexity o	ee and ng LSRW skills.		
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their ad Develop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1		
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their activities between their lists skills of language. Involve in speaking Speak with clarity Year / semester II Sem completion of this of Perform Hardwar	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1		
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1	Understand the nugroupactivities. Neutralize their ad Develop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1		
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1 2	Understand the magroupactivities. Neutralize their acceptable of language Involve in speaking Speak with clarity Year / semester II Sem Completion of this of Perform Hardward dependencies	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1		
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1	Understand the magroupactivities. Neutralize their activities between their lists skills of language. Involve in speaking Speak with clarity Year / semester II Sem completion of this c	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to mances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. Ing and confidence which in turn enhance the subject Name (Subject Code) IT WORKSHOP(B22CS05) Course, the students should be able to be troubleshooting. Understand Hardware contexts.	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1		

	<u> </u>	T					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0			
Outcome	II Sem	ENVIRONMENTAL SCIENCE(B22CH03)	L:3 T:0 P:0				
After the o		course, the students should be able to					
1	Based on this course, the Engineering graduate will understand /evaluate /						
	develop technolo	gies on the basis of ecological principles	s and environm	ental			
	regulations which in turn helps in sustainable development						
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
	III Sem	DIGITAL ELECTRONICS(B22EC12)		Cicuits. 5			
Outcome	III Sem	,	L:3 T:0 P:0				
After the o	completion of this o	course, the students should be able to					
1	Acquire the know	ledge on numerical information in differen	t forms and Boo	lean			
	_	s for Combinational function minimization.					
2		uits by applying minimization techniques a	nd also able to c	haracterize			
	the various logic	families for their AC and DC parameter's.					
3		ze various combination logic circuits and un	nderstand the fur	ndamental's			
4	of sequential circ						
4	Design and analy	ze sequential circuits for various cyclic fund	ctions.				
5	Acquire the know	yledge 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				
A 64 41	14. 641.						
After the C	1	course, the students should be able to		1.1			
2	•	he data structures that efficiently model the		•			
2	1	efficiency trade-offs among different data s	tructure implen	entations			
	or combinations.		•				
3	Implement and ki	now the application of algorithms for sorting	g and pattern ma	tching.			
4	Design programs	using a variety of data structures, including	g hash tables, bir	nary and			
	general tree struc	tures, search trees, tries, heaps, graphs, and	AVL-trees.				
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:4			
Outcome	III Sem	COMPUTER ORIENTED STATISTICAL	L:3 T:1 P:0				
	111 Selli	METHODS(B22MA04)					
	1	course, the students should be able to					
1	1111	ts of probability and distributions to case st					
2		olve problems involving random variables	and apply statis	tical			
		zing experimental data.					
3	Apply concept of	estimation and testing of hypothesis to case	e studies.				
4	Correlate the con-	cepts of one unit to the concepts in other un	its.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	III Sem	COMPUTER ORGANIZATION AND	L:3 T:0 P:0				
		ARCHITECTURE(B22CS12)					
A 64 am 41	ommletier eftl:	course the students should be able to					
After the C		course, the students should be able to	1 .				
1		asics of instruction sets and their impact on	·				
2	Demonstrate an understanding of the design of the functional units of a digital computer						

	system.					
3		formance and design trade-offs in design	ing and construc	cting a		
	computerprocesso	or including memory.		_		
4	Design a pipeline for consistent execution of instructions with minimum hazards.					
5	Recognize and ma	anipulate representations of numbers stored	d in digital comp	uters.		
Course	Year / semester 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	completion of this o	course, the students should be able to				
1	Demonstrate the l	behavior of programs involving the basic pr	rogramming con	structs		
		ctures, constructors, string handling and gar	•			
2		implementation of inheritance (multilevel,	_			
		and implement keywords		manipie)		
3		ng concepts to develop inter process commi	inication			
4	_	rocess of graphical user interface design ar	nd implementation	on using		
	AWT orswings.					
5	Develop applets t server.	hat interact abundantly with the client envir	ronment and dep	oloy 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	completion of this o	course, the students should be able to				
1	Ability to develo	pp C programs for computing and real-lif	e applications u	ising basic		
	elements like con	ntrol statements, arrays, functions, point	ers and strings.	, and data		
		cks, queues and linked lists.				
2		nent searching and sorting algorithms				
Course Outcome	Year / semester III Sem	Subject Name (Subject Code) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB(B22CS15)	No. of Hours L:0 T:0 P:3	Credits: 1.5		
After the	completion of this o	course, the students should be able to				
1	Able to write programework.	grams for solving real world problems using	g the java collec	tion		
2	Able to write prog	grams using abstract classes.				
3		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	completion of this o	course, the students should be able to				
1	Understand How	to import data into Tableau.				
2		eau concepts of Dimensions and Measures.				
3		s and understand how to map Visual Layou	its and Graphica	1		
4	•	ard that links multiple visualizations.				
5	İ	er interfaces to create Frames for providing	solutions to real	world		

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) GENDER SENSITIZATION LAR(P22MC07)	No. of Hours L:0 T:0 P:2	Credits:0		
After the	completion of this	LAB(B22MC07) course, the students should be able to				
_	<u> </u>			1 . 1 .		
1	Students will ha gender in contem	ve developed a better understanding of in apporary India.	mportant issues	related to		
2		e sensitized to basic dimensions of the	hiological sc	ciological		
_		d legal aspects of gender. This will be achieved	•	•		
	materials derived from research, facts, everyday life, literature and film.					
3		ain a finer grasp of how gender discrimina		our society		
	and how to count	ter it.				
4		quire insight into the gendered division o	f labor and its	relation to		
	politics and econ					
5		students and professionals will be better	equipped to wo	rk and live		
	together as equal		11 11 6116			
6	Students will dev	relop a sense of appreciation of women in al	ll walks of life.			
7	Through providi	ng accounts of studies and movements as	well as the new	v laws that		
	provide protecti	on and relief to women, the textbook v	will empower s	students to		
	_	espond to gender violence.	•			
Course	Vear / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	IV Sem	DISCRETE MATHEMATICS(B22CS16)	L:3 T:0 P:0	Credits.3		
After the o	ompletion of this	course, the students should be able to				
1	<u> </u>	construct precise mathematical proofs				
2		set theory to formulate precise statements				
3		re counting problems on finite and discrete s	structures			
4	•	nipulate sequences				
5		ory in solving computing problems				
Course	11 7 0 1	Subject Name (Subject Code)	No. of Hours	Credits:3		
		BUSINESS ECONOMICS AND FINANCIAL	L:3 T:0 P:0	Ci caits.		
Outcome	semester i v	ANALYSIS(B22MB01)	L:3 1:0 P:0			
	Sem					
After the o	completion of this	course, the students should be able to				
1		l understand the various Forms of Business and				
		Business. The Demand, Supply, Production, Gre learnt. The Students can study the firm's firm'				
		tements of a Company	nanciai position i	by analysing		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	IV Sem	OPERATING SYSTEMS(B22CS17)	L:3 T:0 P:0			
	<u> </u>	course, the students should be able to				
1		ontrol access to a computer and the files that				
2		knowledge of the components of computer	ers and their res	spective		
	roles incomputin	<u>C</u>				
3		ize and resolve user problems with standard				
4	•	nowledge of how programming languages	s, operating sys	tems, and		
	architectures inte	ract and how to use each effectively.				

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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	empletion of this co	ourse, the students should be able to					
1	Gain knowledge of fundamentals of DBMS, database design and normal forms						
2		of SQL for retrieval and management of da					
3	Be acquainted wi	th the basics of transaction processing and o	concurrency con	trol.			
4	Familiarity with o	latabase storage structures and access techn	iques				
Course	Year / semester	Subject Name (Subject Code) SOFTWARE ENGINEERING	No. of Hours	Credits:3			
Outcome	IV Sem	(B22CS19)	L:3 T:0 P:0				
After the co	mpletion of this co	ourse, the students should be able to					
1	Ability to translat	te end-user requirements into system and so	ftware requirem	ents using			
	1	ucture the requirements in a Software Requ	-	_			
2		y appropriate software architectures and patt		` '			
		of a system and be able to critically compared	•				
3		nce and/or awareness of testing problems an					
	develop a simplet						
Course	Year /	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome		OPERATING SYSTEMS LAB(B22CS20)	L:0 T:0 P:2				
	I VSem						
After the co		ourse, the students should be able to					
1		plement operating system concepts such as	scheduling dead	Hlock			
		management and memory management.	scheduling, dead	HOCK			
2	_	nt C programs using Unix system calls					
	•			1			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21)	L:0 T:0 P:2				
		1.12(0220021)					
After the c	completion of this	course, the students should be able to					
1	Design database s	schema for a given application and apply no	ormalization				
2	Acquire skills in	using SQL commands for data definition an	d data manipula	tion			
3	Develop solution	s for database applications using procedures	s, cursors and tri	ggers			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	N Sem	NODE JS/ REACT JS/ DJANGO(B22CS23)	L:0 T:0 P:2				
		ourse, the students should be able to					
1		rebsite with HTML, CSS, and Bootstrap and	l little IovoCorin				
		vanced features of JavaScript and learn about		ι.			
3		side implementation using Java technologi					
	- 1010p Boi voi -	sace implementation using sava technologi	OB IIIK				
4	Develon the serve	er – side implementation using Node JS.					
5		Page Application using React.					
Course		Subject Name (Subject Code)	No. of Hours	Credits:0			
Outcome	NSem	CONSTITUTION OF INDIA	L:3 T:0 P:0	OI CHILDIO			
Guttonic	27 50111	(B22MB10)	2.0 1.01.0				

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem	MATRICES AND CALCULUS(B22MA01)	L:3 T:1 P:0	
Outcome	1 Sem		2.3 1.11.0	
On successf	ful completion of th	is course, students will be able to:		
1	,	representation of a set of linear equations ar	nd to analyse the	solution of
	the system of equ		•	
2		lues and Eigen vectors. Reduce the quadrat	tic form to canor	ical form
	using orthogonal			
3	Solve the applicat	tions on the mean value theorems.		
4		'. 1 ' D. 1C C	··	
4	Evaluate the impr	oper integrals using Beta and Gamma func	tions	
5		alues of functions of two variables with/ without	ıt constraints. Eva	luate the
	multiple integrals a	nd apply the concept to find areas, volumes.		~
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Sem	ENGINEERING CHEMISTRY (B22CH01)	L:3 T:1 P:0	
On success	sful completion of	f this course, students are able to:		
1	Students will acq	uire the basic knowledge of electrochemica	al procedures rel	ated
	to corrosion and i	S .	1	
2	The students are	able to understand the basic properties of v	water and its usa	ige
	in domestic and	industrial purposes		
3	They can learn t	he fundamentals and general properties of	polymers and o	ther
	engineering mater			
4	•	potential applications of chemistry and pr	ractical utility in	1
	order to become	good engineers and entrepreneurs.		
			1	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Sem	PROGRAMMING FOR PROBLEM	L:3 T:0 P:0	
		SOLVING(B22CS01)		
A 64 41	l-4: 64l-:			
After the o	_	course, the students should be able to	T	.1
1		ns and to draw flowcharts for solving probl	ems. To convert	tne
2	-	narts to C programs.		
	10 use arrays, por	inters, strings and structures to write C prog	grams.	
2				
3		nd implement different types of file structures u	•	••
		problem into functions and to develop modu	ılar reusable cod	e.
	Searching and sor	ting problems		
4	To decompose a r	problem into functions and to develop modu	ılar reusable cod	le.
5		•		
	Searching and son			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2
Outcome	I Sem	BASIC ELECTRICAL ENGINEERING(B22EE03)	L:2 T:0 P:0	
		ENUMBERMO(D22EEU3)		

	_	course, the students should be able to	1 11 1 .	1	
1	Analyze circuit the Electrical power	neorems, mesh and nodal analysis, series ar	nd parallel netwo	rks,	
2	Gain knowledge on AC circuits, reactance, Impedance, Susceptance and				
_	Admittance and Power Factor				
3	Learn the working principle of DC motors, Transformers				
4		onstruction and performance characteristics	s of Electrical		
	Machines	sistraction and performance characteristics	of Electrical		
5	Introduce compor	nents of Low Voltage Electrical Installation	ns		
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) COMPUTER AIDED ENGINEERING GRAPHICS(B22ME03)	No. of Hours L:1 T:0 P:4	Credits: 3	
After the o	completion of this c	course, the students should be able to			
1		aided drafting tools to create 2D and 3D ob	jects sketch coni	cs and	
2	Appreciate the ne	ed of Sectional views of solids and Develo	pment of surface	es of solids	
3	Read and interpre	t engineering drawings			
4	Conversion of ort using computer at	hographic projection into isometric view a ided drafting	nd vice versa ma	inually and b	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 1	
Outcome	I Sem	ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)	L:0 T:0 P:2		
After the o	completion of this c	course, the students should be able to	1		
1	Know the working	g principles of functional units of a basic C	Computer		
2	Understand programmers problem solving.	ram development, the use of data structu	ures and algoritl	nms in	
3	Know the need an	nd types of operating system, database system	ems.		
4		gnificance of networks, internet, WWW ar		•	
5	Understand Autor	nomous systems, the application of artificia	al intelligence.	G 114 4	
Course Outcome	Year / semester I Sem	Subject Name (Subject Code) ENGINEERING CHEMISTRY LABORATORY(B22CH02)	No. of Hours L:0 T:0 P:2	Credits:1	
After the c	ompletion of this c	course, the students should be able to	1		
1		e the hardness of water			
2	Able to determine the nardness of water Able to perform methods such as conductometry, and potentiometry in order find out the concentrations or equivalence points of acid, and P ^H of unknown solutions.				
3	Students are able	to prepare polymers like bakelite and nylo	n-6,6.		
4	Estimations sapor	nification value, and viscosity of lubricant of	oils.		
Course	Year / semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM	No. of Hours L:0 T:0 P:2	Credits: 1	
Outcome	1 och	SOLVING LABORATORY(B22CS03)			

1	Understand basic structure of the C Programming, data types, declaration and usage of variables, control structures and all related concept.				
2	Ability to underst executable form.	and any algorithm and Write the C program	nming code in		
3	Implement Progra solve realtime pro	ams using functions, pointers and arrays, ablems.	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	completion of this o	course, the students should be able to			
1	Verify the basic e	lectrical circuits through different laws and	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 performance Induction Motor.	rmance of DC shunt motor, single phase tr	ansformer and	Three-phase	

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 4		
Outcome	II Sem	ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B22MA02)	L:3 T:1 P:0			
After the o	completion of this c	course, the students should be able to				
1		e given differential equation of first order is ex	act or not.			
2	Solve higher differential equation and apply the concept of differential equation to real world problems.					
3	L .	ncepts of differential calculus to vector function	ons in a simple and	l natural		
4	Extend the basic co fashion.	ncepts of differential calculus to vector function	ons in a simple and	l natural		
5	Evaluate the line, s	urface and volume integrals and converting the	m from one to and	other.		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) APPLIED PHYSICS(B22PH01)	No. of Hours L:3 T:1 P:0	Credits:4		
			L.3 1.11.0			
After the o		ourse, the students should be able to				
1	Mechanics and v	cal world from fundamental point of view lisualize the difference between conductor, sification of solids.				
2		f semiconductor devices in science and eng	gineering Applic	ations		
3	Explore the funda applications.	mental properties of dielectric, magnetic m	naterials and ener	gy for their		
4	Appreciate the fea	atures and applications of Nano materials.				
5	Understand variou Fields.	us aspects of Lasers and Optical fibre and the	heir applications	in diverse		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP(B22ME01)	No. of Hours L:0 T:1 P:3	Credits:2.5		
After the o	completion of this c	course, the students should be able to				
1	_	e on machine tools and their operations.				
2	Practice on manual	facturing of components using workshop tr	ades including p	luming,		
	fitting, carpentry,	foundry, house wiring and welding.				
3		suitable tools for different trades of Engin	eering processes	including		
	<u> </u>	removing, measuring, chiseling.				
4	Apply basic electr	rical engineering knowledge for house wiri	ng practice.			
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENGLISH FOR SKILL ENHANCEMENT	No. of Hours L:2 T:0 P:0	Credits:2		
		(B22EN01)				
After the o	_	course, the students should be able to	furac			
2		apportance of vocabulary and sentence structures for the				
2	Choose appropria communication.	te vocabulary and sentence structures for the	ieir orai andwritt	en		
2		understanding of the miles of functional on	0.000.000			
3 4		understanding of the rules of functional gr				
5		ension skills using known and unknown pa				
	Take an active par various contexts	rt in drafting paragraphs, letters, essays, ab	stracts, précis an	dreports in		
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ELECTRONIC DEVICES AND CIRCUITS (B22EC02)	No. of Hours L:2 T:0 P:0	Credits: 2		

After the	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.				

			T	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	completion of this o	course, the students should be able to		
1		nation of the Planck's constant using Photo elec-	ctric effect and ide	entify the
		is n-type or p-type by Hall experiment.		
2		m physics in semiconductor devices and optoel	lectronics.	
3	Gain the knowledg	e of applications of dielectric constant.		
4	Understand the var	iation of magnetic field and behavior of hyster	esis curve.	
	Gain the knowledg	e of decay of chargeand determine time consta	ant 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.	1	L
2		gs, Lists, Tuples and Dictionaries in Python	1.	
3	,	icture of exception handling for all general pur		
4	Verify programs u	using modular approach, file I/O, Python st	andard library. In	mplement
	DigitalSystems us			
~				G 111 4
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
		Subject Name (Subject Code) ENGLISH LANGUAGE AND		Credits:1
Course Outcome	Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS	No. of Hours L:0 T:0 P:2	Credits:1
		ENGLISH LANGUAGE AND		Credits:1
Outcome	II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS		Credits:1
Outcome	II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to	L:0 T:0 P:2	
Outcome After the o	II Sem completion of this of Understand the no	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02)	L:0 T:0 P:2	
Outcome After the o	completion of this of Understand the nugroupactivities.	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-	L:0 T:0 P:2	
Outcome After the o	completion of this of Understand the nu groupactivities. Neutralize their activities.	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to unances of English language through audio-	L:0 T:0 P:2 visual experience	ee and
Outcome After the o	Understand the nugroupactivities. Neutralize their according to the control of this control of the control of t	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-	L:0 T:0 P:2 visual experience	ee and
Outcome After the o	Understand the nugroupactivities. Neutralize their activities bevelop their lists skills oflanguage	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation.	L:0 T:0 P:2 visual experience	ee and
Outcome After the of the original states and the original states are also as a second state of	Understand the nugroupactivities. Neutralize their activities develop their lists skills oflanguage Involve in speaking	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its	L:0 T:0 P:2 visual experience role in developing	ce and
Outcome After the of t	Understand the nugroupactivities. Neutralize their activities between their lists skills of language. Involve in speaking Speak with clarity	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. ng activities in various contexts.	L:0 T:0 P:2 visual experience role in developing	ce and
Outcome After the of the control of the course of the cou	Understand the nugroupactivities. Neutralize their activities bevelop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-ccent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the	visual experience role in developing the remployability No. of Hours	ee and ng LSRW skills.
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their acceptable of language Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	L:0 T:0 P:2 visual experience role in developing the complexity of the complexity o	ee and ng LSRW skills.
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their ad Develop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1
Outcome After the of 1 2 3 4 5 Course Outcome	Understand the nugroupactivities. Neutralize their acceptable of language Involve in speaking Speak with clarity Year / semester II Sem Completion of this of Perform Hardwar	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1	Understand the nugroupactivities. Neutralize their ad Develop their lists skills oflanguage Involve in speaking Speak with clarity Year / semester II Sem	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1 2	Understand the magroupactivities. Neutralize their acceptable of language Involve in speaking Speak with clarity Year / semester II Sem Completion of this of Perform Hardward dependencies	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to uances of English language through audiocent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. y and confidence which in turn enhance the Subject Name (Subject Code) IT WORKSHOP(B22CS05)	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1
Outcome After the of 1 2 3 4 5 Course Outcome After the of 1	Understand the magroupactivities. Neutralize their activities between their lists skills of language. Involve in speaking Speak with clarity Year / semester II Sem completion of this c	ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02) course, the students should be able to mances of English language through audio-cent for intelligibility. ening skills so that they may appreciate its and improve their pronunciation. Ing activities in various contexts. Ing and confidence which in turn enhance the subject Name (Subject Code) IT WORKSHOP(B22CS05) Course, the students should be able to be troubleshooting. Understand Hardware contexts.	t:0 T:0 P:2 visual experience role in developing eir employability No. of Hours L:0 T:0 P:2	te and ing LSRW skills. Credits: 1

	<u> </u>	T		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 0
Outcome	II Sem	ENVIRONMENTAL SCIENCE(B22CH03)	L:3 T:0 P:0	
After the o		course, the students should be able to		
1		ourse, the Engineering graduate will un		
	develop technolo	gies on the basis of ecological principles	s and environm	ental
	regulations which	in turn helps in sustainable development		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
	III Sem	DIGITAL ELECTRONICS(B22EC12)		Cicuits. 5
Outcome	III Sem	,	L:3 T:0 P:0	
After the o	completion of this o	course, the students should be able to		
1	Acquire the know	ledge on numerical information in differen	t forms and Boo	lean
	_	s for Combinational function minimization.		
2		uits by applying minimization techniques a	nd also able to c	haracterize
	the various logic	families for their AC and DC parameter's.		
3		ze various combination logic circuits and un	nderstand the fur	ndamental's
4	of sequential circ			
4	Design and analy	ze sequential circuits for various cyclic fund	ctions.	
5	Acquire the know	yledge 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	
A 64 41	14. 641.			
After the C	1	course, the students should be able to		1.1
2	•	he data structures that efficiently model the		•
2	1	efficiency trade-offs among different data s	tructure implen	entations
	or combinations.		•	
3	Implement and ki	now the application of algorithms for sorting	g and pattern ma	tching.
4	Design programs	using a variety of data structures, including	g hash tables, bir	nary and
	general tree struc	tures, search trees, tries, heaps, graphs, and	AVL-trees.	
Course	Year/semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	III Sem	COMPUTER ORIENTED STATISTICAL	L:3 T:1 P:0	
	111 Selli	METHODS(B22MA04)		
	1	course, the students should be able to		
1	1111	ts of probability and distributions to case st		
2		olve problems involving random variables	and apply statis	tical
		zing experimental data.		
3	Apply concept of	estimation and testing of hypothesis to case	e studies.	
4	Correlate the con-	cepts of one unit to the concepts in other un	its.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	III Sem	COMPUTER ORGANIZATION AND	L:3 T:0 P:0	
		ARCHITECTURE(B22CS12)		
A 64 am 41	ommletier eftl:	course the students should be able to		
After the C		course, the students should be able to	1 .	
1		asics of instruction sets and their impact on	·	
2	II lamanatuata an II	nderstanding of the design of the functional	units of a digital	computer

	system.			
3		formance and design trade-offs in design	ing and construc	cting a
	computerprocesso	or including memory.		_
4	Design a pipeline	for consistent execution of instructions with	th minimum haz	ards.
5	Recognize and ma	anipulate representations of numbers stored	d in digital comp	uters.
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	completion of this o	course, the students should be able to		
1	Demonstrate the l	behavior of programs involving the basic pr	rogramming con	structs
		ctures, constructors, string handling and gar	•	
2		implementation of inheritance (multilevel,	_	
	by using extend and implement keywords			
3		ng concepts to develop inter process commi	inication	
4	_	rocess of graphical user interface design ar	nd implementation	on using
	AWT orswings.			
5	Develop applets t server.	hat interact abundantly with the client envir	ronment and dep	oloy 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	completion of this o	course, the students should be able to		
1	Ability to develo	pp C programs for computing and real-lif	e applications u	ising basic
	elements like con	ntrol statements, arrays, functions, point	ers and strings.	, and data
		cks, queues and linked lists.		
2		nent searching and sorting algorithms		
Course Outcome	Year / semester III Sem	Subject Name (Subject Code) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB(B22CS15)	No. of Hours L:0 T:0 P:3	Credits: 1.5
After the	completion of this o	course, the students should be able to		
1	Able to write programework.	grams for solving real world problems using	g the java collec	tion
2	Able to write prog	grams using abstract classes.		
3		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	completion of this o	course, the students should be able to		
1	Understand How	to import data into Tableau.		
2		eau concepts of Dimensions and Measures.		
3		s and understand how to map Visual Layou	its and Graphica	1
4	•	ard that links multiple visualizations.		
5	İ	er interfaces to create Frames for providing	solutions to real	world

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) GENDER SENSITIZATION LAR(P22MC07)	No. of Hours L:0 T:0 P:2	Credits:0
After the	completion of this	LAB(B22MC07) course, the students should be able to		
_	<u> </u>			1 . 1 .
1	Students will ha gender in contem	ve developed a better understanding of in apporary India.	mportant issues	related to
2		e sensitized to basic dimensions of the	hiological sc	ciological
_		d legal aspects of gender. This will be achieved	•	•
	materials derived	from research, facts, everyday life, literatu	re and film.	
3		ain a finer grasp of how gender discrimina		our society
	and how to count	ter it.		
4		quire insight into the gendered division o	f labor and its	relation to
	politics and econ			
5		students and professionals will be better	equipped to wo	rk and live
	together as equal		11 11 6116	
6	Students will dev	relop a sense of appreciation of women in al	ll walks of life.	
7	Through providi	ng accounts of studies and movements as	well as the new	v laws that
	provide protecti	on and relief to women, the textbook v	will empower s	students to
	_	espond to gender violence.	•	
Course	Vear / semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	IV Sem	DISCRETE MATHEMATICS(B22CS16)	L:3 T:0 P:0	Credits.3
After the o	ompletion of this	course, the students should be able to		
1	<u> </u>	construct precise mathematical proofs		
2		set theory to formulate precise statements		
3		re counting problems on finite and discrete s	structures	
4	•	nipulate sequences		
5		ory in solving computing problems		
Course	11 7 0 1	Subject Name (Subject Code)	No. of Hours	Credits:3
		BUSINESS ECONOMICS AND FINANCIAL	L:3 T:0 P:0	Ci caits.
Outcome	semester i v	ANALYSIS(B22MB01)	L:3 1:0 P:0	
	Sem			
After the o	completion of this	course, the students should be able to		
1		l understand the various Forms of Business and		
		Business. The Demand, Supply, Production, Gre learnt. The Students can study the firm's firm'		
		tements of a Company	nanciai position i	by analysing
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3
Outcome	IV Sem	OPERATING SYSTEMS(B22CS17)	L:3 T:0 P:0	
	<u> </u>	course, the students should be able to		
1		ontrol access to a computer and the files that		
2		knowledge of the components of computer	ers and their res	spective
	roles incomputin	<u>C</u>		
3		ize and resolve user problems with standard		
4	•	nowledge of how programming languages	s, operating sys	tems, and
	architectures inte	ract and how to use each effectively.		

	1	T		
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	empletion of this co	ourse, the students should be able to		
1	Gain knowledge	of fundamentals of DBMS, database design	and normal form	ns
2		of SQL for retrieval and management of da		
3	Be acquainted wi	th the basics of transaction processing and o	concurrency con	trol.
4	Familiarity with o	latabase storage structures and access techn	iques	
Course	Year / semester	Subject Name (Subject Code) SOFTWARE ENGINEERING	No. of Hours	Credits:3
Outcome	IV Sem	(B22CS19)	L:3 T:0 P:0	
After the co	mpletion of this co	ourse, the students should be able to		
1	Ability to translat	te end-user requirements into system and so	ftware requirem	ents using
	_	ucture the requirements in a Software Requ	-	_
2		y appropriate software architectures and patt		` '
		of a system and be able to critically compared	•	
3		nce and/or awareness of testing problems an		
	develop a simplet			
Course	Year /	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome		OPERATING SYSTEMS LAB(B22CS20)	L:0 T:0 P:2	
	I VSem			
After the co		ourse, the students should be able to		
1		plement operating system concepts such as	scheduling dead	Hlock
		management and memory management.	scheduling, dead	HOCK
2	_	nt C programs using Unix system calls		
	•			1
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	IV Sem	DATABASE MANAGEMENT SYSTEMS LAB(B22CS21)	L:0 T:0 P:2	
		1.12(0220021)		
After the c	completion of this	course, the students should be able to		
1	Design database s	schema for a given application and apply no	ormalization	
2	Acquire skills in	using SQL commands for data definition an	d data manipula	tion
3	Develop solution	s for database applications using procedures	s, cursors and tri	ggers
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	N Sem	NODE JS/ REACT JS/ DJANGO(B22CS23)	L:0 T:0 P:2	
		ourse, the students should be able to		
1		rebsite with HTML, CSS, and Bootstrap and	l little IovoCorin	
		vanced features of JavaScript and learn about		ι.
3		side implementation using Java technologi		
	- 1010p Boi voi -	sace implementation using sava technologi	OB IIIK	
4	Develon the serve	er – side implementation using Node JS.		
5		Page Application using React.		
Course		Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	NSem	CONSTITUTION OF INDIA	L:3 T:0 P:0	OI CHILDIO
Guttonic	27 50111	(B22MB10)	2.0 1.01.0	

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	
On successf	ul completion of th	is course, students will be able to:		
1		is course, students will be usic 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:	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 c	ompletion 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	
On successf	ul completion of th	is course, students will be able to:		
1		ins 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	completion of this	course, the students should be able to		
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3	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2

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

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

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

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

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

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

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

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

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

Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 4
Outcome	I Sem		L:3 T:1 P:0	
On successf	 	is course, students will be able to:		
1		is course, students will be usic to:		
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Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
			1 .2 T.1 D.A	
Outcome	I Sem		L:3 T:1 P:0	
		this course, students are able to:	L:51:1F:0	
On success			L:5 1:1P:0	
On success			L:3 1:1P:0	
On success			L:3 1:1P:0	
On success			L:3 1:1P:0	
On success 1 2 3			No. of Hours	Credits:3
1 2 3 4	ful completion of	this course, students are able to:		Credits:3
On success 1 2 3 4 Course Outcome	ful completion of Year / semester I Sem	this course, students are able to:	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the course	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the course	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the course	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the course	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the C 1 2	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits:3
On success 1 2 3 4 Course Outcome After the counce 1 2	ful completion of Year / semester I Sem	Subject Name (Subject Code)	No. of Hours	Credits: 3

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

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

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

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

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

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	ng the conten	ts of this subject, the student must	be able to					
1	Write the matrix representation of a set of linear equations and to analyse the solution							
	system of equations							
2	Find the Eigen values and Eigen vectors							
3	Reduce the quadratic form to canonical form using orthogonal transformations.							
4	Solve the applications on the mean value theorems.							
5		improper integrals using Beta and						
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	ng the contents of this subject, the student must be able to							
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 potential applications of chemistry and practical utility in order to become							
Course	Year &	ers and entrepreneurs.	C-1:4 C-1-	N. PII	C 1.4			
	Semester	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	I Year I	C Dragger province and Data	B22CS01	L/T/P :3/0 /0	3			
	Sem	C Programming and Data Structures	D22CS01	L/1/P:3/0/0				
Ry the and		students will be able to	<u> </u>	<u> </u>				
1	1		onmont					
2	Understand the various steps in Program development Explore the concepts of control statements and functions in C Programming Language							
3	Explore the concepts of control statements and functions in C Programming Language. Understand the concepts of pointers and its applications							
4		esign and implement different type	•					
5					10			
	Year &	structures such as stacks, queues in						
Course		Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester	Flacture of Circ. 14 A. L. 1. T.	DAAFE04	I /T/D 2/0 /0	3			
	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	<u> </u>	*		motion and nature	vrlz		
1	Understand the basics of electrical circuits such as laws, transformation and networeduction techniques.						
2	Explore the basic principles and concepts involved in AC circuits and analyze power in						
_		parallel AC circuits					
3	Apply network theorems to analyze electrical circuits						
4	Analyze balanced and unbalanced three phase circuits and measure voltage, current and						
	power in three phase star and delta connections						
5	Explore various network topologies and analyze the networks with cut-set and tie-set						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				3		
	I Year I	Computer Aided Engineering	B22ME03	L/T/P:1/0/4			
	Sem	Graphics					
After learni	ng the conter	its of this subject, the student must	be able to		•		
1	Apply computer aided drafting tools to create 2D and 3D objects sketch Conics and different						
	types of sol						
2	Appreciate the need of Sectional views of solids and Development of Surfaces of solids						
3	Read and interpret engineering drawings						
4	Conversion of orthographic projection into isometric view and vice Versa manually and by						
		uter aided drafting		Ι -	T		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				1		
	I Year I	Elements of Electrical and	B22EE02	L/T/P :0/0 /2			
	Sem	Electronics Engineering					
After learni		its of this subject, the student must					
After learni 1	Verify the b	pasic electrical circuits through diff	erent laws and the				
1 2	Verify the b	pasic electrical circuits through diffultage, current and power of a single	erent laws and the phase transforme				
1	Verify the b	pasic electrical circuits through diff	erent laws and the phase transforme				
1 2 3 4	Verify the b Measure vo Calculate th Determine	pasic electrical circuits through diffultage, current and power of a single ne impedance of series RL, RC and the form factor of a non-sinusoidal	erent laws and the ephase transforme RLC circuits waveform	er			
1 2 3 4 5	Verify the by Measure von Calculate the Determine of Analyse the	pasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C	erent laws and the e phase transforme RLC circuits waveform circuits for DC ex	citation			
1 2 3 4 5 Course	Verify the by Measure von Calculate the Determine of Analyse the Year &	pasic electrical circuits through diffultage, current and power of a single ne impedance of series RL, RC and the form factor of a non-sinusoidal	erent laws and the ephase transforme RLC circuits waveform	er	Credits:		
1 2 3 4 5	Verify the b Measure vo Calculate th Determine b Analyse the Year & Semester	pasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C Subject Name	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code	citation No. of Hours	Credits:		
1 2 3 4 5 Course	Verify the by Measure von Calculate the Determine of Analyse the Year &	pasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C	erent laws and the e phase transforme RLC circuits waveform circuits for DC ex	citation	_		
1 2 3 4 5 Course Outcome	Verify the b Measure vo Calculate th Determine to Analyse the Year & Semester I Year I Sem	pasic electrical circuits through diffultage, current and power of a single ne impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C Subject Name Engineering Chemistry Laboratory	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02	citation No. of Hours			
1 2 3 4 5 Course Outcome	Verify the by Measure von Calculate the Determine of Analyse the Year & Semester I Year I Semung the contermine of the C	pasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02	citation No. of Hours			
1 2 3 4 5 Course Outcome	Verify the by Measure von Calculate the Determine of Analyse the Year & Semester I Year I Semung the contermine of the C	pasic electrical circuits through diffultage, current and power of a single ne impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C Subject Name Engineering Chemistry Laboratory	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02	citation No. of Hours	_		
1 2 3 4 5 Course Outcome	Verify the beautiful Measure volume to Calculate the Determine of Analyse the Year & Semester I Year I Sem In the Contert Able to determine to determine to determine to the Semester of the Semester of the Semester of the Contert Able to determine the Semester of the S	basic electrical circuits through diffultage, current and power of a single me impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must ermine the hardness of water form methods such as conductoment	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom	citation No. of Hours L/T/P:0/0/2	1		
1 2 3 4 5 Course Outcome After learni 1 2	Verify the beasure volume and the Calculate the Determine of Analyse the Year & Semester I Year I Sem In the Contert Able to determine the Concentration of the Concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Semester Able to per concentration of the Calculate the Calculate the Semester Able to per concentration of the Calculate the C	basic electrical circuits through different places of a single are impedance of series RL, RC and the form factor of a non-sinusoidal extransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must be extracted by the student must be extransient responses of water form methods such as conductoment ons or equivalence points of acid, a	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom and PH of unknown	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions	1		
1 2 3 4 5 Course Outcome After learni 1 2 3	Verify the by Measure von Calculate the Determine of Analyse the Year & Semester I Year I Sem Ing the content Able to determine of Able to perconcentration of Students are	basic electrical circuits through diffultage, current and power of a single me impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must ermine the hardness of water form methods such as conductometons or equivalence points of acid, as etable to prepare polymers like bakers.	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom of PH of unknownelite and nylon-6,6	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions	1		
1 2 3 4 5 Course Outcome After learni 1 2 3 4	Verify the beautiful Measure volume to Calculate the Determine of Analyse the Year & Semester I Year I Sem In the Content Able to determine to determine to determine to determine the Content Able to determine the Concentration of Students are Estimation	chasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must the hardness of water form methods such as conductometrons or equivalence points of acid, are able to prepare polymers like bakes saponification value, and viscosit	erent laws and the phase transformer RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom and PH of unknowned and nylon-6,6 by of lubricant oils	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions 5.	and out the		
1 2 3 4 5 Course Outcome After learni 1 2 3 4 Course	Verify the by Measure von Calculate the Determine of Analyse the Year & Semester I Year I Sem Ing the content Able to determine on Calculate the Determine of Able to perform the Concentration of Students are Estimation Year & Semester Students are Students are Semester Students are Students are Students are Semester Students are Students are Semester Students are S	basic electrical circuits through diffultage, current and power of a single me impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must ermine the hardness of water form methods such as conductometons or equivalence points of acid, as etable to prepare polymers like bakers.	erent laws and the phase transforme RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom of PH of unknownelite and nylon-6,6	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions	1		
1 2 3 4 5 Course Outcome After learni 1 2 3 4	Verify the bear were concentrated Students are semester Able to detect the concentration of the content of the concentration of the co	basic electrical circuits through diffultage, current and power of a single he impedance of series RL, RC and the form factor of a non-sinusoidal e transient responses of R, L and C Subject Name Engineering Chemistry Laboratory hts 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 is saponification value, and viscosit Subject Name	erent laws and the phase transformer RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom and PH of unknowned and nylon-6,6 by of lubricant oils	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions No. of Hours	and out the		
1 2 3 4 5 Course Outcome After learni 1 2 3 4 Course	Verify the by Measure von Calculate the Determine of Analyse the Year & Semester I Year I Sem Ing the content Able to determine on Calculate the Determine of Able to perform the Concentration of Students are Estimation Year & Semester Students are Students are Semester Students are Students are Students are Semester Students are Students are Semester Students are S	chasic electrical circuits through diffultage, current and power of a single the impedance of series RL, RC and the form factor of a non-sinusoidal etransient responses of R, L and C Subject Name Engineering Chemistry Laboratory Its of this subject, the student must the hardness of water form methods such as conductometrons or equivalence points of acid, are able to prepare polymers like bakes saponification value, and viscosit	erent laws and the phase transformer RLC circuits waveform circuits for DC ex Subject Code B22CH02 be able to ry, and potentiom and PH of unknowned and nylon-6,6 by of lubricant oils	citation No. of Hours L/T/P:0/0/2 etry in order to firm solutions 5.	and out the Credits:		

After learni	ng the conter	its of this subject, the student must	be able to				
1	Develop mo	odular and readable C Programs					
2		ems using strings, functions. Hand	ledatain files.				
3	_	stacks, queues using arrays.					
4	-	and and analyze various searching a	and sorting algorit	hms.			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester	Subject Name	Subject code	110. 01 110413	4		
Outcome	I Year II	Ordinary Differential	B22MA02	L/T/P :3/1 /0	•		
			DZZWIAUZ	L/1/F :3/1/U			
	Sem	Equations and Vector					
A.C. 1	.1 .	Calculus	1 11 .				
		ats of this subject, the student must					
1		ether the given differential equation					
2		Solve higher differential equation and apply the concept of differential equation to real					
2	world prob		1 4 C		1		
3	fashion.	basic concepts of differential calcu	ius to vector funct	tions in a simple a	na naturai		
4		basic concepts of differential calcu	lus to vector funct	ione in a cimple a	nd natural		
7	fashion.	basic concepts of differential carea	ius to vector rune	nons in a simple a	na naturar		
5		e line, surface and volume integral	s and converting the	hem from one to a	nother		
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester	J	3		4		
	I Year II	Applied Physics	B22PH01	L/T/P: 3/1/0			
	Sem			_, _, _,			
After learni		nts of this subject, the student must	be able to				
1		physical world from fundamental		he concents of Ou	antum		
2		and visualize the difference between					
2		ation of solids.	en conductor, sen	nconductor, and a	ii iiisuiatoi		
3		e role of semiconductor devices in s	science and engine	ering Application	S.		
4		fundamental properties of dielectr					
	application	* *	,8				
5	Appreciate	the features and applications of N	anomaterials.				
6	Understand	various aspects of Lasers and Opt	ical fiber and their	applications in di	verse		
	fields.						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester				2.5		
	I Year II	Engineering Workshop	B22ME01	L/T/P:0/1/3			
	Sem						
After learni	ng the conter	its of this subject, the student must	be able to	ı			
1		practice on machine tools and their					
2		manufacturing of components usir	•	s including plumi	ng, fitting.		
		Coundry, house wiring and welding	S		<i>6</i> , ,		
3		d apply suitable tools for different t	rades of Engineer	ing processes incl	uding		
	drilling, ma	terial removing, measuring, chisely	ling				
4		e electrical engineering knowledge					
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		

Outcome Semester I Year II Electrical Circuit Analysis- II B22EE05 L/T/P:2/0/0	Outcome	Semester				2
After learning the contents of this subject, the student must be able to 1		I Year II	English for Skill Enhancement	B22EN01	L/T/P :2/0 /0	-
Understand the importance of vocabulary and sentence structures. Choose appropriate vocabulary and sentence structures for their oral and written communication. Demonstrate their understanding of the rules of functional grammar. Develop comprehension skills using known and unknown passages. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Subject Code No. of Hours Cree		Sem	J			
Understand the importance of vocabulary and sentence structures. Choose appropriate vocabulary and sentence structures for their oral and written communication. Demonstrate their understanding of the rules of functional grammar. Develop comprehension skills using known and unknown passages. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Subject Code No. of Hours Cree	After learni	ng the conter	nts of this subject, the student must	be able to		
communication. Demonstrate their understanding of the rules of functional grammar.			-		5.	
communication. 3 Demonstrate their understanding of the rules of functional grammar. 4 Develop comprehension skills using known and unknown passages. 5 Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Course Outcome Year & Subject Name Subject Code Semester I Year II Electrical Circuit Analysis- II B22EE05 L/T/P :2/0 /0 After learning the contents of this subject, the student must be able to 1 Evaluate the network parameters in two port network 2 Design the different kinds of two port network filters. 3 Study the transient response of series and parallel RLC circuits for DC and sinusoidal excitations 4 Analyze the response of an electrical circuit for step, ramp, impulse etc., using Laplace transformation 5 Learn the Fourier series and integral to analyze the AC circuits Course Outcome Year & Subject Name Subject Code No. of Hours Cred Semester I Year II Applied Physics Laboratory Sem After learning the contents of this subject, the student must be able to 1 Know the determination of the Planck's constant using Photo electric effect and identify material whether it is n-type or p-type by Hall experiment. 2 Appreciate quantum physics in semiconductor devices and optoelectronics. 3 Gain the knowledge of applications of dielectric constant. 4 Understand the variation of magnetic field and behavior of hysteresis curve. 5 Gain the knowledge of decay of charge and determine time constant of RC circuit Course Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2	2	Choose app	propriate vocabulary and sentence s	tructures for their	oral and written	
Develop comprehension skills using known and unknown passages.		• •	•			
Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various Course Year & Subject Name Semester I Year II Sem After learning the contents of this subject, the student must be able to Design the different kinds of two port network learning the response of an electrical circuit for step, ramp, impulse etc., using Laplace transformation Learn the Fourier series and integral to analyze the AC circuits Course Outcome Year & Subject Name Subject Code I Year & Subject Name Subject Code No. of Hours Cred Course Outcome After learning the contents of this subject, the student must be able to 1	3	Demonstrat	e their understanding of the rules o	f functional gram	nar.	
Various Vari	4	Develop co	mprehension skills using known an	d unknown passaş	ges.	
Course Outcome Year & Subject Name Subject Code No. of Hours Cree Semester I Year II Sem Beterical Circuit Analysis- II Bezee05 L/T/P:2/0/0 After learning the contents of this subject, the student must be able to 1 Evaluate the network parameters in two port network 2 Design the different kinds of two port network filters. 3 Study the transient response of series and parallel RLC circuits for DC and sinusoidal excitations 4 Analyze the response of an electrical circuit for step, ramp, impulse etc., using Laplace transformation 5 Learn the Fourier series and integral to analyze the AC circuits Course Outcome Year & Subject Name Subject Code No. of Hours Cree 1 After learning the contents of this subject, the student must be able to 1 Know the determination of the Planck's constant using Photo electric effect and identify material whether it is n-type or p-type by Hall experiment. 2 Appreciate quantum physics in semiconductor devices and optoelectronics. 3 Gain the knowledge of applications of dielectric constant. 4 Understand the variation of magnetic field and behavior of hysteresis curve. 5 Gain the knowledge of decay of charge and determine time constant of RC circuit Course Outcome Year & Subject Name Subject Code No. of Hours Cree Course Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2	5		ive part in drafting paragraphs, lette	ers, essays, abstrac	cts, précis and rep	orts in
Outcome Semester I Year II Electrical Circuit Analysis- II B22E05 L/T/P :2/0 /0 After learning the contents of this subject, the student must be able to Evaluate the network parameters in two port network	Course		Subject Name	Subject Code	No of Hours	Credits:
After learning the contents of this subject, the student must be able to Posign the different kinds of two port network			Subject Name	Subject Code	No. of Hours	2
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Appreciate quantum physics in semiconductor devices and optoelectronics. Gain the knowledge of applications of dielectric constant. Understand the variation of magnetic field and behavior of hysteresis curve. Gain the knowledge of decay of charge and determine time constant of RC circuit Course Vear & Subject Name Subject Code No. of Hours I Year II English Language and B22EN02 L/T/P:0/0/2	1				ctric effect and id	entify the
Gain the knowledge of applications of dielectric constant. 4 Understand the variation of magnetic field and behavior of hysteresis curve. 5 Gain the knowledge of decay of charge and determine time constant of RC circuit Course Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2						
4 Understand the variation of magnetic field and behavior of hysteresis curve. 5 Gain the knowledge of decay of charge and determine time constant of RC circuit Course Year & Subject Name Subject Code No. of Hours Cree Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2		* *	1 1	*	electronics.	
5 Gain the knowledge of decay of charge and determine time constant of RC circuit Course Year & Subject Name Subject Code No. of Hours Cree Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2						
Course Year & Subject Name Subject Code No. of Hours Cred Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2						
Outcome Semester I Year II English Language and B22EN02 L/T/P:0/0/2			•			G 394
I Year II English Language and B22EN02 L/T/P :0/0/2			Subject Name	Subject Code	No. of Hours	Credits:
	Outcome			DAAFIYAA	T / (T) (D) 0 / 0 / 0	1
Sem Communication Skills				B22EN02	L/T/P:0/0/2	
		Sem				
Laboratory	A C: 1	.1 .	•	1 11 :		
After learning the contents of this subject, the student must be able to	,				1	
1 Understand the nuances of English language through audio- visual experience and group activities		activities		rough audio- visua	al experience and	group
2 Neutralize their accent for intelligibility						
Develop their listening skills so that they may appreciate its role in developing LSRW skills of language and improve their pronunciation.	3			appreciate its role	in developing LSI	RW skills

4	Involve in	speaking activities in various conte	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 conte	nts of this subject, the student must	be able to		L
1	Install Pyth	on in linux and windows, Installing	O Son Raspberry	Pi	
2		programs using fundamental programs			
3		execute python codes for different a			
4		implement to n hard ware boards			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				1
	I Year II	Electrical Circuit Analysis	B22EE06	L/T/P:0/0/2	
	Sem	Laboratory			
After learn	ing the conte	nts of this subject, the student must	be able to	<u> </u>	l .
1	Draw locus	diagrams for series RLC circuit			
2	Create resor	nance condition in R-L-C series and	d parallel circuit ar	nd learn how to dr	aw phasor
	diagram for				
3	Determine 2	Z, Y and ABCD parameters for a gi	ven two port netw	ork	
4	Analyze filt	ers in frequency domain			
5		ent of Active Power and Reactive P	ower for Star and	Delta connected b	alanced
	loads	G I · AN		NI CII	G 114
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	N . 136 (1 1 1	D223 (4 0 7	T /TE/D 2/1 /0	4
	II Year I	Numerical Methods and	B22MA07	L/T/P :3/1 /0	
A.C 1	Sem	Complex variables	11.1 - 4 -		
	ing the conte	nts of this subject, the student must			
1	Г				
		periodic function in terms of sine	and cosine		6 .1
2	Find the ro	periodic function in terms of sine of of a given polynomial and transc	and cosine	s. Estimate the val	ue for the
	Find the rogiven data u	periodic function in terms of sine of of a given polynomial and transcusing interpolation	and cosine endental equation	s. Estimate the val	ue for the
3	Find the rogiven data u	periodic function in terms of sine of of a given polynomial and transcusing interpolation merical solutions for a given first of	and cosine endental equation order ODE's		
	Find the rogiven data u Find the nu Analyze the	or periodic function in terms of sine and transcusing interpolation terms for a given first or complex function with reference to	and cosine endental equation order ODE's		
3	Find the rogiven data u Find the nu Analyze the integral and	periodic function in terms of sine of of a given polynomial and transcusing interpolation merical solutions for a given first of	and cosine endental equation order ODE's their analyticity,		
3 4	Find the rogiven data u Find the nu Analyze the integral and	or periodic function in terms of sine of of a given polynomial and transcusing interpolation merical solutions for a given first of complex function with reference to residue theorems	and cosine endental equation order ODE's their analyticity,		
3 4 5	Find the rogiven data u Find the nu Analyze the integral and Taylor's an	or periodic function in terms of sine of of a given polynomial and transcusing interpolation americal solutions for a given first of complex function with reference to residue theorems and Laurent's series expansions in contract of the complex function with reference to residue theorems.	and cosine endental equation order ODE's their analyticity, omplex function	integration using	Cauchy's
3 4 5 Course	Find the rogiven data upon find the number of the find the number of the find the fi	or periodic function in terms of sine of of a given polynomial and transcusing interpolation americal solutions for a given first of complex function with reference to residue theorems and Laurent's series expansions in contract of the complex function with reference to residue theorems.	and cosine endental equation order ODE's their analyticity, omplex function	integration using	Cauchy's Credits:
3 4 5 Course	Find the rogiven data use Find the number Analyze the integral and Taylor's and Year & Semester	or periodic function in terms of sine and transcusing interpolation americal solutions for a given first or complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems.	and cosine endental equations order ODE's their analyticity, omplex function Subject Code	integration using No. of Hours	Cauchy's Credits:
3 4 5 Course Outcome	Find the rogiven data use Find the number Analyze the integral and Taylor's and Year & Semester II Year I Sem	or periodic function in terms of sine and transcusing interpolation americal solutions for a given first or complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems and Laurent's series expansions in consultation of the complex function with reference to residue theorems.	and cosine endental equations order ODE's their analyticity, omplex function Subject Code B22EE07	integration using No. of Hours	Cauchy's Credits:
3 4 5 Course Outcome	Find the rogiven data use Find the number Analyze the integral and Taylor's and Year & Semester II Year I Sem ing the conternal state of the content of the state of the sta	or periodic function in terms of sine and transcusing interpolation americal solutions for a given first of complex function with reference to residue theorems and Laurent's series expansions in consultation and Laurent's series expansions in consultation with reference to residue theorems and Laurent's series expansions in consultation and Laurent's series expansions in consultation and transcusion and transcu	and cosine endental equations order ODE's their analyticity, omplex function Subject Code B22EE07 be able to	No. of Hours L/T/P: 3/1 /0	Cauchy's Credits:
3 4 5 Course Outcome	Find the rogiven data use Find the number of Find t	ot of a given polynomial and transcusing interpolation merical solutions for a given first of complex function with reference to residue theorems ad Laurent's series expansions in consultation of this subject, the student must	and cosine endental equations order ODE's their analyticity, omplex function Subject Code B22EE07 be able to derstand their ope	No. of Hours L/T/P: 3/1 /0	Cauchy's Credits:

4	Understand	the construction, operation and per	formance of single	phase transforme	er
5	Learn the m	nethods of testing of single phase tr	ansformers and ex	plore the polypha	se
		of transformer.			T
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		<u> </u>		
	<u> </u>	nts of this subject, the student must			
1		naracteristics, utilization of various	components.		
2		the biasing techniques			
3		analyze various rectifiers, small sig		iits.	
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 learni	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 generatin	g stations.
2	Evaluate the	e power tariff methods and Econom	ics associated with	n power generation	n.
3	Modelling o	of various parameters of transmission	n lines and classif	ication of overhea	ıd line
	insulators ar	nd evaluation of string efficiency.			
4	Analyze the	operations of AIS and GIS			
5		d evaluate various distribution syst			T
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 learni	ing the conter	nts of this subject, the student must	be able to		
1		the basic laws of electromagnetism			
2		the behavior of conductors and diel	ectrics, their boun	dary conditions, I	Maxwell's
	-	ith respect to electrostatics			
3	· .	relation between the electric field a	<u>.</u>		
4		ne varying electric and magnetic fie	elds.		
5 Course		the propagation of EM waves	Subject Code	No. of Hours	Craditas
Course Outcome	Year & Semester	Subject Name	Subject Code	INO. OF HOURS	Credits:
Outcome		Til - 4-2 - 1 Mr 1-2	DAARE10	T /TC/D -0 /0/2	1
	II Year I	Electrical Machines	B22EE10	L/T/P :0 /0/2	
A.C. 1	Sem	Laboratory-I	1 1. 1		
	•	nts of this subject, the student must	be able to		
1		ntrol the Different DC Machines.	11.00		
2		performance of different machines u			
			aaaaa walaa aliffaaa		_
3 Course	Year &	e performance of different Transfor 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	l		
1		haracteristics, utilization of various				
2		the biasing techniques	1			
3		analyze various rectifiers, small sig	nal amplifier circu	uits.		
4	-	soidal and non-sinusoidal oscillator				
5		AMP based circuits with linear inte				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	Semester	Subject Marie	Subject code	1100 01 110 015	1	
outcome	II Year I	Electrical Simulation tools	B22EE11	L/T/P:0/0/2	-	
	Sem	Laboratory	DEEDII	2/1/1 . 0 / 0/2		
After learn		nts of this subject, the student must	he able to			
1		owledge of software packages to m		electrical and elec	tronics	
1	systems.	owledge of software packages to in	oder and program	ciccircai and cicc	tromes	
2	•	erent electrical and electronic system	ns and analyze the	results.		
3		mportance of software packages use	<u>.</u>		rimentation	
		g the simulation results.		J 1		
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				
After learn	ing the conte	nts of this subject, the student must	be able to	<u> </u>		
1	Students wi	ll have developed a better understar	nding of important	issues related to	gender in	
	contempora	·				
2		ll be sensitized to basic dimensions				
	and legal aspects of gender. This will be achieved through discussion of materials derived					
3		ch, facts, everyday life, literature and lattain a finer grasp of how gender		oulra in our acciety	, and have	
3		hem. Students will acquire insights				
		politics and economics.	into the gendered	division of labour	and its	
4	_	ll develop a sense of appreciation o	f women in all wa	lks of life. Men ar	nd women	
	students and	d professionals will be better equipp	ed to work and liv	ve in harmony		
5		oviding accounts of studies and mov				
	_	and relief to women, the textbook w	ill empower stude	nts to understand a	and	
C		gender violence.	C-1:4 C-1-	N EII	C 1.4	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	Semester		DAN JEAN	T /TE/D 2/1 /0	4	
	II Year II	Solid Mechanics & Hydraulic	B22ME20	L/T/P :3/1 /0		
A.C. 1	Sem	Machines	1 11 .			
		nts of this subject, the student must				
1		ems dealing with forces, beam and	cable problems an	d understand distr	ibuted	
2	force system	ns. on problems and determine moment	e of Inartia and as	ntroid of prostice1	chanac	
3						
3	Арргу кпоч	vledge of mechanics in addressing p	noblems in nydrat	me macminery and	1 118	

	principles th	nat will be utilized in Hydropower of	levelopment and fe	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	<u> </u>	
1	Understand	different types of measuring instru	ments, their constr	ruction operation a	ınd
	characteristi	cs		•	
2	Identify the	instruments suitable for typical mea	asurements.		
3	Analyze the	measurement of voltage, current, I	Power factor, power	er, energy, R, L,C	and
		easurements.			
4		nowledge about transducers and ins			fectively.
5		nowledge of smart and digital mete			- TI
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester			- IT IT A 10 10	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	-	dy the various single-phase inducti		T	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 logic	c circuits by applying various minir	mization technique	e to combinational	function
3	Design and	implement Combinational and Sequ	uential logic circui	its.	
4	Design and	implementation various `sequential	circuits		
5	_	he given logical problems using pro-			T
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		l apply the knowledge of per unit qu		systems.	
4		the concepts of over voltage protect			surges
	and switching				
5	F .	he fault currents for symmetrical ar	. 1 1 - 1 1 C 1	<u> </u>	

Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	· ·	•		1
	II Year II	Digital Electronics Laboratory	B22EC23	L/T/P :0/0/2	
	Sem				
After learn	ing the conter	nts of this subject, the student must	be able to		
1		the working of logic families and lo			
2		implement Combinational and Sequ		its.	
3	Ū	ferent types of semiconductor mem			
Course	Year &	Subject Name	Subject	No. of Hours	Credits:
Outcome	Semester	Subject Marie	Code	1,00 01 110415	1
outcome	II Year II	Measurements and	B22EE16	L/T/P :0 /0/2	-
	Sem	Instrumentation Laboratory	BZZEETO	2/1/1 .0/0/2	
After learn		nts of this subject, the student must	he able to		
1		test any measuring instruments.	be able to		
2		curacy of any instrument by perform	ning avnariments		
3					
		e various parameters using differen			G 14
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	TI (. 136 1 .	D22FF1#	T //E//D 0 /0/2	1
	II Year II	Electrical Machines	B22EE17	L/T/P :0 /0/2	
	Sem	Laboratory-II			
		nts of this subject, the student must			
1	_	performance of different types of A	<u>~</u>		
2		suitability of AC machines and Tra			ıs.
3	Design the i	machine models based on the applic		ts.	
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			
After learn	ing the conter	nts of this subject, the student must	be able to		
1	Improve the	eir logical thinking in terms of gene	ral and mathemat	ical concepts.	
2		academic as well as competitive le			e to solve
		ld problems.			
3	•	e number systems			
4	_	decisions to face the critical arithm	etic problems.		
5	•	mathematical problems.	01:401	NI CII	G 14
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester		DAAEEA4	T /TD/D 2/4 /0	4
	III Year I	Power Electronics	B22EE21	L/T/P :3/1 /0	
A.C. 1	Sem		1 11 .		
		nts of this subject, the student must			
1		the differences between signal leve	I and power level	devices.	
2	•	ntrolled rectifier circuits.			
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	Subjec	t Code	No. of H	ours	Credits:
Outcome	Semester							3
	III Year I	Control System	ns	B22F	EE22	L/T/P : 3	3/0/0	
	Sem							
After learn		nts of this subject, the stud						
1		nsfer function and state-sp	pace repre	sentation	of linear	time-invar	iant dy	namical
2	systems.			1 -1	1 A	1	C	
3		e time domain specification linear time-invariant syst				naryze tne	periorn	nance and
4		e performance and stability				estame in fr	0011000	v domein
5	·	sical controllers/compens	•					•
Course	Year &	Subject Name		Subjec		No. of H		Credits:
Outcome	Semester	Subject Name		Subjec	Coue	10.01 11	ours	4
Outcome	III Year I	Signals and Syste	me	B22F	C06	L/T/P : 3	R/1 /0	7
	Sem	Signais and Syste	1115	DZZI	200	L/1/1 · ·	<i>7</i> 110	
After learn		Ints of this subject, the stud	dent must	be able to)			
1		nowledge of various sign						
2	11.	transform techniques in t	<u> </u>		domain.			
3	·	conditions for transmission				ns and cond	litions	for
		lization of systems.						
4	_	e concept of Region of Co						_
5		ng theorem for baseband a prelation and PSD function				rious types	of sam	pling and
Course	Year &	Subject Name	Subjec	t Code	No. o	f Hours	Cr	edits: 4
Outcome	Semester							
	III Year I	Renewable Energy	B22F	EE23	L/T/P	2:3/1/0		
	Sem	Systems						
After learn		nts of this subject, the stud						
1		the principles of wind po						
2		the working principle of					ls	
3		cost of generation for conv				rgy plants		
4		able power controller for						• •
5		e issues involved in the in						
Course	Year &	Subject Name	Subjec	t Code	No. o	f Hours	Cı	redits: 4
Outcome	Semester	III:ab V-14	DAAI	PTP 2.4	T // IT / IT	2/1 /0		
	III Year	High Voltage	B22I	LE24		P: 3/1 /0		
After learn	I Sem	Engineering	dent must	ha abla ta				
1		nts of this subject, the stud the various breakdown pr				gaseous in	sulating	materials
2		generation of high D. C.		-		gascous IIIs	suratifi	; maichais.
3	_	uitable method to measure				se voltages		
4		the lightning and switching						/er-
7	Liaborate	ine fighting and switching	5 0 ver-vo	mage and	protection	ni against t	nese o	

	voltages.							
5	Discuss abo	out high voltage testing o	f electrica	l apparatı	ıs and hi	gh voltage	laborat	tories.
Course	Year &	Subject Name	Subjec	t Code	No. o	f Hours	Cı	redits: 3
Outcome	Semester	-						
	III Year I	Computer Aided	B22EE2	5	L/T/P	: 3/0/0		
	Sem	Electrical Machine Designs						
After learn	ing the conten	ts of this subject, the stu	dent must	be able to)			
1		the concepts electrical, n				of electric	cal mac	hines
2		the design and operating						
3		the varies factors in the					inductio	on motors
4		he varies factors in the d						
5		nd the use of software to						
Course	Year &	Subject Name	Subject			f Hours		edits: 3
Outcome	Semester	· ·	· ·					
	III Year I Sem	Electrical Engineering Materials	B22EE26		L/T/P	: 3/0 /0		
After learn		ts of this subject, the stu	dent must	be able to)			
1	-	nowledge on electrica				classific	ation	and
1	their applica		ii ciigiiic	cring in	ateriais	Classific	ation	ana
2		performance character	istics of	various	semico	nducting,	dielec	etric
_			eir applic			sign of	electr	
	and electro		11			U		
3	Identify vari	ous magnetic materials a	nd their cl	assificatio	on.			
4	Learn variou	is special purpose of mat	erials.					
5	Design vari	ous electronic componer	ıts.					
Course	Year &	Subject Name)	Subject	t Code	No. of H	Iours	Credits:
Outcome	Semester							3
	III Year I	Power Electronics La	boratory	B22N	TRA1	L/T/P:	2/0/0	
	III I Cai I	I OWEL ELECTIONICS La		172214	IDVI		<i>3/U/U</i>	
	Sem	Tower Electronics La	J	D22 1V	IDVI	L/1/F;	3/0/0	
After learni	Sem				-	L/1/F;	3/0/0	
After learni	Sem ing the conten	ts of this subject, the stu	dent must	be able to	- 	L/T/F;	3/0/0	
1	Sem ing the content Study Chara	ts of this subject, the stuctoristics of various Pow	dent must	be able to	- 	L/I/F:	3/0/0	
1 2	Sem ing the content Study Chara Analyze AC	ts of this subject, the stucteristics of various Pow/AC and AC/DC Conver	dent must ver Semico	be able to	evices.		3/0/0	
1 2 3	Sem ing the conten Study Chara Analyze AC Analyze the	ts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC	dent must rer Semico rters. /DC and D	be able to	evices.		3/0/0	
1 2 3 4	Sem ing the content Study Chara Analyze AC Analyze the Know the S	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC imulation tools for analy	dent must ver Semico rters. /DC and D rsing powe	be able to nductor d DC/AC cor r electron	evices. nverters. ics conv	erters		Cualita
1 2 3 4 Course	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year &	ts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC	dent must ver Semico rters. /DC and D rsing powe	be able to	evices. nverters. ics conv			Credits:
1 2 3 4	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converbehavior of various DC imulation tools for analy Subject Nam	dent must ver Semico rters. /DC and D rsing powe	be able to nductor d PC/AC con r electron Subject	evices. nverters. ics convet Code	erters No. of H	Iours	Credits:
1 2 3 4 Course	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC imulation tools for analy	dent must ver Semico rters. /DC and D rsing powe	be able to nductor d DC/AC cor r electron	evices. nverters. ics convet Code	erters	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converbehavior of various DC imulation tools for analy Subject Nam Control Systems Lal	dent must rer Semico rters. //DC and D rsing powe e	be able to nductor d OC/AC cor r electron Subject B22F	nverters. ics convet Code	erters No. of H	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converbehavior of various DC imulation tools for analy Subject Nam	dent must rer Semico rters. //DC and D rsing powe e	be able to nductor d OC/AC cor r electron Subject B22F	nverters. ics convet Code	erters No. of H	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem ing the content	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converbehavior of various DC imulation tools for analy Subject Nam Control Systems Lal	dent must ver Semico vters. /DC and D vsing powe e Doratory dent must	be able to nductor d OC/AC cor r electron Subject B22E	evices. nverters. ics convet Code	erters No. of H	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem ing the content Analyze the	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC imulation tools for analy Subject Nam Control Systems Laluts of this subject, the stu	dent must rer Semico rters. //DC and D rsing powe re poratory dent must nse of con	be able to nductor d C/AC cor r electron Subject B22E be able to trol system	evices. nverters. ics convet Code	erters No. of H	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem ing the content Analyze the Identify the	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC imulation tools for analy Subject Nam Control Systems Laluts of this subject, the stuctime & Frequency response.	dent must ver Semico vers. /DC and D versing powe e coratory dent must use of con otor and sy	be able to nductor d OC/AC con relectron Subject B22F be able to trol system ynchros	evices. nverters. ics convet Code	erters No. of H	Iours	
1 2 3 4 Course Outcome	Sem ing the content Study Chara Analyze AC Analyze the Know the S Year & Semester III Year I Sem ing the content Analyze the Identify the Evaluate the	tts of this subject, the stucteristics of various Pow/AC and AC/DC Converte behavior of various DC imulation tools for analy Subject Name Control Systems Laluts of this subject, the stutime & Frequency response.	dent must rer Semico rters. //DC and D rsing powe re coratory dent must nse of con otor and sy k control s	be able to nductor d C/AC correlectron Subject B22E be able to trol system ynchros ystems	evices. nverters. ics convet Code	erters No. of H	Iours	

Outcome	Semester				0
	III Year I	Intellectual Property Rights	B22MB06	L/T/P :3/0 /0	
	Sem	1 0			
After learn	ing the conter	nts of this subject, the student must	be able to		
1		and explain various forms of IPRs.			
2	_	eria to fit one's own intellectual wo	rk in particular for	m of IPRs.	
3		tory provisions to protect particular			
4		w developments in IPR laws at nati		onal level	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester	Subject Nume	Subject code	110. of Hours	3
Outcome	III Year II	Flexible AC Transmission	B22EE29	L/T/P :3/0 /0	
	Sem	Systems	D22LL2)	L /1/1 .5/0/0	
Δfter learn		nts of this subject, the student must	he able to		
1		various power electronics based FA		the control of activ	ve and
1		various power electronics based 174 ver in the system	ACTS devices for	ine control of activities	ve and
2		irrent source converters with voltage	ge source converte	rs	
3	_	FACTS devices into Thyristor base			anding the
		stability of voltage regulation usin			
4		the SVC and STATCOM			
5	Analyse Tra	nsient Stability Enhancement, Pow	er Oscillation Dar	nping, Transient S	Stability
		ng series compensation		Γ &,	
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
Outcome	Semester				3
	III Year II	Power Semiconductor Drives	B22EE30	L/T/P :3/0 /0	
	Sem				
After learn	ing the conter	nts of this subject, the student must	be able to		
_				1 41 1	
1		drawbacks of speed control of the	motor by conventi	onai methods.	
2	Identify the		*		racteristics
2	Identify the Differentiate merits and o	drawbacks of speed control of the replace Phase controlled and chopper-condemerits	trolled DC drives	speed-torque char	
•	Identify the Differentiate merits and o Understand	drawbacks of speed control of the ree Phase controlled and chopper-condemerits AC motor drive speed-torque and processing the	trolled DC drives	speed-torque char	
2	Identify the Differentiate merits and o Understand control strat	drawbacks of speed control of the replace Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits.	trolled DC drives	speed-torque char	
3	Identify the Differentiate merits and c Understand control strat Describe th	drawbacks of speed control of the replace Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes	trolled DC drives	speed-torque characteristics using di	
2	Identify the Differentiate merits and c Understand control strat Describe th	drawbacks of speed control of the replace Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits.	trolled DC drives	speed-torque characteristics using di	
3	Identify the Differentiate merits and c Understand control strat Describe th	drawbacks of speed control of the replace Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes	trolled DC drives	speed-torque characteristics using di	
3 4 5	Identify the Differentiate merits and c Understand control strate Describe th Analyze th	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr	performance chara	speed-torque characteristics using di	fferent
2 3 4 5 Course	Identify the Differentiate merits and of Understand control strat Describe th Analyze th	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr	performance chara	speed-torque characteristics using di	fferent Credits:
2 3 4 5 Course	Identify the Differentiate merits and c Understand control strat Describe th Analyze th Year & Semester	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr Subject Name	performance chara onous motor drive	speed-torque characteristics using di	fferent Credits:
2 3 4 5 Course Outcome	Identify the Differentiate merits and of Understand control strate Describe th Analyze th Year & Semester III Year II Sem	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr Subject Name	performance chara onous motor drive Subject Code B22EC30	speed-torque characteristics using di	fferent Credits:
2 3 4 5 Course Outcome	Identify the Differentiate merits and of Understand control strat Describe th Analyze th Year & Semester III Year II Sem ing the conter	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and pegies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr Subject Name Digital Signal Processing	performance chara onous motor drive Subject Code B22EC30	speed-torque characteristics using di	fferent Credits:
2 3 4 5 Course Outcome	Identify the Differentiate merits and of Understand control strate Describe th Analyze th Year & Semester III Year II Sem ing the conter Outline the	drawbacks of speed control of the replace Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. The Slip power recovery schemes are speed control schemes for synchrological Signal Processing The Digital Signal Processing are of this subject, the student must properties of systems and signals	performance chara onous motor drive Subject Code B22EC30 be able to	speed-torque characteristics using dises No. of Hours L/T/P :3/0 /0	Credits:
2 3 4 5 Course Outcome After learning	Identify the Differentiate merits and o Understand control strate Describe th Analyze th Year & Semester III Year II Sem ing the conter Outline the p Identify the digital signa	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and regies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr Subject Name Digital Signal Processing atts of this subject, the student must properties of systems and signals various important characteristics of l processing.	performance characteristics on the second se	speed-torque characteristics using dises No. of Hours L/T/P :3/0 /0	Credits:
2 3 4 5 Course Outcome	Identify the Differentiate merits and of Understand control strate Describe th Analyze th Year & Semester III Year II Sem ing the conter Outline the plantify the digital signal Design IIR	drawbacks of speed control of the re Phase controlled and chopper-condemerits AC motor drive speed—torque and pegies, its merits and demerits. e Slip power recovery schemes e speed control schemes for synchr Subject Name Digital Signal Processing ats of this subject, the student must properties of systems and signals various important characteristics of	performance characteristics on the second se	speed-torque characteristics using dises No. of Hours L/T/P :3/0 /0	Credits:

Course Outcome Semester Advanced Control Systems B22EE31 L/T/P :3/0 /0	5	Demonstrate	e different realizations of digital file	ers		
After learning the contents of this subject, the student must be able to 1 Understand different non linearity's and their describing functions. 2 Describe the methods of Phase-plane trajectory of nonlinear control systems. 3 Apply various theorems for stability analysis of linear and nonlinear systems. 4 Implement modal control and calculus of variations. 5 Formulate and solve optimal control problems Course Outcome Semester Subject Name Subject Code No. of Hours Credits: 1 Understand the internal architecture and organization of 8086. 2 Understand the internal architecture and organization of 8086. 2 Understand the internal architecture and organization of 8086. 2 Understand the communication standards and interfacing with microcontroller. 4 Understand the internal architecture of 8051 microcontroller. 5 Develop assembly language programming to design microprocessor/ micro controller-Course Outcome Semester Subject Name Subject Code No. of Hours Credits: 9 Semester Subject Name Subject Code No. of Hours Credits: 1 Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay 2 Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes 3 Capable of implementing bus zone protection, AC machines, and pilot relay schemes. 4 Competent in controlling both microprocessors and static relays for transmission systems. 5 Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Vear & Subject Name Subject Code No. of Hours Credits: 9 Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers 1 War & Subject Name Subject Code No. of Hours Credits: 1 Calculate various parameters at different buses using load flow studies.	Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
After learning the contents of this subject, the student must be able to 1	Outcome	Semester				3
After learning the contents of this subject, the student must be able to Understand different non linearity's and their describing functions. Describe the methods of Phase-plane trajectory of nonlinear control systems. Apply various theorems for stability analysis of linear and nonlinear systems. Implement modal control and calculus of variations. Formulate and solve optimal control problems Formulate and solve optimal control problems Course Year & Subject Name Subject Code No. of Hours Credits: Semester III Year Microprocessors & B22EC36 L/T/P:3/0/0 Microcontrollers		III Year	Advanced Control Systems	B22EE31	L/T/P :3/0 /0	
Understand different non linearity's and their describing functions. 2		II Sem				
Describe the methods of Phase-plane trajectory of nonlinear control systems.	After learn	ing the conter	its of this subject, the student must	be able to		
Apply various theorems for stability analysis of linear and nonlinear systems. Implement modal control and calculus of variations. Formulate and solve optimal control problems Course Vear & Subject Name Subject Code Semester III Year III Year III Year Microprocessors & B22EC36 IIII Year III Sem Microcontrollers After learning the contents of this subject, the student must be able to Understand the interfacing techniques to 8086 and 8051. Understand the interfacing techniques to 8086 and 8051. Understand the internal architecture and organization of 8086. Understand the internal architecture of 8051 microcontroller. Understand the internal architecture of 8051 microcontroller. Understand the internal architecture of 8051 microcontroller. Semester Vara & Subject Name Subject Code No. of Hours After learning the contents of this subject, the student must be able to After learning the contents of this subject, the student must be able to After learning the contents of this subject, the student must be able to After learning the contents of this subject, the student must be able to Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Vear & Subject Name Subject Code No. of Hours Credits: Course Outcome Vear & Subject Name Subject Code No. of Hours Credits: After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies.	1	Understand	different non linearity's and their d	escribing function	s.	
Implement modal control and calculus of variations.	2	Describe the	methods of Phase-plane trajectory	of nonlinear cont	rol systems.	
Formulate and solve optimal control problems Course Outcome Year & Subject Name Subject Code No. of Hours Credits: If Year Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Microprocessors & B22EC36 L/T/P :3/0 /0 If Sem Subject the student must be able to If Understand the internal architecture and organization of 8086. If Understand the internal architecture of 8051 microcontroller. If Understand the internal architecture of 8051 microcontroller. If Vear II Power System Protection Subject Code No. of Hours Credits: If Year II Power System Protection B22EE32 L/T/P :3/0 /0 If II Year II Power System Protection B22EE32 L/T/P :3/0 /0 If Sem Subject Name S	3	Apply vario	ous theorems for stability analysis o	f linear and nonli	near systems.	
Course Outcome Semester Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & Microproce	4	Implement r	nodal control and calculus of variat	ions.		
Semester Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC36 L/T/P :3/0 /0 Microprocessors & B22EC32 L/T/P :3/0 /0 Microprocessors & B22EC32 L/T/P :3/0 /0 Microprocessors / Microproc	5	Formulate a	nd solve optimal control problems			
After learning the contents of this subject, the student must be able to 1 Understand the internal architecture and organization of 8086. 2 Understand the interfacing techniques to 8086 and 8051. 3 Understand the internal architecture and organization of 8086. 4 Understand the internal architecture of 8051 microcontroller. 5 Develop assembly language programming to design microprocessor/ micro controller- Course Outcome Year & Subject Name Subject Code No. of Hours Semester III Year II Power System Protection B22EE32 L/T/P:3/0/0 Sem After learning the contents of this subject, the student must be able to 1 Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay 2 Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes 3 Capable of implementing bus zone protection, AC machines, and pilot relay schemes. 4 Competent in controlling both microprocessors and static relays for transmission systems. 5 Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Year & Subject Name Subject Code No. of Hours Credits: 1 III Year Power System Operation and II Sem Control After learning the contents of this subject, the student must be able to 1 Calculate various parameters at different buses using load flow studies.	Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
After learning the contents of this subject, the student must be able to 1	Outcome	Semester				3
After learning the contents of this subject, the student must be able to 1		III Year	Microprocessors &	B22EC36	L/T/P :3/0 /0	
Understand the internal architecture and organization of 8086. 2		II Sem	Microcontrollers			
Understand the interfacing techniques to 8086 and 8051. 3	After learn	ing the conter	its of this subject, the student must	be able to		
Understand the communication standards and interfacing with microcontroller. Understand the internal architecture of 8051 microcontroller. Develop assembly language programming to design microprocessor/ micro controller- Course Outcome	1					
Understand the internal architecture of 8051 microcontroller. Develop assembly language programming to design microprocessor/ micro controller- Course Outcome						
Develop assembly language programming to design microprocessor/ micro controller- Course Outcome	3	Understand	the communication standards and i	nterfacing with m	icrocontroller.	
Course Outcome Year & Subject Name		Understand	the internal architecture of 8051 m	icrocontroller.		
Outcome Semester						1
After learning the contents of this subject, the student must be able to After learning the contents of this subject, the student must be able to Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Year & Subject Name Subject Code No. of Hours Credits: 1			Subject Name	Subject Code	No. of Hours	_
After learning the contents of this subject, the student must be able to Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Year & Subject Name Subject Code No. of Hours Credits: III Year II Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	Outcome					3
After learning the contents of this subject, the student must be able to Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Year & Subject Name Subject Code No. of Hours Credits: 3 After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.			Power System Protection	B22EE32	L/T/P :3/0 /0	
Ability to comprehend the fundamental requirements for power system protection, the consequences of faults, and the workings of a basic relay Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Semester Subject Name Subject Code No. of Hours Credits: III Year Power System Operation and B22EE33 L/T/P:3/0 /0 After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.						
consequences of faults, and the workings of a basic relay Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Year & Subject Name Subject Code No. of Hours Credits: 3 HII Year II Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	After learn					.1
Be able to sketch performance characteristics and prevent faults with distance relays and over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Year & Subject Name Subject Code Semester III Year Power System Operation and III Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	1	consequence	es	ments for power s	ystem protection,	tne
over-current protective schemes Capable of implementing bus zone protection, AC machines, and pilot relay schemes. Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Semester Semester III Year Power System Operation and II Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	2.		•	nd prevent faults v	with distance relay	s and
Competent in controlling both microprocessors and static relays for transmission systems. Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Semester III Year Power System Operation and II Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	_			provent rudius	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 5 4110
Possessing knowledge of the quenching processes utilized in vacuum, oil, and air circuit breakers Course Outcome Year & Subject Name Subject Code No. of Hours Credits:	3	Capable of i	mplementing bus zone protection,	AC machines, and	pilot relay schem	nes.
Course Outcome Semester No. of Hours Credits:	4	Competent i	n controlling both microprocessors	and static relays t	or transmission sy	ystems.
Outcome Semester Power System Operation and III Year I Sem Control B22EE33 L/T/P :3/0 /0 After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	5		knowledge of the quenching proces	sses utilized in vac	cuum, oil, and air	circuit
HI Year Power System Operation and II Sem Control After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:
After learning the contents of this subject, the student must be able to Calculate various parameters at different buses using load flow studies. Analyse economic operation of the power system.	Outcome					3
1 Calculate various parameters at different buses using load flow studies. 2 Analyse economic operation of the power system.				B22EE33	L/T/P :3/0 /0	
2 Analyse economic operation of the power system.	After learn	ing the conter	its of this subject, the student must	be able to		
2 Analyse economic operation of the power system.	1	Calculate va	rious parameters at different buses	using load flow st	tudies.	
3 Analyse load frequency control of Single area and Two area power systems.	2					
	3	•			er systems.	

4		the Stability of the power system a	and Apply differen	t techniques to ma	aintain the		
5		factors involved in load dispatch					
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:		
Outcome	Semester	Sungero 1 (unit		1 (00 01 110 011)	1		
1	III Year	Power System Laboratory	B22EE34	L/T/P :0 /0/2			
	II Sem	2 J 2		_, _, _, _,			
After learn	l .	nts of this subject, the student must	be able to				
1	<u> </u>	understanding the basic transmissio		and protection sch	iemes.		
2	_	nd the different relay characteristic					
3		inderstanding the effects of faults in					
4	_	simulating the YBUS and ZBUS ar		load flow analysis			
Course							
Outcome	Semester	Subject Func	Subject coue	1100 01 110015	Credits:		
outcome	III Year	Microprocessors &	B22EC37	L/T/P :0 /0/2	-		
	II Sem	Microcontrollers Laboratory	DZZECS?	2/1/1 .0/0/2			
After learn		nts of this subject, the student must	be able to				
1	_	the internal architecture and organ		051 and ARM			
1	processors/c	•	nzacion or cocc, c	ob i una i i una			
2	Understands	the interfacing techniques of 8086	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	Electronics Design	B22EE35	L/T/P :0/0/2			
	II Sem	Laboratory					
After learn	•	nts of this subject, the student must					
1		various regulated power supplies fo	r control boards.				
2	Gain knowle						
3		edge on designing various triggerin	~	conductor devices	S.		
		edge on designing various triggerin ner circuits for power switching de	~	conductor devices	S.		
4	Develop tin	ner circuits for power switching dev VM control and gate driver circuits	vices				
4	Develop tin Develop PV applications	ner circuits for power switching dev VM control and gate driver circuits	vices				
5	Develop tin Develop PV applications Develop the	ner circuits for power switching dev VM control and gate driver circuits zero-crossing detector	vices for various power	electronic conver	ter		
4 5 Course	Develop tin Develop PV applications Develop the Year &	ner circuits for power switching dev VM control and gate driver circuits	vices		Credits:		
5	Develop tin Develop PV applications Develop the Year & Semester	vM control and gate driver circuits zero-crossing detector Subject Name	vices for various power Subject Code	No. of Hours	ter		
4 5 Course	Develop tin Develop PV applications Develop the Year & Semester III Year	ner circuits for power switching dev VM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini	vices for various power	electronic conver	Credits:		
5 Course Outcome	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem	ner circuits for power switching dev VM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini Project/Internship	Subject Code B22EE36	No. of Hours	Credits:		
5 Course Outcome	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem ing the conter	ner circuits for power switching dev VM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini Project/Internship ats of this subject, the student must	Subject Code B22EE36 be able to	No. of Hours L/T/P:0/0/4	Credits:		
5 Course Outcome	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem ing the conter Students wil	ner circuits for power switching dev VM control and gate driver circuits . zero-crossing detector Subject Name Industry Oriented Mini Project/Internship Its of this subject, the student must I be able to practice acquired know	Subject Code B22EE36 be able to	No. of Hours L/T/P:0/0/4	Credits:		
5 Course Outcome After learn	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem ing the conter Students wil project deve	rer circuits for power switching dev WM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini Project/Internship Its of this subject, the student must I be able to practice acquired know lopment	Subject Code B22EE36 be able to eledge within the content of the	No. of Hours L/T/P :0 /0/4 thosen area of tech	Credits: 2 anology for		
5 Course Outcome	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem ing the conter Students wil project deve	rer circuits for power switching dev VM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini Project/Internship ats of this subject, the student must ll be able to practice acquired know lopment cuss and justify the technical aspec	Subject Code B22EE36 be able to eledge within the content of the	No. of Hours L/T/P :0 /0/4 thosen area of tech	Credits: 2 anology for		
5 Course Outcome After learn	Develop tin Develop PV applications Develop the Year & Semester III Year II Sem ing the conter Students wil project deve Identify, dis and systema	rer circuits for power switching dev WM control and gate driver circuits zero-crossing detector Subject Name Industry Oriented Mini Project/Internship Its of this subject, the student must I be able to practice acquired know lopment	Subject Code B22EE36 be able to ledge within the costs of the chosen provided to the chos	No. of Hours L/T/P:0/0/4 chosen area of tech	Credits: 2 anology for		

	report effect	ively project related activities and	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				
	<u> </u>	nts of this subject, the student must				
1	Proficiently generation.	demonstrate various renewable end	ergy technologies	utilized for electri	cal power	
2	Identify sui	table converters (AC-DC, DC-DC,	AC-AC) for rene	wable energy syst	ems.	
3	Analyze the	e operating principles of different ty	ypes of wind gener	rators		
4	Model and o	control of a PMSM, Doubly fed Ind	luction Generator,	WECS		
5		d analyze various wind and photov			nd-	
	alone, grid-	connected, and hybrid configuration	ons.	_		
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	nts of this subject, the student must	be able to		•	
1	Classify driv	ver circuits for various power semio	conductor devices.	r.		
2	Analyze the	e operation of multi-pulse converted	rs.			
3		the operation of resonant converter				
4		ifferences between VSI and CSI.				
5	Gain knowle	edge on the operation of multilevel	inverters			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:	
Outcome	Semester				3	
	IV Year I	HVDC Transmission	B22EE39	L/T/P :3/0 /0		
	Sem					
After learn	ing the conter	nts of this subject, the student must	be able to		1	
1		HV AC and HVDC systems and to		ypes of DC links		
2		ious control methodologies and cha		*		
3		wer flow analysis in ac/dc systems				
4	_	nderstand the nature of faults happe	ening on both the	AC and DC sides	of the	
	_	nd Formulate protection schemes f	0		-	
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	•	ı	
1		the models to describe hybrid vehic		ormance.		
2	Understand	the social and environmental impo	ortance of electric	and hybrid vehicle	es.	
3		the various configurations of Elect		•		
4		the different strategies related to er		ems.		
5					3	
3	Onderstand	Understand the different strategies of energy management systems and case studies.				

Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				3			
	IV Year I	Utilization of Electrical	B22EE41	L/T/P :3/0 /0				
	Sem	Energy						
After learn	ing the conter	nts of this subject, the student must	be able to					
1		basic principles of electric heating						
2		basic principles of electric welding						
3	Determine the	Determine the lighting requirements for flood lighting, household and industrial needs.						
4		Calculate heat developed in induction furnace and evaluate speed time curves for traction						
5	Analyze the	coach wiring						
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				3			
	IV Year I	Advanced Electrical Drives	B22EE42	L/T/P :3/0 /0				
	Sem							
After learn	ing the conter	nts of this subject, the student must	be able to					
1	Analyse the	operation of three phase converter	fed dc motors.					
2	Describe the	VSI and CSI fed induction motor	operation.					
3	Know the c	oncept of vector control of induction	on motor drive.					
4	Understand	the concept of direct torque control	l for three phase is	nduction motor.				
5	Gain knowl	edge on vector control of PMSM d	rives and introduc	tion to BLDC dri	ves			
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				3			
	IV Year I	Soft Computing Techniques	B22EE43	L/T/P :3/0 /0				
	Sem							
After learn	-	nts of this subject, the student must						
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	Understand solving it.	the concept of multi-objective opti	ımızatıon problem	s (MOOPs) and is	ssues of			
4		daptive Neuro-Fuzzy Inference Sys	tems					
5		d compare solutions by soft comput		r a given problem	in matlab			
	Simulink				1			
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 1	ayout circuits using various design	rules.					
3	-	d design the gate level circuits						
4	Gain the knowledge to design data path subsystems like Adders, Shifters, ALUs etc.							
	Outil the kin	Illustrate different programmable logic devices and CMOS testing.						
5								

Outcome	Semester				3			
	IV Year I	IOT Applications in	B22EE44	L/T/P :3/0 /0				
	Sem	Electrical Engineering						
After learn	ing the conter	ats of this subject, the student must	be able to					
1		ole sensors for electrical engineerin						
2	Understand	Understand about usage of various types of motionless sensors and motion detectors.						
3		tilize MEMS in developing electrical engineering applications.						
4		n a smart grid.						
5	Discuss the	future working environment with l	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	Organizational Behavior						
After learn	ing the conter	its of this subject, the student must	be able to					
1	Gain under	standing of the Concepts of Ma	nagement, its Ev	olution, Function	ns and the			
		ntributed by various Management T	_					
2	Learn the pr	ocess of planning, goal setting and	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	In of various Org	anizational			
	Structures.	or organizing und control	sing with the ne	ip of various org				
4		the relevance of Individual and gro	oun behaviour in	an organization a	nd the role			
•	of Culture a		oup benaviour in	an organization a	nd the role			
5		erent Leadership Styles, Skills and	the Theories of M	lotivation				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester	Subject Name	Subject Code	140. Of Hours	2			
Outcome	IV Year I	Simulation of Renewable	B22EE45	L/T/P :0/0/4	2			
	Sem	Energy Systems Lab	D22DE43	12/1/1 10/0/4				
After learn		ats of this subject, the student must	he able to					
1		provides a foundation in discrete-ti		system theory				
2		ital control systems using transform			nd state-			
		ds (pole-placement).	7	y p ,				
3	•	nd understanding the challenges to	interface digital c	omputing devices	with the			
	, ,	amics of most real-world systems.		I was Same				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:			
Outcome	Semester				3			
	IV Year I		B22EE46	L/T/P :0/0 /6				
	Sem	Project Stage - I						
After learn		its of this subject, the student must	be able to	<u>I</u>	<u> </u>			
1		problem by applying acquired know						
2		an and implement an investigative	<u>.</u>	project.				
3	• •	Il to use some laboratory, modern t		1 0				
4	•	ommunicate results, concepts, analy	•		m &			
	•	nduct 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				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	oltage and current during the fault period of a given power system.							
3	Sags and pha	ags and phase angle jumps in different types of faults							
4		pment behavior with voltage sags.							
5	Various inte	rfacing devices between system an	d equipment to mi	tigate the sags and	d				
	interruptions								
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	Semester				3				
	IV Year II	Solar Power Batteries	B22EE48	L/T/P: 3/0/0					
	Sem								
After learn	ing the conten	ts of this subject, the student must	be able to						
1	Know opera	ting principles of different types of	solar power batte	ries					
2	Use the batte	eries for effective storage of solar F	PV.						
3	Analyze the	design and selection criteria of bat	tery system						
4	Know the ap	plication of batteries							
5		wledge on environmental impacts	of solar power ba	tteries	_				
Course	Year &	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome	Semester		D22EE 40	I /TI/D 2/0 /0	3				
	IV Year II Sem	AI Techniques In Electrical	B22EE49	L/T/P: 3/0/0					
A Ct 1		Engineering	1 1.1						
	-	ts of this subject, the student must	be able to						
2		lation knowledge	- 1- 41- 11	P1 (1 P 1					
	<u> </u>	concepts based on simulated result							
Course	Year & Semester	Subject Name	Subject Code	No. of Hours	Credits:				
Outcome									
	-	Embedded Systems	B22EC61	L/T/P :3/0 /0	3				
	IV Year II Sem	Embedded Systems Applications	B22EC61	L/T/P :3/0 /0	3				
After learn	IV Year II Sem	<u> </u>		L/T/P :3/0 /0	. 3				
After learn	IV Year II Sem ing the conten	Applications	be able to						
After learn	IV Year II Sem ing the content Understand	Applications ts of this subject, the student must	be able to						
1	IV Year II Sem ing the conten Understand to	Applications ts of this subject, the student must the microprocessor architecture and	be able to d its components u	sed in embedded	systems				
1 2 3	IV Year II Sem ing the conten Understand t Understand t Write the 80 devices.	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and E	be able to d its components to mbedded 'C' code	sed in embedded	systems				
1 2 3	IV Year II Sem ing the content Understand to Understand to Write the 80 devices. Understand to	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and Extremely the required RTOS for Embedded States.	be able to d its components u mbedded 'C' code	sed in embedded	systems				
1 2 3 4 5	IV Year II Sem ing the content Understand to Understand to Write the 80 devices. Understand to Develop sim	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and Eather required RTOS for Embedded Sple embedded systems for real times.	be able to d its components to mbedded 'C' code Systems e operations	sed in embedded e for interfacing va	systems				
1 2 3 4 5 Course	IV Year II Sem ing the content Understand to Understand to Write the 80 devices. Understand to Develop sim Year &	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and Extremely the required RTOS for Embedded States.	be able to d its components u mbedded 'C' code	sed in embedded	systems arious Credits:				
1 2 3 4 5	IV Year II Sem ing the content Understand to Understand to Write the 80 devices. Understand to Develop sim Year & Semester	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and Extra required RTOS for Embedded Suple embedded systems for real times Subject Name	be able to d its components u mbedded 'C' code Systems e operations Subject Code	sed in embedded e for interfacing va	systems				
1 2 3 4 5 Course	IV Year II Sem ing the content Understand to Understand to Write the 80 devices. Understand to Develop sim Year &	Applications ts of this subject, the student must the microprocessor architecture and the architecture of 8051 051-assembly language code and Eather required RTOS for Embedded Sple embedded systems for real times.	be able to d its components to mbedded 'C' code Systems e operations	sed in embedded e for interfacing va	systems arious Credits:				

1		vledge to locate the power gri	d's elen	nents t	hroughou	it the conte	ext of th	e Indian
2	grid system. Propered to recognize how important automation is to distribution and transmission.							
3		Prepared to recognize how important automation is to distribution and transmission. Capable of utilizing evolutionary algorithms in smart grid applications.						
	•						•	. 1
4	work in smar	ŭ				tage and f	requenc	y control
5	Able to man	age power and voltage for m	icro and	l smart	t grids.			
Course	Year &	Subject Name		Subje	ct Code	No. of 1	Hours	Credits:
Outcome	Semester							3
	IV Year &	Electrical Distribution	ì	B22	EE51	L/T/P:	3/0 /0	
	II Sem	Systems						
After learn	ing the content	ts of this subject, the student	must be	able t	0			1
1		ous Electrical loads and their				n Distrib	ition for	dore and
1		station location	CHaract	ensuc	s & Desig	gii Distribt	ition iee	cuers and
2	Interpret volt	age drop and power loss calc	ulation	s for th	ne given I	Distributio	n Systei	n
3	-	ne optimal location of a capac						
	profile		_		- J -			<i>U</i> .
4	Analyse the o	different types of PF improve	ement					
5	•	different types of voltage cor						
Course	Year &	Subject Name		Subje	ct Code	No. of 1	Hours	Credits:
Outcome	Semester	, and the second		J				3
	IV Year &	Digital Control System	ıs	B22	EE52	L/T/P	:3/0/0	1
	II Sem	g						
After learn		ts of this subject, the student	must be	able t	0			
1		ong foundation in sampling a				ansforms.		
2		ledge of Mathematics, Z-plar					ol syster	ns.
3		conventional control system						
4		l apply Z-plane analysis of di						
5		eedback controllers and obse						
Course	Year &	Subject Name		bject (Code	No. of Ho	nire	Credits: 3
Outcome	Semester	Subject Name) Su	bjeet (Couc	110. 01 110	Juis	Ci cuits. 5
Outcome	IV Year	Machine Learning	1	B22EF	'53 T	/T/P :3/0	/0	
	& II Sem	Applications To Electrica		Jeelil		4111 .510	70	
	& II Selli	Engineering	II.					
A fton looms	in a tha aantant		must be	abla #				
After learn		ts of this subject, the student by the student is subject, the subject is subject, the student is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject, the subject is subject.	must de	able t	U			
2		the fundamentals of electrica	al engin	eering	relevant	to MI		
3		lata processing concepts.	ar Chighh	cering	1010 valit	1V 1VIL.		
4		ne learning algorithms to solv	ve real-	world	problems	in electric	cal engir	neering
5		electrical engineering case stu			<u> </u>			
Course	Year &	Subject Name	Subj			Hours	Cr	edits: 9
Outcome	Semester		Cod					•
	IV Year &	Project Stage-II	B22E		L/T/P:	0/0/22		
	II Sem					<u>-</u>		
After learn		ts of this subject, the student	must he	ahle t	0			
ATTO TEATT	ing the content	is or this subject, the student	must UC	autet	0			

1	Identify the	Identify the problem by applying acquired knowledge.						
2	Ability to pl	an and implement an investigative	or developmental	project.				
3	In-depth ski	ll to use some laboratory, modern t	ools and technique	es				
4	Ability to co	ommunicate results, concepts, analy	yses and ideas in w	ritten and oral for	rm &			
	Conduct an	extended independent investigation	that results in the	production of a re	esearch			
	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	ns				
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	nowledge					
4	Apply community professional	nunication skills and Document and ethics	d present technical	reports following	,			

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

				G 114 A		
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			
On 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	and set theory to formulate precise statements.				
3	Ability to analyze a	and solve counting problems on finite and disc	rete structures			
4		and manipulate sequences.				
5	Ability to apply gra	ph theory in solving computing problems.				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	Advanced Data Structures(M22CS02)	L:3 T:0 P:0			
On guagasaf	ul completion of th	is course, students are able to:				
On successi	ui completion of th	us course, students are able to:				
1		e data structures that efficiently model the inf				
2	•	d how the choice of data structures impact the perfo	1 0			
3	Design programs us digital search structu	ing a variety of data structures, including hash table ures	es, search structures a	and		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Sem	1. Database Programming with PL/SQL (M22CS03)	L:3 T:0 P:0			
After the c	ompletion of this c	ourse, the students should be able to				
1	Understand importar	nce of PL/SQL basics				
2	. Implement function	ns and procedures using PL/SQL				
3	Understand the in	nportance of triggers in database				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	I Sem	2. Deep Learning(M22CS04)	L:3 T:0 P:0			
1	Implement deep le	earning algorithms, understand neural networks	and traverse the la	ayers of data		
2	Learn topics such networks and high	as convolutional neural networks, recurrent net	ural networks, train	ning deep		
3		ations of Deep Learning to Computer Vision				
4		. Understand and analyze Applications of Deep Learning to NLP				
*	- Silatistana and t					

Course Outcome	I Sem	Subject Name (Subject Code) 3. Python Programming (M22CS05)	No. of Hours L:3 T:0 P:0	Credits: 3		
On successful completion of this course, students will 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	Implement file ope	erations such as read and write			
6	Implementing and	adapting the code robust by handling errors a	nd exceptions pro	operly.	
Course	Year	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	/SemesterI	1. Applied Cryptography (M22CS06)	L:3 T:0 P:0		
	Sem				
On successf	ful completion of th	nis course, students are able to:			
1	Understand the va	rious cryptographic protocols			
2	Analyze key length a	nd algorithm types and modes			
3	-	blic key algorithms in cryptosystems			
4	Understand special a	llgorithms 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		
After the o	completion of this c	course, the students should be able to			
1	Understand software	quality and its perspectives			
2	Analyze defect preve	ntion and defect reduction in software quality assur-	ance		
3	Illustrate software	quality engineering activities and its process			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	I Sem	3. Artificial Intelligence(M22CS08)	L:3 T:0 P:0		
1	Remember various Assumptions etc	AI concepts like the AI technique, level of mod	dels, there underly	ying	
2	Î	cepts of AI search techniques			
3	Apply knowledge I	Representation techniques			
		tructures of representation			
	Evaluate AI search	*			
		cepts of Natural Language Processing.problem	ıs.		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I Sem	Advanced Data Structures Lab (M22CS09)	L:0 T:0 P:4		
-		is course, students will be able to:			
1	•	lata structures that efficiently model the information	•	nhinations	
2	Ability to assess effic	ciency trade-offs among different data structure imp	iementations or cor	nomanons.	
3	Implement and know the application of algorithms for sorting and pattern matching				
4	Design programs u	sing a variety of data structures, including hash	n 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 successf	ful completion of th	nis course, students are able to:			
1	Understand import	ance 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 o	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 I	earning Algorithms For Various Types of Lear	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	e 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 v	work 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 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 successi	On successful completion of this course, students will be able to:								
1	Understand research	problem formulation.							
2	Analyze research rela	ated information							
3	Follow research ethics								
4		day's world is controlled by Computer, Informill be ruled by ideas, concept, and creativity.	nation Technology	, 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	Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.								

Course Outcome	Year /Semester I Sem	Subject Name (Subject Code) Audit Course- I (M22AC01)	No. of Hours L:2 T:0 P:0	Credits:0
On successf	ful completion of t	his course, students are able to:		
1				
2				
3				
4		T	Γ	Т
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		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	L:3 T:0 P:0	
1		(M22CS14)		
	•	dels and Computer Architectures		
2	· ·	el computer models		
3		es, Pipelining, Superscalar processors	T	Credits: 3
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 5
Outcome	II Sem	1. Enterprise Cloud Concepts (M22CS15)	L:3 T:0 P:0	
On successf	ul completion of th	nis course, students will be able to:		
1		ace of cloud architecture		
2	Illustrating the funda	mental concepts of cloud security		
3	Analyze various cl	oud computing mechanisms		
4		architecture and working of cloud computing.		
			No. of Hours	Credits:3
Course	Year /Semester	Subject Name (Subject Code) 2. Advanced Computer Networks (M22CS16)	L:3 T:0 P:0	Ci cuits.5
Outcome	II Sem	2. Advanced Computer Networks (NIZZC310)		
On successi	ul completion of t	his course, students are able to:		•
1	Understanding of I	nolistic approach to computer networking		
2	Ahility to understa	nd the computer network protocols and their a	annlications	
3		mulation concepts related to packet forwarding	• •	
Course	, ,	<u> </u>	No. of Hours	Credita: 2
Course	Year / semester	Subject Name (Subject Code) 3. Edge Analytics (M22CS17)		Credits:3
Outcome	I Sem		L:3 T:0 P:0	
		course, the students should be able to		
1	Understand the co	ncepts of Edge Analytics, both in theory and in	practical applicat	ion.

2	Demonstrate a cor	nprehensive understanding of different tools u	used at edge analy	rtics	
3		and Implement the solutions for real world ed			
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	Understand the Ce	ntral Dogma & XML (Bio XML) for Bioinformat	ics		
2	Analyze Perl (Biope	erl) for Bioinformatics			
3	Illustrate Database	s technology, architecture and its interfaces			
4	Understand Seque	nce Alignment Algorithms, Phylogenetic Analy	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	ul completion of th	us 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	
On successi	tul completion of the	nis course, students are able to:			
1	Describe RPA, where it can be applied and how it's implemented.				
2	Identify and understand Web Control Room and Client Introduction				
3	Understand how to	handle various devices and the workload			
4	Understand Bot cre	eators, Web recorders and task editors			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	I Sem	Advanced Algorithms Lab (M22CS21)	L:0 T:0 P:4		
After the o	completion of this o	course, the students should be able to		•	
1	1 -	le to analyze the performance of algorithms			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome		Enterprise Cloud Concepts Lab(M22CS22)	L:0 T:0 P:4		
1		ce of cloud architecture	1.01.01.4		
2		mental concepts of cloud security			
2	mustrating the runda	mental concepts of cloud security			
3	Analyze various clo	Analyze various cloud computing mechanisms			
4	Understanding the ar	chitecture 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			
	1				

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			L
2	Develop the micro se	ervices in iofog		
3	Develop user defin	ed services in the edge		
4	Create use cases in I	OT with edge computing		
5	Develop services in l	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				
2				
3				
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	
1				
2				
3				
4				

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	
O	 	is source aturdants will be able to		
<u> </u>	_	nis course, students will be able to: nt legislation and codes of ethics.		
2	Computer forensic	s and digital detective and various processes, p	policies 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	
On successf	ful completion of tl	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	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	
In suggest	ul completion of the	sis course students will be able to:		
<u>Jii successi</u> 1	ui compieuon oi u	nis course, students will be able to:		
2				
3				
4				
5				
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 P:12	
			1 •12	

On successf	ul completion of t	his course, students are able to:		
1				
2				
3				
4				
5				
6				
Course Outcome	Year /Semester IV Sem	Subject Name (Subject Code) Dissertation Work Review – III	No. of Hours L:0 T:0	Credits: 6
		(M22CS30)	P:12	
After the c	completion of this	course, the students should be able to		
1				
2				
3				
4				
5				
6				
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 14
Outcome	IV Sem	Dissertation Viva-Voce (M22CS31)	L:0 T:0 P:28	
1			l	
2				
3				
4				
5				
	i e			

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:					

1	
2	
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4	
5	



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Course Outcomes for B.Tech–ECE (R22) for the academic year 2022-2023 onwards

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	2.5 1.11.0	
1		resentation of a set of linear equations and	to analyze the solution	on of the system
	equations.	1	Ž	J
2		ues and Eigen vectors. Reduce the quadr	ratic form to canoni	cal form using
	orthogonal transform			
3	Solve the application	ns on the mean value theorems.		
4	Evaluate the improper	er integrals using Beta and Gamma function	s.	
5	Find the extreme val	ues of functions of two variables with/ with	out constraints. Evalu	ate the
	multiple integrals an	d apply the concept to find areas, volumes	.	
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	pletion of this course	e, the students should be able to		
1	and visualize the dif of solids.	world from fundamental point of view by a ference between conductor, semiconductor,	and an insulator l	
2		emiconductor devices in science and engine		
3	Explore the fundar applications.	mental properties of dielectric, magnetic	e materials and er	nergy for their
4	**	res and applications of Nanomaterials.		
5		aspects of Lasers and Optical fibre and their	applications in diver	se fields.
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	pletion 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		usable code by understanding the concepts of	of functions.	
4	•	cepts of pointers and files.		
5		rching and sorting algorithms.		
			No. of	Credits:2.5
Course	Year/Semester	Subject Name (Subject Code) Engineering Workshop(B22ME01)	Hours	CI CUIUS MIC
Outcome	I Year/ I Sem	Engineering workshop(622ME01)	L:0 T:1P:3	
After the com	pletion of this course	e, the students should be able to		
1		n machine tools and their operations.		
2	Practice on manufac	cturing of components using workshop trade	s including pluming	fitting,
		house wiring and welding.		
3		nitable tools for different trades of Engineeri	ng processes includin	ng drilling,
		neasuring, chiselling.		
4	Apply basic electrica	al engineering knowledge for house wiring p		T
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ I Sem	English for Skill Enhancement (B22EN01)	Hours L:2 T:0P:0	
After the con	pletion of this course	e, the students should be able to	•	•
1		ortance of vocabulary and sentence structures	S	
2		vocabulary and sentence structures for their		



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3	Demonstrate their ur	derstanding of the rules of functional gramn	nar.	
4		sion skills using known and unknown passag		
5		n drafting paragraphs, letters, essays, abstrac		in various
	contexts		····, F ······	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
	_ 333_7, 23 33_333_	Elements of Electronics and	Hours	
Outcome	I Year/ I Sem	Communication Engineering	L:0 T:0P:2	
A 64 43	1 (* 641 *	(B22EC01)		
After the con	•	e, the students should be able to		
1	- '	components used for electronics application		
2		rameters using various measuring instrumen		
3		signal used for analog and digital communic		
4	Know the software's	to be used in Electronics and communication		T
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1.5
Outcome	I Year/ I Sem	Applied Physics	Hours	
		Laboratory(B22PH02)	L:0 T:0P:3	
Aften the com	nlotion of this course	the students should be able to		
After the con		e, the students should be able to tion of the Planck's constant using Photo ele	ectric affect and time	constant of DC
1	circuit experiment.	non of the finnex's constant using finoto en	conte cricci and tille	Constant of KC
2	<u> </u>	physics in semiconductor devices and optoe	electronics.	
3		about frequency of AC power supply.		
4	<u> </u>	tion of magnetic field and behaviour of hyst	eresis 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 course	e, the students should be able to		
1	Understand the nuan	ces of English language through audio-visu	al experience and	groupactivities.
2	Neutralize their acce	ent for intelligibility.		
3	_	ing skills so that they may appreciate its	role in developing	LSRW skills of
		ve their pronunciation.		
4		activities in various contexts.		
5	Speak with clarity ar	d confidence which in turn enhance their en		1
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	I Year/ I Sem	C Programming for Engineers	Hours	
		Laboratory (B22CS09)	L:0 T:0P:2	
1		d to draw flowcharts for solving problem	as and translate the	algorithms/flow
2	charts to programs (i	n C language). elop modular reusable code.		
2 3		*		
		strings and structures to formulate algorithm	ns and programs.	
4		g and sorting algorithms	NT 0	G 114 A
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	
After the con	nletion of this course	the students should be able to	1.3 1.01.0	<u> </u>
THE COLL		,		
1		the Engineering graduate will understand /	evaluate / develon te	chnologies on
1	Based on this course	, the Engineering graduate will understand / al principles and environmental regulations		
Course	Based on this course the basis of ecologic development	al principles and environmental regulations		
1 Course Outcome	Based on this course the basis of ecologic		which in turn helps i	n sustainable



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1.0:		Vector Calculus(B22MA02)		
After the comp		e, the students should be able to		
1		given differential equation of first order is e		
2	problems.	ential equation and apply the concept of		
3		cepts of differential calculus to vector functi		
4		cepts of differential calculus to vector functi		
5		face and volume integrals and converting th		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome	I Year/ II Sem	Engineering Chemistry(B22CH01)	L:3 T:1P:0	
After the comp	letion of this course	e, the students should be able to		
1	Students will acquire control.	e the basic knowledge of electrochemical pr	rocedures related to	corrosionand its
2		le to understand the basic properties of w	vater and its usage	in domestic and
3	industrial purposes.	e fundamentals and general properties of	f polymers and oth	ner engineering
3	materials.		1 0	
4	They can predict po engineers and entrep	tential applications of chemistry and practi reneurs.	cal utility in order t	o becomegood
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ II Sem	Computer Aided Engineering	Hours	
		Graphics (B22ME03)	L:1 T:0P:4	
After the comp	After the completion of this course, the students should be able to			
1	Apply computer aided drafting tools to create 2D and 3D objects sketch conics and different types of solids			
2		of Sectional views of solids and Developme	nt of surfaces of solid	ds
3	Read and interpret en	ngineering drawings graphic projection into isometric view and vi	100 yorgo manually ar	nd by using
4	computer aided draft		·	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	Basic Electrical	Hours L:2 T:0P:0	
After the comp	letion of this course	Engineering(B22EE03) c, the students should be able to	1.2 1.01.0	
1		rems, mesh and nodal analysis, series and pa	rallel networks Flec	trical nower
2	•	AC circuits, reactance, Impedance, Susce		•
	Factor	The effection, federative, impedance, susce	prunce una 7 annita	nee and 1 ower
3	Learn the working pr	rinciple of DC motors, Transformers		
4		ruction and performance characteristics of I	Electrical Machines	
5	Introduce componen	ts of Low Voltage Electrical Installations	T	
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 comp	letion of this course	e, the students should be able to	I	
1		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	e- current characteristics of Junction Transi	stor and different co	onfigurations of
4		about the construction, theory and characteria		
5	Acquire the knowled	ge about the role of special purpose devices		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	Applied Python Programming Laboratory(B22CS10)	Hours L:0 T:1P:2	



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After the com	pletion of this course	e, the students should be able to		
1		ux and windows, Installing OS on Raspberry	y Pi	
2	•	s using fundamental programming construct		
3		ython codes for different applications		
4	1 •	nt on hard ware boards		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	I Year/ II Sem	Engineering Chemistry Laboratory(B22CH02)	Hours L:0 T:0P:2	
After the com		e, the students should be able to		
1		e hardness of water		
2		thods such as conductometry, and potention		out the
2		uivalence points of acid, and P ^H of unknown		
3		prepare polymers like Bakelite and nylon-6, cation value and viscosity of lubricant oils	6.	
4			No. of	Credits:1
Course	Year/Semester	Subject Name (Subject Code)	Hours	Credits:1
Outcome	I Year/ II Sem	Basic Electrical Engineering Laboratory(B22EE04)	L:0 T:0P:2	
After the com	nletion of this course	e, the students should be able to	200 200202	
1	*	ectrical circuits through different laws an	nd theorems	
2	•	ent responses of R, L and C circuits for D		
3		ondition in series R-L-C circuit	oc excitation	
4			transformer and thr	pee Phase
7	Induction Motor	Analyze the performance of DC shunt motor, single phase transformer and three Phase		
C			No. of	Credits:1
Course	Year/Semester	Subject Name (Subject Code)) Electronic Devices and Circuits	Hours	Credits.1
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	•	lge of various semiconductor devices and the	eir use in real life.	
2	•	asing and keep them in active region of the d		circuits
3		lge about the role of special purpose devices		
4	Design simple electr	<u> </u>		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:4
		Numerical Methods and Complex	Hours	
Outcome	II Year/ I Sem	Variables (B22MA07)	L:3 T:1P:0	
After the com	•	e, the students should be able to		
1	Express any periodic	function in terms of sine and cosine		
2	Find the root of a give	en polynomial and transcendental equations	.	
3	Estimate the value for	or the given data using interpolation		
4	Find the numerical s	olutions for a given first order ODE's		
5	Analyze the comple	x function with reference to their analytic	ity, integration usin	g Cauchy's
	integral and residue	theorems		
6	Taylor's and Laure	ent's series expansions in complex functi		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
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	Design the amplifier	s with various biasing techniques.		
2	Design single stage a	amplifiers using BJT and FET		
3	Design multistage ar	nplifiers and understand the concepts of Hig	h Frequency Analysi	s of BJT.
4		of negative feedback to improve the chara-		
5	Utilize the concept of Barkhausen criterion to design various oscillators			



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Course	Year/Semester	Subject Name (Subject Code))	No. of	Credits:3
Outcome	II Year/ I Sem	Network analysis and	Hours	
		Synthesis(B22EE12)	L:3 T:0P:0	
After the com	`	e, the students should be able to		
2		on basic RLC circuits behavior.		
2	<u> </u>	state and transient analysis of RLC Circuits.		
3		wo port network parameters.		
4		aspect of various filters and attenuators	No. of	C 1'42
Course	Year/Semester	Subject Name (Subject Code))	Hours	Credits:3
Outcome	II Year/ I Sem	Digital Logic Design(B22EC05)	L:3 T:0P:0	
After the comp	pletion of this course	e, the students should be able to		
1		dge on numerical information in different national function minimization	t forms and Boolea	n Algebra
2	logic families for the	by applying minimization techniques and a ir AC and DC parameter's		
3	Design and analyze versequential circuits	various combination logic circuits and under	stand the fundament	al's of
4	<u> </u>	sequential circuits for various cyclic function	ıs	
5	Acquire the knowle	dge on concepts of FSM and ASM charts	T	
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		
2	Apply the knowledge	e of various signals, and systems. m techniques in time and frequency domain.		
3		ons for transmission of signals through sys		forphysical
	realization of system		dellis and conditions	Torphysical
4	•	of Region of Convergence for different Trans	nsformation technique	es.
5		orem for baseband and band pass signals		
		elation and PSD functions for various app	· ·	r 8
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:1
Outcome	II Year/ I Sem	Analog Circuits	Hours	
		Laboratory(B22EC07)	L:0 T:0P:2	
After the comp	1	e, the students should be able to		
1		th required Q point and analyze amplifier ch		
2		nultistage amplification on frequency respon		
3		edback topologies and their frequency respo	nses.	
4	Design various oscill		NT- P	Cw-39 4
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	II Year/ I Sem	Digital logic Design Laboratory(B22EC08)	L:0 T:0P:2	
After the com		e, the students should be able to		
1	•	ge on numerical information in different for		
2		Boolean algebra and to minimize combinati	onal functions, and c	lesignthe
	combinational circui			
3		sequential circuits for various cyclic function		
4	Characterize logic fa	milies and analyze them for the purpose of A		
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		e, the students should be able to		
I	Generate, analyze an	d perform various operations on Signals/Sec	quences both in time	andFrequency



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	domain			
2		eterize Continuous and Discrete Time System	ms both in Time and	Frequency
		ne concept of Sampling		
3		andom Signals and capable to analyze their		
4	Apply the Concepts other Real Time Sign	of Deterministic and Random Signals for Nonals	oise removal Applica	tions andon
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
		Logical Reasoning & Quantitative	Hours	
Outcome	II Year/ I Sem	Aptitude (B22MC08)	L:3 T:0P:0	
After the com	pletion of this course	e, the students should be able to	1	1
1	Improve their logical	l thinking in terms of general and mathemat	ical concepts.	
2	Compete in academi	c as well as competitive levels through which	ch students are able t	o solve the real
	world problems.			
3	Analyze the number	systems		
4	Make quick decision	s to face the critical arithmetic problems.		
5	Analyze the mathem	atical problems		
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	
After the com	npletion of this course	e, the students should be able to		
1	Understand the conc	epts of Probability, random variables, densi	ty and distribution fu	inctions
2	Perform operations of	on single and multiple Random variables.		
3	Determine the tempor	oral characteristics of Random Signals.		
4	•	epts of spectral characteristics of Random p	rocesses and Charac	terize LTI
		ationary random process by using ACFs and		conze E i i
5		epts of Noise and Information theory in Co		S
	Year/Semester	1	No. of	Credits:3
Course		Subject Name (Subject Code) Electromagnetic Fields and	Hours	
Outcome	II Year/ II Sem	Transmission Lines(B22EC14)	L:3 T:0P:0	
After the com	npletion of this course	e, the students should be able to		
1	<u> </u>	lge of Basic Laws, Concept sand proofs rela	nted to Flectrostatic F	ields
2	•	lge of Basic Laws related to Magneto static		Teras
3		ic and time-varying fields; establish the con		Maxwell's
3	Equations and Bound	• •	responding sets of r	naxwen s
4		quations and classify conductors, dielectrics	s and evaluate the III	PW
		everal practical media of interest.	, and evaluate the OI	• •
5		aspect of transmission line parameters an	d configurations	
	Year/Semester		No. of	Credits:3
Course		Subject Name (Subject Code) Analog and Digital	Hours	
Outcome	II Year/ II Sem	Communications(B22EC15)	L:3 T:0P:0	
After the com	npletion of this course	e, the students should be able to		
1	<u> </u>	various Amplitude Modulation and Demodu	lation techniques	
2	- ·	agle modulation and demodulation systems.	ration techniques.	
3	•	nce of various transmitters and receivers.		
4	<u> </u>	se modulation and demodulation techniques		
5	· ·	alyzing digital modulation schemes	•	
	<u> </u>	1	No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code)	Hours	Cicuits.5
Outcome	II Year/ II Sem	Linear and Digital IC	L:3 T:0P:0	
After the com	nlation of this course	Applications(B22EC16) e, the students should be able to	1.01.01.0	
1	•		nta anata 1 -1:- ''	
_		nding of operational amplifiers with linear i	•	NE
2		e of functional diagrams and design applicat	tions of IC555 and IC	2565.
3	Acquire the knowled	lge and design the Data converters.		



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4	Choose the proper di	Choose the proper digital integrated circuits by knowing their characteristics.					
5		Attain the knowledge about 74xx and CMOS 40xx series integrated circuits for sequential logic					
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3			
Outcome	II Year/ II Sem	Electronic Circuit	Hours				
		Analysis(B22EC17)	L:3 T:0P:0				
After the com		e, the students should be able to					
1	Design the power amplifiers						
2	Design the tuned am	Design the tuned amplifiers and analyze is frequency response					
3	Design Multivibrators for various applications.						
4	Analyze different sweep generator circuits.						
5	Utilize the concepts	of synchronization, frequency division and s	ampling gates				
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	II Year/ II Sem	Analog and Digital Communications	L:0 T:0P:2				
		Laboratory(B22EC18)	2.0 1.01.2				
After the com	•	e, the students should be able to					
1		Design and implement various Analog modulation and demodulation Techniques and observe the					
2	time and frequency domain characteristics						
2		Design and implement various Pulse modulation and demodulation Techniques and observe the time and frequency domain characteristics					
3		s of Sampling with various Sampling rates a	nd duty Cycles				
4				l observe the			
		Design and implement various Digital modulation and demodulation Techniques and observe the waveforms of these modulated Signals practically					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	II Year/ II Sem	Linear and Digital IC Applications	L:0 T:0P:2				
		Laboratory(B22EC19)	200 200202				
After the com	•	e, the students should be able to					
1		Design and implementation of various analog circuits using 741 ICs.					
2	Design and implementation of various Multivibrators using 555 timer.						
3	• •	Design and implement various circuits using digital ICs.					
4	,	nt ADC, DAC and voltage regulators.	<u> </u>	G 12 1			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	II Year/ II Sem	Electronic Circuit Analysis Laboratory(B22EC20)	L:0 T:0P:2				
After the com	nletion of this course	e, the students should be able to					
1	•	fiers and find its efficiency					
2		iers and find its Q-factor					
3		vibrators and sweep circuits. Understand the	necessity of linearit	X /			
4	Design various mutu Design sampling gate	*	necessity of illeant	.y			
			No of Harm	Credits:0			
Course	Year/Semester	Subject Name (Subject Code) Gender Sensitization	No. of Hours	OI CHILDIO			
Outcome	II Year/ II Sem	Lab(B22MC07)	L:0 T:0P:2				
1	Students will have developed a better understanding of important issues related to gender in						
	contemporary India.						
2	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 film.						
3		Students will attain a finer grasp of how gender discrimination works in our society and how					
	counter them. Students will acquire insight into the gendered division of labor and its rela						
4	politics and economics. Students will develop a sense of engraciation of woman in all walks of life. Man and woman students						
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		rovide					
	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 respond						
	Protection and rener	to women, the textbook will empower stude	nto to understand and	a respond to			



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	gender violence.					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4		
	III Year/ I Sem	MICROCONTROLLERS(B22EC24)	L:3 T:1P:0			
Outcome		` '				
1	Known the internal architecture, organization and assembly language programming of 8086processors.					
2	Known the internal architecture, organization and assembly language programming of 8051/controllers					
3	Learn the interfacing techniques to 8086 and 8051 based systems.					
4	Known the internal architecture of ARM processors					
5	Learn the basic concepts of advanced ARM-processors					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	III Year/ I Sem	IoT Architectures and Protocols	L:3 T:0P:0			
1	Explore the Evolution	(B22EC25)				
2	Explore the Evolution of IoT, its Growth and Applications.					
3	Know the components of IoT and Compare the various architectures of IoT.					
4	Establish the knowledge on various IoT protocols like Data link, Network etc.,					
5		ge on various IoT protocols like like Transpor ge on various IoT protocols like Service layer				
		Ĭ	l ·	Credits:4		
Course	Year/Semester	Subject Name (Subject Code) Control Systems(B22EC26)	No. of Hours	Credits		
Outcome	III Year/ I Sem	Control Systems(B22EC20)	L:3 T:1P:0			
1	Understand the conce	pt of feedback and analyze the control system	components by their	Mathematical		
	modeling.					
2	Estimate the time domain specification s and steady state error.					
3	Apply various time do	omain techniques to assess the system perform	ance.			
4		pes of analysis in frequency domain to explain	n the nature of stabilit	y of the system		
		for different types of controllers				
5	Test system controllability and observability using state space representation and applications of state space representation to various systems					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
		Business Economics & Financial				
Outcome	III Year/ I Sem	Analysis(B22MB01)	L:3 T:0P:0			
1	Understand the various Forms of Business and the impact of economic variables on the Business.					
2	Know what is Demand	d, Supply, Production, Cost, Market Structure,	Pricing aspects.			
3	*	function is carried out to achieve least cost comb	oination of Inputs and	how to analyze		
4		Understand the firm's financial position by analyzing the Financial Statements of a Common.				
5	Understand the firm's financial position by analyzing the Financial Statements of a Company Analyze and interpret financial statements using ratio analysis					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
		Professional Elective-I				
Outcome	III Year/ I Sem	Computer Organization & Operating	L:3 T:0P:0			
		Systems (B22EC42)				
1		erstanding of the functional units of digital co	mputer, instruction se	ets and their		
2	impact on processor d	=				
2	Utilize the micro-level operations to control different units in a computer.					
3	Illustrate the concepts of I/O Organization.					
4	Implement operating systems in a computer.					
5	1 1	ent concepts in operating systems and familiar	1			
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			
		Data Communications and Computer				
1	W 4 C .	Networks(B22EC43)	NT / 1			
1	Know the Categories	and functions of various Data communication	Networks			



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2	Design and analyze va	Design and analyze various error detection techniques.					
3	Demonstrate the mech	nanism of routing the data in network layer					
4	Know the significance	Know the significance of various Flow control and Congestion control Mechanisms					
5	Know the Functioning of various Application layer Protocols						
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					
		Instrumentation(B22EC44)					
1	Measure electrical parameters with different meters and understand the basic definition ofmeasuring						
	parameters.						
2	Use various types of signal generators, signal analyzers for generating and analyzing various real-time						
	signals.						
3	Select specific Oscilloscope to measure various signals in practical fields.						
4	Explain the operations of various transducers required in measurements.						
5	1 ,	Measure various physical parameters by appropriately selecting the transducers					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	III Year/ I Sem	Microcontrollers Laboratory (B22EC27)	L:0 T:0P:2				
1	Write assembly lang						
2		Write assembly language programs and implement on 8086.					
3	Write assembly language programs and implement on 8051 Interface the I/O devices with 8051 micro controllers						
4		Perform experiments on Cortex-M3 development boards using GNU tool- chain					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
		IoT Architectures and Protocols					
Outcome	III Year/ I Sem	Laboratory (B22EC28)	L:0 T:0P:2				
1	Utilize the different se	ensors like room temperature, DHT, Humidity	etc.,				
2		and processor for transmission of data.	,				
3	Capture the images and process it on Arduino/NodeMCU/Raspberry Pi.						
4		know the utilization of various protocols like I2c, UART communication etc					
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1			
Outcome	III Year/ I	Advanced English Communication Skills	L:0 T:0P:2				
Outcome		Laboratory(B22EN03)	2.0 1.01.2				
	Sem						
1	Participate in group dis	Participate in group discussion to present their viewpoints briefly and effectively.					
2	Inculcate flair for writi	ng and felicity in written expression in Resume	Curriculum vVitae/Re	eports.			
3	Participate confidently	with appropriate body language in interviews.					
4	1	lding skills and capabilities for effective decision	n making				
			1	Credits:0			
Course	Year/Semester	Subject Name (Subject Code) Intellectual Property Rights(B22MB06)	No. of Hours	Ci cuits.v			
Outcome	III Year/ I Sem	intenectual Floperty Rights(D22IVID00)	L:3 T:0P:0				
1	The students get the	The students get the knowledge about intellectual property, trademarks and copy rights. They also					
	know the rules and	know the rules and regulations related to copy rights. The students will understand the new					
	development in different areas of intellectual property, trade and copy rights.						
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	III Year/ II	Antennas and Wave	L:3 T:0P:0				
	Sem	Propagation(B22EC29)					
1							
1	-	Explain the mechanism of radiation, definitions of different antenna characteristic parameters an					
2	establish their mathematical relations Estimate the error factor and characteristics of Linear Arrays Binomial error and sketch their						
	Estimate the array factor and characteristics of Linear Arrays, Binomial array and sketch their pattern. Illustrate antenna measurements.						
3	Characterize the antennas based on frequency, configure the geometry and establish the radiation patter						
		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 and estimate the parameters involved	the characteristic feat	tures of different		
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			
Outcome			L.3 1.01.0			
	Sem					
1	Outline the properties	of systems and signals				
2	•	nportant characteristics of different transform	techniques used in dig	gital signal		
3	processing.					
4		Design IIR filters based on the specifications given				
5	Design FIR filters for	given specifications realizations of digital filters				
	Year/Semester		No of House	Credits:3		
Course		Subject Name (Subject Code) CMOS VLSI Design(B22EC31)	No. of Hours	CI CUITO C		
Outcome	III Year/ II	CWOS VEST Design(B22ECST)	L:3 T:0P:0			
	Sem					
1	Understand IC techno	logy and basic electrical properties of MOS ar	nd BiCMOS.			
2		ircuits using various design rules.				
3	Develop and design the	<u> </u>	· · · · · · · · · · · · · · · · · · ·			
5	<u> </u>	o design data path subsystems like Adders, Shi grammable logic devices and CMOS testing	ifters, ALUs etc.			
	Year/Semester	Ī	No of House	Credits:3		
Course		Subject Name (Subject Code) Professional Elective – II	No. of Hours	C1 Cu1ts to		
Outcome	III Year/ II		L:3 T:0P:0			
	Sem	Digital Image Processing (B22EC45)				
1	•	ental relations between pixels and utility of		mageprocessing.		
2	1 0	ement in both the spatial and frequency domai	n.			
3	•	ge restoration techniques.				
5		e segmentation techniques and morphological mage compression techniques.	operations			
			NI CIT	Credits:3		
Course	Year/Semester	Subject Name (Subject Code) Professional Elective – II	No. of Hours	Ci cuits.		
Outcome	III Year/ II	Mobile Communications and Networks	L:3 T:0P:0			
	Sem	(B22EC46)				
1	Known the evolution	of cellular and mobile communication system.				
2		nel and Non-Co-Channel interferences.				
3	Known how to overco	ome the different fading effects?				
4		erage for signal and traffic, diversity, technique	es, frequency manager	ment,Channel		
	assignment and types	of handoff.				
5	Demonstrate the diffe	erence between cellular and Adhoc Networks	and design goals of N	MACLayer		
	protocol		Т			
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	Embedded System Design (B22EC47)				
1		on managed year of Duranasana in the control of 1.1.1.1.1.				
2		on procedure of Processors in the embedded de				
3	Design Procedure for	components required to develop a embedded s Embedded Eirmware	ystems			
4		Real time Operating Systems in Embedded Sys	tems.			
5		on between task synchronization and latency is				
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1		
Course		a majore v (a majore o o o o o o	1100 OI HOUIS			



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Solution Solution	nderstand FFT algoricesign IIR & FIR filteresign multi rate signa Year/Semester II Year/ II Sem Equire knowledge on esign digital circuits	l processing of signals through systems Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	No. of Hours L:0 T:0P:2	Credits:1
1 An 2 Ur 3 De 4 De Course Y Outcome II S 1 Ac 2 De 3 Im	nalyze signals using the nderstand FFT algoritesign IIR & FIR filteresign multi rate signal according to the signal according	the discrete Fourier transform (DFT). thm for efficient computation of DFT. rs. Il processing of signals through systems Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
2 Ur 3 De 4 De Course Y Outcome II Sc 1 Ac 2 De 3 Im	nderstand FFT algoricesign IIR & FIR filteresign multi rate signa Year/Semester II Year/ II Sem Equire knowledge on esign digital circuits	thm for efficient computation of DFT. rs. Il processing of signals through systems Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
3 De 4 De 4 De 5 De 3 Im	esign IIR & FIR filter esign multi rate signa Zear/Semester II Year/ II Sem Equire knowledge on esign digital circuits	Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
4 De Course Y Outcome II S 1 Ac 2 De 3 Im	esign multi rate signa Vear/Semester II Year/ II Sem equire knowledge on esign digital circuits	l processing of signals through systems Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
Course Y Outcome II S	Year/Semester II Year/ II Sem Equire knowledge on esign digital circuits	Subject Name (Subject Code) CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
Outcome II S 1 Ac 2 De 3	II Year/ II Sem Equire knowledge on esign digital circuits	CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	_,,,,,	Credits:1
1 Ac 2 De 3 Im	equire knowledge on	CMOS VLSI Design Laboratory (B22EC33) High end Simulation tools like Mentor Graph	L:0 T:0P:2	
1 Ac 2 De 3 Im	equire knowledge on	High end Simulation tools like Mentor Graph	L.0 1.01.2	
1 Ac 2 De 3 Im	equire knowledge on esign digital circuits			
2 De 3 Im	esign digital circuits			
3 Im		11.00 . 1 1 1	nics, Tanner EDA etc	<u>. </u>
1111	1	at different levels using programming concept	ts.	
4 Pro		digital systems.		
ı — — — — — — — — — — — — — — — — — — —	ogram any available	FPGA and CPLD using implementation tool		
Course Y	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:1
Outcome	II Year/ II	Advanced Communication Laboratory	L:0 T:0P:2	
	Sem	(B22EC34)		
2		s of Spectrum Analyzer.		_
_	Analyze to select coding techniques for efficient transmission & reception.			
	Demonstrate and simulate various modulation and demodulation techniques.			
4 Sin	mulate the Multiplex	-		C 1'40
Course Y	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:0
Outcome	II Year/ II	Environmental Science (B22CH03)	L:3 T:0P:0	
S	em			
bas		the Engineering graduate will understand/e principles and environmental regulations v		in sustainable
Course Y	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:4
Outcome I	V Year/ I Sem	Microwave and Optical Communications (B22EC38)	L:3 T:1P:0	
1 Co.	ompare the Power gen	neration of Microwave Tubes and derive the perf	formance characteristic	cs.
_	<u> </u>	principles of microwave solid-state devices.		
		e different types of waveguide, ferrite compone	ents and select proper	components for
	gineering application		1 1	1
l		ters in microwave component design.		
5 De	emonstrate the mech	anism of light propagation through Optical Fib	ores	
Course Y	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome I	V Year/ I Sem	Professional Elective – III Radar Systems (B22EC48)	L:3 T:0P:0	
1 Illu	ustrate the importance	e of Radar Fundamentals and analysis of Radar e	equation.	<u> </u>
2		ng of CW and FM-CW Radars.	-1	
2	•	g principle of MTI with Pulse Doppler Radar.		
4		ar Tracking Methods.		
		dar signals in Noise and Radar receivers		
	/ear/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
		Professional Elective – III		
Outcome I	V Year/ I Sem	CMOS Analog IC Design	L:3 T:0P:0	
		(B22EC49)		
1 Un	nderstand the basic co	oncepts of MOS devices and their models.		
•		blocks of CMOS Analog ICs.		



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3	Design various amplif	fiers like differential, current and operational ar	nplifiers	
4	Carryout the design of	f single and two stage operational amplifiers.		
5	Understand the charac	eteristics 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 elem	ents of Artificial Neural networks and learning	process.	
2	Develop different sing	gle layer / multilayer perceptron learning algori	ithms.	
3		epts of back propagation.		
4		of self organizing maps.		
5	Construct the Hopfiel			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
		Professional Elective – IV		
Outcome	IV Year/ I Sem	Network Security and Cryptography	L:3 T:0P:0	
		(B22EC51)		
1	Describe network sect	urity fundamental concepts and principles		•
2		nessages using block ciphers and network secu	rity technology and pr	otocols
3	• 1	graphic algorithms, and understand the concepts	, ,,	
4		nt algorithms to identify their weaknesses	or number the 27	
5		fferent types of threats, malware, spyware, viru	ses, vulnerabilitie	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
		Professional Elective – IV		
Outcome	IV Year/ I Sem	Satellite Communications	L:3 T:0P:0	
		(B22EC52)		
1	Explore the basic co	ncepts and frequency allocations for satellite	e communication, or	bitalmechanics
	and launch vehicles.	• •		
2		b systems and satellite Antennas.		
3	_	tiple access techniques and design Satellite Lin	nk for specified C/N.	
4	Illustrate the earth sta	tion technology and Tracking system.		
5	Relate the concepts of	LEO and GEO Stationary Satellite Systems, sa	itellite 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	and medical systems from an engineering persp	ective.	<u> </u>
2		es to acquire record and primarily understand p		of thehuman
	•	ential, ECG, EEG, BP and blood flow measure		
3	, ,			
		about Neurological Instrumentation. g of various medical instruments and critical ca		
5	`			zariouemadiaal
3	conditions.	echniques including CT,PET, SPECT and MRI	used in diagnosis of v	ariousinedicai
Corres		Subject Name (Subject Cade)	No of Ho	Credits:2
Course	Year/Semester	Subject Name (Subject Code) Professional Practice, Law & Ethics	No. of Hours	OI CHILD:
Outcome	IV Year/ I Sem	(B22MB10)	L:2 T:0P:0	
1	Understand the impor	tance of professional practice		I.
2	=	esponsibilities as an employee		
				Credits:2
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	IV Year/ I Sem	Microwave and Optical Communications	L:0 T:0P:4	
1	D	Laboratory(B22EC39)		
		ave bench for measuring microwave parameters		
2	•	ke attenuation, VSWR etc.		
3		stics of all microwave engineering components		
4	I Demonstrate the mech	anism of light propagation through optical fibres		



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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		ristic searches, aware of knowledge based syste	ums and aynart systam	c	
3		to real-world problems to develop intelligent sy			
4		ledge learning techniques to develop intelligent			
5		rom a range of techniques when implementing			
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	5G and beyond Communications	1.5 1.01.0		
		(B22EC55)			
1	Describe the concept	of massive MIMO communications			
2	Illustrate mobile wire	less technology generations and define SMNA	T		
3	Analyze wireless com	nmunication channel and channel models for ra	dio wave propagation	ı	
4	Understand device to	device (D2D) communication and standardiza	tion		
5	Create interference m	anagement, mobility management and security	issues in 5G		
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	Machine learning(B22EC56)			
1		diameter CN - 1N-1			
2		the concepts of Neural Networks			
3	•	earning Networks in modeling real world syste ient algorithm for Deep Models	ems		
4		nization strategies for large scale applications			
5		nical 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		
Outcome		Multimedia Database Management	1.5 1.01.0		
	Sem	Systems(B22EC57)			
1					
1 2		ndamentals of DBMS, database design and nor	rmal forms.		
3		el techniques for relational data.			
4		QL for retrieval and management of data.	mary control		
5	*	e basics of transaction processing and concurre base storage structures and access techniques	ency control.		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
	IVYear/ II	Professional Elective – VI	L:3 T:0P:0		
Outcome		System on Chip Architecture	L:3 1:0P:0		
	Sem	(B22EC58)			
1	•	nd SOC Architectural features.			
2		edge on processor selection criteria and limitati	ons		
3	<u> </u>	ledge of memory architectures on SOC.			
5		terconnection strategies and their customization configurations of SOC	n on SOC.		
-			NI_ CIT	Credits:3	
Course	Year/Semester	Subject Name (Subject Code) Professional Elective – VI	No. of Hours	Cicuits.3	
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.	1	
2	Understand Design is	Understand Design issues and challenges in wireless sensor networks.			



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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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Course Outcomes for M.Tech-VLSI SYSTEM DESIGN (R22) for the academic year 2022-2023 onwards

Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
		DIGITAL SYSTEM DESIGN	Hours	
Outcome	I Year/ I Sem	WITH FPGAs (M22VL01)	L:3	
			T:0P:0	
After the com	•	the students should be able to		
1	<u> </u>	ign approaches using FPGAs.		
2		understanding of Fault models.	. 1. 1	
3		pattern generation techniques for fa	ault detection.	
4	To design fault diag	gnosis in sequential circuits.		
5			No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code) CMOS ANALOG IC DESIGN	Hours	Credits:3
Outcome	I Year/ I Sem	(M22VL02)	L:3	
			T:0P:0	
After the com	pletion of this course	the students should be able to		
1	Design basic buildi	ng blocks of CMOS analog ICs.		
2	Carry out the design	n of single and two stage operationa	al amplifiers an	d voltage
	references.		-	
3	Determine the devi	ce dimensions of each MOSFETs ir	nvolved.	
4	Design various amp	olifiers like differential, current and	operational am	plifiers
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	(Professional Elective I)	Hours	
Outcome	1 Teal/ I Selli	PATTERN RECOGNITION	L:3	
		AND MACHINE LEARNING	T:0P:0	
After the con	nlation of this course	(M22VL03) , the students should be able to		
1		of pattern classes and functionality.		
2			•	
3	Construct the vario			
	Use the different ke			
4	Design the Markov		NT C	G 14 2
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Year/ I Sem	(Professional Elective I) CMOS MIXED SIGNAL	L:3	
		DESIGN (M22VL04)	T:0P:0	
After the com	pletion of this course	, the students should be able to		L
1	Designing CMOS a	analog circuits to achieve performan	ce specificatio	ns.
2	Analyzing CMOS l	pased switched capacitor circuits.	•	
3	<u> </u>	verters and know how to use these	in specific appl	ications
4		nal circuits with understanding desig	1 11	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
		(Professional Elective I)	Hours	
Outcome	I Year/ I Sem	MEMORY TECHNOLOGIES	L:3	
		(M22VL05)	T:0P:0	
After the con	•	, the students should be able to		_
		and design semiconductor memory		
2	Identify various fau	alt models, modes and mechanisms	in semiconduc	ctor memories



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	and theirtesting pro	ocedures.		
3	Know, how of the s	state-of-the-art memory chip design		
Course Outcome	Year/Semester I Year/ I Sem	Subject Name (Subject Code) Professional Elective II)	No. of Hours	Credits:3
		COMMUNICATION BUSES AND INTERFACES (M22VL06)	L:3 T:0P:0	
After the con	npletion of this course	, the students should be able to		
1	Select a particular s	serial bus suitable for a particular ap	plication.	
2	Develop APIs for c	onfiguration, reading and writing d	ata onto serial	bus.
3		peripherals that can be interfaced	to desired seria	al bus
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ I Sem	Professional Elective II) ARM MICRO CONTROLLERS (M22VL07)	Hours L:3 T:0P:0	
After the con	npletion of this course	, the students should be able to		
1	Explore the selection level trade offissue	on criteria of ARM processors by urs.	nderstanding th	ne functional
2	Explore the ARM of	levelopment towards the functional	capabilities.	
3	Work with ASM le	vel program using the instruction se	et.	
4	Programming the A	ARM Cortex M.	T	
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3
Outcome	I Year/ I Sem	Professional Elective II)	L:3	
		EMBEDDED REAL TIME OPERATING SYSTEMS (M22VL08)	T:0P:0	
After the con	npletion of this course	, the students should be able to		
1	Be able to explain i			
2	Able describe how	a real		
3	Explain how the rea	al		
4	Be able to work w MicroC /OS	ith real time operating systems like	e RT Linux, V	x Works,
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ I Sem	DIGITAL SYSTEM DESIGN WITH FPGAs LAB (M22VL09)	Hours L:0 T:0P:4	
1	the specifications.	ications for a digital system, will be ab		system meeting
3		code to implement a particular design		
3		design, meeting the area and delay con consumption.		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:2
Outcome	I Year/ I Sem	CMOS ANALOG IC DESIGN LAB (M22VL10)	L:0 T:0P:4	
		, the students should be able to		
1	Design analog Circ			
2		e Cadence, Mentor Graphics and oth	ner open sourc	e
C.	software tools likel		No. of	Credits:2
Course	Year/Semester	Subject Name (Subject Code)	Hours	C1 Cuit5.2
		RESEARCH		



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- WIND BROWN						
Outcome	I Year/ I Sem	METHODOLOGY AND IPR (M22VL11)	L:2 T:0P:0			
After the com	pletion of this course	the students should be able to	1.01.0			
1	<u>^ </u>	h problem formulation.				
2	Analyze research re					
3	<u> </u>	Follow research ethics				
4		Understand that today's world is controlled by Computer, Information Technology,				
		out tomorrowworld will be ruled by ideas, concept, and creativity.				
5	individuals & national Intellectual Proper	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	Understand that I research work and	Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.				
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3		
Outcome	I Year/ II Sem	VLSI ADVANCED PHYSICAL DESIGN (M22VL12)	Hours L:3 T:0P:0			
After the com	pletion of this course	the students should be able to	l			
1	<u>-</u>	n for given specifications, analyze I	R drop and EM	I issues and fix		
2		power intent of the design using cu	rrent industry s	standard UPF		
3	-	design meets the power intent in U		randara CTT.		
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	Hours L:3 T:0P:0			
After the com	nletion of this course	(M22VL13) , the students should be able to				
1						
2		ch programs using system Verilog.	.:1 _{0.0}			
3		imulus and SVAs using system Ver st bench with all its features	nog.			
	1		No. of	Credits:3		
Course Outcome	Year/Semester I Year/ II Sem	Subject Name (Subject Code) Professional Elective III) IOT ARCHITECTURES AND SYSTEM DESIGN (M22VL14)	Hours L:3 T:0P:0	Creatis.		
After the com	pletion of this course	, the students should be able to				
1	Integrate the sensor	rs and actuator depending on the ap	plications			
2	Interface the IoT ar	nd M2M with value chains				
3	Write Python progr	ramming for Arduino, Raspberry Pi	devices			
4		ystems such as Agricultural IoT, V		c.,		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	I Year/ II Sem	Professional Elective III) SOC DESIGN	L:3			
A ftor the	unlation of this	(M22VL15)	T:0P:0			
After the com		ate a given problem in the framewo	ork of SoC base	ed design		
	approactics		approaches			



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2	Design SoC based	Design SoC based system for engineering applications		
3	-	SoC on electronic design philosoph	•	lectronics
	thereby inclinetowa	ards entrepreneurship & skill develo		
Course Outcome	Year/Semester I Year/ II Sem	Subject Name (Subject Code) Professional Elective III) DESIGN FOR TESTABILITY (M22VL16)	No. of Hours L:3 T:0P:0	Credits:3
After the com	pletion of this course	the students should be able to		
1	Acquire verification	n knowledge and test evaluation		
2	Design for testabili	ty rules and techniques.		
3	Utilize the scan arc	hitectures for different digital circu	its.	
4	Acquire the knowle	edge of design of built-in-self test		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ II Sem	Professional Elective IV) DEVICE MODELLING (M22VL17)	Hours L:3 T:0P:0	
After the com	pletion of this course	, the students should be able to		
1	Develop a function device that is to be	al relationship among the terminal omodeled.	electrical variat	oles of the
2	Describe the behav	ior of all components successfully		
3	Perform the simula	tion and analyze the VLSI circuits		
4	Use the FinFET for	various applications		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	I Year/ II Sem	Professional Elective IV) RF IC DESIGN (M22VL18)	Hours L:3 T:0P:0	
After the com	nletion of this course.	the students should be able to	1.01.0	
1		or of high frequency components.		
2	Calculate the scatte	ering parameters of various RF con	nponents and a	nalyze the
3	various filterparam			
4		ent modelling and biasing networks		
		RF filters, amplifiers, oscillators an	No. of	Credits:3
Course Outcome	Year/Semester I Year/ II Sem	Subject Name (Subject Code)) (Professional Elective IV) HARDWARE AND SOFTWARE CO-DESIGN (M22VL19)	Hours L:3 T:0P:0	Creuis.3
After the com	pletion 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 knowledgesign.	edge of firmware development proc	ess and tools du	aring Co-
4		on methods and adaptability		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
Outcome	I Year/ II Sem	VLŠI ADVANCED PHYSICAL DESIGN LAB (M22VL20)	Hours L:0 T:0P:4	
After the com	pletion of this course.	, the students should be able to	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1		and post-layout analysis of vario	us digital and	analog CMOS
2		rious EDA tools like Cadence / Mo	entor Graphics	/ Synopsys or
L				- J - F - J - O1



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	any other equivaler	ıt.		
3	Understand the imp	oortance of Layout design rules and	their impact in	achieving the
	desired specificatio	•	1	
4		ortance of various analyses require	d in integrated	circuit design
	process	7 1	\mathcal{E}	J
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:2
		SYSTEM VERILOG TEST	Hours	
Outcome	I Year/ II Sem	BENCHES USING UVM LAB (M22VL21)	L:0 T:0P:4	
After the con	pletion of this course.	the students should be able to		
1	<u> </u>	l verification using System Verilog.		
2		ologies for performing digital circui		ion
3		A playground Simulator	t logic vernicul	.1011.
	Year/Semester	1 70	No. of	Credits:3
Course		Subject Name (Subject Code)) (Professional Elective V)	Hours	Cicuits
Outcome	II Year/ I Sem	ADVANCED COMPUTER	L:3	
		ARCHITECTURE	T:0P:0	
		(M22VL23)		
After the con	pletion of this course	the students should be able to	•	
1	Familiarize the inst	ruction set, memory addressing of	Computer	
2		n pipelining and parallelism	•	
3		ctical issues in inter network		
	•		No. of	Credits:3
Course	Year/Semester	Subject Name (Subject Code)) (Professional Elective V) NANO	Hours	Credits.5
Outcome	II Year/ I Sem	MATERIALS AND	L:3	
		NANOTECHNOLOGY	T:0P:0	
		(M22VL24)		
After the con	pletion of this course.	, the students should be able to		
1	Formulate new eng	gineering solutions for current pro	blems and cor	npeting
	technologies forfut			1 0
2	Made inter disciplin	nary projects applicable to wide are	eas by clearing	and fixing the
	boundaries in system		7	
3		owledge of the operation of fabri	cation and cha	racterization
		precisely designed systems	eation and ent	a deterization
C	Year/Semester		No. of	Credits:3
Course		Subject Name (Subject Code) (Professional Elective V)	Hours	or caresto
Outcome	II Year/ I Sem	HARDWARE SECURITY	L:3	
		(M22VL25)	T:0P:0	
After the con	pletion of this course.	, the students should be able to	l	
1		re systems by knowing countermea	sures of variou	s hardware
	attacks			
2		oressive efficiency of hardware atta	cks	
3	<u> </u>	on time or power consumption to re		
4	•			•
		stems which lead to privilege escala		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ I Sem	(Open Elective) BUSINESS	Hours L:3	
		ANALYTICS (M22C01)	T:0P:0	
After the cor	nletion of this course	, the students should be able to	1.01.0	
Arter the coll		ledge of data analytics.		
2		ility of think critically in making d	eciciona based	on data and
	Demonstrate the ab	mity of timik critically in making di	ecisions based	on data and



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	deep analytics.			
3	Demonstrate the ab	ility to use technical skills in predic	cative and preso	criptive
	modeling to suppor	tbusiness decision-making.		_
4	Demonstrate the ab	ility to translate data into clear, act	ionable insight	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:3
Outcome	II Year/ I Sem	(Open Elective) OPERATIONS	Hours	
0 00001110		RESEARCH	L:3 T:0P:0	
After the com	nlotion of this course	(M22ME03) , the students should be able to	1.01.0	
1		programming to solve problems of	f discreat and c	ontinuous
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	Model the real-wor	ld problem and simulate it		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course) SANSKRIT	Hours	
		FOR TECHNICAL	L:2	
		KNOWLEDGE (M22AC03)	-	
		,	T:0P:0	
After the com		, the students should be able to		
1	Understanding basi	c Sanskrit language		
2	Ancient Sanskrit lit	erature about science & technology	can be unders	tood
3	Being a logical lang	guage will help to develop logic in	students	
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome	1 carys cinester	(Audit Course) VALUE EDUCATION	Hours	
			L:2	
		(M22AC04)	-	
			T:0P:0	
After the com		, the students should be able to		
1	Knowledge of self-	1		
2		ce of Human values		
3	Developing the ove	rall personality	T	Γ
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course)	Hours	
		CONSTITUTION OF INDIA	L:2	
		(M22AC05)		
1.0			T:0P:0	
After the com	•	, the students should be able to		
1	_	n of the demand for civil rights in Gandhi in Indian politics.	India for the b	oulk of Indians
2		ctual origins of the framework of	argument tha	t informed the
		of social reforms leading to revolution	-	
3		nstances surrounding the foundation		gress Socialist
		the leadership of Jawaharlal Nehr		-
	the proposal of dire	ect elections through adult suffrage	in the Indian C	onstitution.
4	Discuss the passage	e of the Hindu Code Bill of 1956.		
Course	Year/Semester	Subject Name (Subject Code)	No. of	Credits:0
Outcome		(Audit Course) PEDAGOGY	Hours	
Outcome		STUDIES		
		(M22AC06)	L:2	



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			T:0P:0		
After the con	npletion of this course	, the students should be able to	l	l	
1	What pedagogical classrooms indevel	practices are being used by teacher oping countries?	s in formal and	l informal	
2		What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?			
3		How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?			
4	What pedagogical classrooms indevel	practices are being used by teacher oping countries?	s in formal and	l informal	
Course	Year/Semester	• • • • • • • • • • • • • • • • • • • •	No. of	Credits:0	
Outcome		(Audit Course) STRESS	Hours		
		MANAGEMENT BY YOGA (M22AC07)	L:2		
		(1122/1007)	T:0P:0		
After the con		, the students should be able to			
1		ledge of data analytics.			
2		oility of think critically in making d	ecisions based	on data and	
3	modeling to suppor	vility to use technical skills in predict tbusiness decision-making.			
4	Demonstrate the ab	pility to translate data into clear, act	ionable insight		
Course Outcome	Year/Semester	Subject Name (Subject Code) (Audit Course) PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS (M22AC08)	No. of Hours L:2 T:0P:0	Credits:0	
After the con		, the students should be able to			
I	-	Bhagwad-Geeta will help the studieve the highest goal in life	dent in develo	ping his	
2	The person who ha prosperity	s studied Geeta will lead the nation	and mankind t	o peace and	
3	<u> </u>	akam will help in developing versat	ile personality	of students	
4	<u> </u>	Bhagwad-Geeta will help the studieve the highest goal in life	dent in develo	ping his	

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

Comman	VaardCarraastar	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Cradita 1				
Course	Year/Semester	Machine Modelling and		Credits: 4				
Outcome	I/I Sem	Analysis(A943101) Total: 4						
After the completion	on of this course, the student	,	l	l				
1		ds and assumptions in modeling of r	nachines.					
2	Recognize the different frames for modeling of AC machines.							
3	Illustrate the volta	ge and torque equations in state spac	e form for differe	nt machines				
4		ematical models of various DC made						
	function of the DC motor.							
5	Study various tran	sformations adopted in 3 phase macl	nines and explore	its starting				
	methods	1 1	1	C				
6	Analyze the devel	oped models in various reference fra	mes through simu	lation study				
7	·	e dynamics in various operating con						
8		uits analysis with d-q model of mach						
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4				
Outcome	I/I Sem	Modern Control Theory	Total: 4	Createst 1				
		(A943102)	10001					
	on of this course, the student							
1		ms of basic and modern control sys	tem for the real t	ime analysis				
	and design of control systems.							
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	Apply the concept of optimal control to any system.							
6	Examine a system for its stability, controllability and observability.							
7	Implement basic p	principles and techniques in designin	g linear control sy	stems.				
8	Formulate and	solve deterministic optimal cont	trol problems in	n terms of				
	performance indic							
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4				
Outcome	I/I Sem	Power Electronic Devices and	Total: 4					
After the consulation		Circuits (A943103)						
1	Understand the characteristics and principle of operation of modern power							
1	electronics device		on or modern pow	CI				
2								
3	Compare the features of various power electronic devices Comparehend the concepts of different power converters and their application							
4	Comprehend the concepts of different power converters and their application Explore various driver circuits and its heat management system							
5		f source and load inductance on the		\n				
6	•							
	· · · · · · · · · · · · · · · · · · ·	gn the switched mode regulator for v		ррпсаноп				
7		ower factor improvement controllers		0.441.041				
8	_	nic simulation packages for analysin	g and designing p	ower				
Control	converters	Subject Name (Subject Code)	T . 4 T. A D. A	C 1'4 - 4				
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 C	, 1 C	
1	stepper motor.	ctional features, principle of operation	and methods of	control of	
2	Realize the need for	or stepper motors and the various app	lications in indus	tries.	
		ybrid stepping motor			
2		of the operational characteristics and	the applications	of Switched	
3	Reluctance Motor.				
4	Know the various types of PMBLDC motors, rotor position sensors, methods of				
4	control and their a	pplications			
5	Get a clear idea of	the features, control and the application	ions of PMSM		
	Explore the conce	Explore the concept of linear induction motor and develop a double sided LIM from			
6	rotory induction n	=	•		
7	Study the construction	ctional details of permanent magnet ax	kial flux machine	s (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		
After the completion	n of this course, the student				
1	Study the basic po	ower handling capabilities of HVDC	lines		
2	Explore various	configurations and conversion	principles of s	static power	
	converters				
3	Learn the rectifi	er and inverter operations, commu	itation process	at converter	
	stations.				
4	Apply AC/DC filters for harmonic elimination in HVDC link				
5	Explore various controls adapted in HVDC converters				
6	Identify various in	nstability problems in HV AC and DC	System		
7	Study various ove	r voltage problems in multi-terminal	DC system		
8	Comprehend varie	ous converter faults and protection cir	cuits.		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Programmable Logic Controllers	0 Total: 4		
A 6		and their Applications (A943106)			
1	on of this course, the student		trollers in measu	rement and	
1	Gain Comprehensive knowledge of using advanced controllers in measurement and control instrumentation.				
2	Illustrate about data acquisition - process of collecting information from field				
2	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	and analog one	rations	
8		liagram representation on industrial a			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P:	Credits: 4	
Outcome	I/I Sem	Microcontrollers and Applications	0 Total: 4	Cicuits. 4	
		(A943107)	v Iviai. 7		
After the completio	n of this course, the student		•	•	

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Distinguish types of computers & microcontrollers and explain the principles of down design to microcontroller software development Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit Microcontroller, assembly language code for high-level language structures such IF-THENELSE and DO-WHILE Analyze a typical I/O interface and to discuss timing issues Develop Real time Applications of Microcontrollers & Demonstrate RTOS for Microcontrollers. Translate Hardware applications using Microcontrollers. Gain working knowledge of ports and interrupts Introduce the need and use of interrupt structure, timers in respective application Year / semester Subject Name (Subject Code) L. 4 T: 0 P: Credit Understand the basics of an embedded Systems (A943108) L. 4 T: 0 P: Credit Understand the basics of an embedded system for any type of applications Learn the method of designing an embedded system for any type of applications Learn the method of designing an embedded system for any type of applications Design, implement and test an embedded system Understand types of memory and interacting to external world Learn embedded firmware design approaches Understand types of memory and interacting to external world Learn embedded firmware design approaches Vear / semester Digital Control Systems (A943109) L. 4 T: 0 P: Credit Ottome Vear / semester Digital Control Systems (A943109) L. 4 T: 0 P: Credit Ottome Vear / semester Digital Control Systems (A943109) L. 4 T: 0 P: Credit Ottome Vear / semester Subject Name (Subject Code) L. 4 T: 0 P: Credit Ottome Vear / semester Digital Control Systems (A943109) L. 4 T: 0 P: Credit Ottome Vear / semester Digital Control Systems (A943109) L. 4 T: 0 P: Credit Ottome Vear / semester Subject Name (Subject Code) L. 4 T: 0 P: Credit Ottome Vear / semester Subject Name (Subject Code) L. 4 T: 0 P: Credit Ottome Vear / semester Subject Name (Subject Code) L. 4 T: 0 P: Credit Ottome Vear	1	D -1-4-41-1-1-1-	-1.'					
down design to microcontroller software development	1	Relate the basic architecture and addressing modes of a microcontroller.						
Demonstrate assembly language programs for the 8-bit, 16-bit and 32-bit Microcontroller , assembly language code for high-level language structures such IF-THENELSE and DO-WHILE 4	2							
Microcontroller , assembly language code for high-level language structures such 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 application Veral / Semester Introduce (Subject Code) L: 4 T: 0 P: Credit L: 4 T: 0 P: Credit L: 4 T: 0 P: Discussion Line L: 4 T: 0 P: Discussion L: 4 T:	2	Y	*	1617 1201	•,			
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5 Replace the conventional control system with Digital control system. 6 Evaluate to Apply Z-plane analysis of discrete time control systems 7 Apply state feedback controllers and observers								
6 Evaluate to Apply Z-plane analysis of discrete time control systems 7 Apply state feedback controllers and observers	4	Know sampling and reconstruction, Z -transforms.						
7 Apply state feedback controllers and observers	5							
Tr J	6							
	7							
	8	Analyse the system stability using root locus, bode and Nyquist plots						
Course Year / semester Subject Name (Subject Code) L: 4 T: 0 P: Credit	Course	Year / semester		L: 4 T: 0 P:	Credits: 4			
Outcome I/I Sem Optimization Techniques 0 Total: 4		I/I Sem	÷ -					
(A943110)			` '					
After the completion of this course, the students should be able to Study the need of optimisation in electrical angineering problems	-			nrohleme				
1 Study the need of optimisation in electrical engineering problems 2 Learn the conventional or classical optimisation techniques		•	1 0	<u> </u>				
					a.			
I gorn to formulate the problem with constrained and unconstrained access			1		<u> </u>			
3 Learn to formulate the problem with constrained and unconstrained cases 4 Explore various modern intelligent entimisation techniques		-	<u> </u>		hlom			
4 Explore various modern intelligent optimisation techniques	3		•	ransportation pro	oueiii,			
4 Explore various modern intelligent optimisation techniques 5 Apply these techniques to real world problems such as transportation problem,	6		_					
4 Explore various modern intelligent optimisation techniques	n	i Study various iimi	tations in these techniques					

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7	Apply methods of sensitivity analysis and validate post processing results					
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	Cicuits. 4		
	n of this course, the student		o roun i	ı		
1	Deduce the contro	l system to block diagram for various	analysis			
2		oundation in sampling and reconstruc		S.		
3		Apply knowledge of mathematics, Z-plane analysis to discrete time control				
	systems.	11 2				
4	Know sampling ar	nd reconstruction, Z -transforms.				
5		ntional control system with Digital co	ontrol system.			
6		Z-plane analysis of discrete time con				
7		ack controllers and observers	· ·			
8	11.	n stability using root locus, bode and	d 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)				
	n of this course, the student		1 4 1 1			
1		enewable energy sources to produce e				
2	•	ristics of PV cell- photo voltaic modu	1			
3	Learn the basics of wind energy conversion systems and bio-mass energy generation					
4	Explore various Wave energy conversion machines - Ocean Thermal Energy					
	conversion schemes					
5	Know the need of hybrid energy systems such as geothermal and fuel cells					
6	Study the impact of various renewable energy sources on environment.					
7		nergy and to avoid the environmental	pollution			
8		mental effects of energy conversion	T	T		
Course	Year / semester	Subject Name (Subject Code) HVDC Transmission (A943113)	L: 4 T: 0 P:	Credits: 4		
Outcome	I/I Sem n of this course, the student	,	0 Total: 4			
1		ower handling capabilities of HVDC	lines			
2	Explore various			static power		
2	converters	configurations and conversion	principles of s	static power		
3		er and inverter operations commi	itation process	at converter		
	Learn the rectifier and inverter operations, commutation process at converter stations.					
4	Apply AC/DC filters for harmonic elimination in HVDC link					
5	11 4					
6	Explore various controls adapted in HVDC converters Identify various instability problems in HV AC and DC system					
7		r voltage problems in multi-terminal				
8		ous converter faults and protection cin				
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4		
Outcome	I/I Sem	Analysis of Power Electronic	Total: 4	Cicuits. 4		
		Converters (A943114)	I Julii T			
After the completio	n of this course, the student					
1		characteristics and principle of o	peration of mo	dern power		
	semiconductor de	vices.				

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2	Comprehend the c	oncepts of different power converter	rs and their applica	ations			
3	Describe the importance of AC voltage controllers and cyclo-converters for various						
		industrial applications					
4		n switched mode power electronic co	onverters for vario	ous			
	industrial applicat						
5		Ith modulated inverters which are use	ed in variable spec	ed drives			
6	Choose appropriate device for a particular converter topology.						
7	Use power electronic simulation packages for analyzing and designing power						
	converters.						
8	Choose appropria	te power converter topologies and	design the power	r stage and			
		ers for various applications		C			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0	Credits: 4			
Outcome	I/I Sem	Embedded Systems (A943115)	Total: 4				
After the completio	n of this course, the student			•			
1	Understand the ba	sics of an embedded system					
2	Explore various is	sues in embedded software developm	nent and application	ons			
3	Learn the method	of designing an embedded system fo	r any type of appl	ications			
4	Understand the op	erating systems concepts, types and	choosing RTOS				
5	Design, implemen	t and test an embedded system					
6	Understand types	of memory and interacting to externa	al world				
7		irmware design approaches					
8	Use ICE and softv	vare tools to address the issues in em	bedded systems				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4			
Outcome	I/I Sem	Power Converters Simulation Lab (A943116)	Total:4				
After the completio	n of this course, the student	,	1	1			
1	Able to simulate f	ull converter circuits for various type	es of loading				
2	Acquire programn	ning knowledge to study the systems	dynamics in state	space			
	model						
3	Able to assess the	frequency response of the system					
4	Analyse the system	n stability and PID controller applica	ation for steady sta	ate system			
	operation.						
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4	Credits:4			
Outcome	I/I Sem	Seminar-I (A943117)	Total:4				
Course	Year/Semester	Subject Name (Subject Code)	L: 4 7	Γ: 0 P: 0 C:			
Outcome	I/II Sem	Power Electronic Converters (A943	3201) 4				
After the completio	on of this course, the students should be able to						
1	Understand various advanced power electronics devices.						
2	Explore various advanced modulation techniques and its applications						
3		ration of multi-level inverters with	switching strateg	gies for high			
	power application						
4	Comprehend the d	lesign of resonant converters and swi	tched mode powe	r supplies.			
5		n various topologies converter circui	its				
6	Develop and analy	ze various converter topologies.					
	Develop and analyze various converter topologies.						
7 8	Design AC or DC	switched mode power supplies.					

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Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/II Sem	Power Electronic Control of DC Drives	4		
Outcome	1/11 Selli	(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		ous and discontinuous modes of operation of si	ingle phase semi		
	=	and full converter for DC drives			
4	Study the continuo	Study the continuous and discontinuous modes of operation of three phase semi and			
	full converter for DC drives				
5	Perform steady sta	ate analysis of three phase converter controlled	DC motor drive		
6		arrent and speed controllers			
7	-	ate analysis of chopper controlled DC motor dri	ive		
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 completion	on of this course, the student		1 C		
1	_	orque characteristics variable voltage and variab	ole frequency		
2	operation				
2	Study the operation of induction motor in constant torque and field weakening				
2	regions				
3	Understand the stator side controls employed for induction drives				
4	Employ speed and flux control in current fed inverter drive				
5	Evaluate the efficiency of the drive by applying optimization control				
6	Study the principles of vector control methods in rotor of induction drives				
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 completion	on of this course, the student		· · · · · · · · · · · · · · · · · · ·		
1		t terms and concepts of electric power quality i	in power systems.		
2		opplications of non-linear load.	1' 4 4'		
3	Identify and study the difference between system failures, outage and interruptions				
4		ort and long interruptions	37 1,		
5		calculate the magnitude the single and three pl	iases voitage sag in		
(the system	goto the movies and literand his			
6	Learn how to mitigate the power quality problems				
7	Learn about the application of FACTS device on DG side.				
8		t characteristics of electric power quality in po	1		
Course	Year / semester	Subject Name (Subject Code) Advanced Digital Signal Processing	L: 3 T: 0 P: 0		
Outcome	I/II Sem	(A943205)	C:3		
After the completion	 on of this course, the student				
1		ital knowledge of analysing and processing of c	ligital systems		
2		ship between continuous time and discrete time			
	systems	1	<i>O</i>		
	1 2				

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3	Study the fundame	entals of time, frequency and Z-Plane analysis	and their		
	interrelationships.				
4	Study and design	digital filters form analysis to synthesis			
5	Explore few real v	world signal processing applications			
6	Get acquainted wi	th FFT algorithms, multi-rate signal processing	techniques.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	Switched Mode Power Supplies (SMPS)	3		
		(A943206)			
After the completio	n of this course, the student		vartars		
2	Apply the basic concepts of power electronics for designing converters. Explore various design considerations.				
3	Explore various de Explore various co				
4		ment practical circuits for UPS, SMPS.			
5		fect of Electromagnetic interference (EMI).			
6 Course	Year / semester	rious protection aspects for the converters. Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	Flexible AC Transmission Systems	3		
Outcome	1/11 Sem	(A943207)	3		
After the completio	n of this course, the student	,			
1	Know the concept	s and types of FACTS controllers			
2	Learn various con	verters employed for FACTS controllers			
3	Study the impact of	of FACTS devices in the power flow in the AC	system		
4	Learn various shu	nt compensation using SVC and STATCOM			
5	Learn various series compensators such as TCSC, TSSC				
6	Explore the conce	pt of UPFC and its application.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	High-Frequency Magnetic Components	3		
After the completion	n of this course, the student	(A943208)			
1		entals of magnetic devices			
2		rties of magnetic core materials			
3		effects that exists the round conductor carrying	AC currents		
4	•	sy stored in coupled inductors of transformers	The currents		
5		rmers for fly-back converters in CCM			
6		tted inductors and self capacitance for high frequency	wency applications		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	Dynamics of Electrical Machines (A943209)	3		
	n of this course, the student	s should be able to			
1	Basics of machine theory of all types of machines				
2	Learn generalized modeling of all electrical machines				
3	Apply of Lagrange	e's equation solution of Electro dynamical equa	ations.		
4	Understand the	basic mathematical analysis of electrical	machines and its		
	characteristics.	-			
5	Understand behav	ior of electrical machines under steady state an	d transient state.		
6		nic modeling of electrical machines			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	Instrumentation & Control (A943210)	3		
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After the completio	n of this course, the student			
1		ethods of power generation		
2		portance of instrumentation in power generation		
3		easuring and supervising systems involved in	thermal power plant	
	-	boiler and turbine units		
4		s controls employed in boiler		
5		rature and pressure controls in turbine		
6	Study the nuclear power plant instrumentation			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Intelligent Control (A943211)	3	
After the completio	n of this course, the student			
1		ture of Intelligent control		
2		ificial neural network and its mathematical mo	odel	
3		neural network with various configurations.		
4		orithm for various optimisation problems		
5		different system with fuzzy logic controller		
6	Explore various po	ower system problem and apply GA, NN and F	Fuzzy controller	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Smart grid technologies (A943212)	3	
	n of this course, the student			
1		e of an electricity market in either regulated or	deregulated market	
	conditions.			
2		dvantages of DC distribution and developi	ing technologies in	
	distribution			
3	Discriminate the trade-off between economics and reliability of an electric power			
	system.			
4		ous investment options (e.g. generation capa	cities, transmission,	
		d-side resources, etc) in electricity markets.		
5	·	opment of smart and intelligent domestic syste		
6	Recite the structur	e of an electricity market in either regulated or	deregulated market	
	conditions.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3	
.6		(A943213)		
After the completio	on of this course, the student		neural networks	
1	Gain knowledge on soft computing techniques such as artificial neural networks,			
2	Fuzzy logic and genetic Algorithms.			
2	Learn the concepts of feed forward neural networks and feedback neural networks.			
3	Get the concept of fuzziness involved in various systems and comprehensive			
		y logic control and to design the fuzzy rules		
4	-	knowledge on genetic algorithm including th	ree genetic	
	operators		A.T	
5		ower system problems which can utilize these	AI techniques	
6		pility using AI techniques	T	
Course	Year / semester	Subject Name (Subject Code) Poliobility Engineering (A042214)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Reliability Engineering (A943214)	3	
After the completion	n of this course, the student	s should be able to		

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1	T- :14:6-41		f		
1	To identify the generation system model and recursive relation for capacitive model building				
2		valent transitional rates, cumulative probability	ty and cumulative		
2	*	valent transitional rates, cumulative probability	ly and cumulative		
	frequency	. 1 1 1 1 1	*1 .* 1		
3		ive probability and cumulative frequency of	non-identical		
		nd merging generation and load			
4		is approaches to evaluate operating reserves a	and bulk power		
	generation reserve				
5	Analyse the reliab	ility indices on radial and weakly meshed dis	tribution networks		
6	Study the effect of	f short circuits in substation and switching sta	ations.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/II Sem	Energy Auditing, Conservation &	3		
		Management (A943215)			
After the completion	n of this course, the student				
1	Know the necessity of conservation of energy				
2	Generalize the methods of energy management				
3	Illustrate the factors to increase the efficiency of electrical equipment				
4	Detect the benefits of carrying out energy audits.				
5	Analyze the power factor and to design a good illumination system				
6	Determine pay bac	ck periods for energy saving equipment.			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4 C:		
Outcome	I/II Sem	Power Converters and Drives Lab	2		
		(A943216)			
After the completion	on of this course, the students should be able to				
1	Learn basic speed measurement and implement closed loop control 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	Explore the inverter controls for solar PV systems				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 4		
Outcome	I/II Sem	Seminar-II (A943217)	C:2		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 0		
Outcome	II/I Sem	Comprehensive Viva-Voce (A943301)	C:4		
3 44404440			1 = 7 -		

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Comma	VoordCorregatore	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Course	Year/Semester	Advanced Power System Analysis (A953101)		
Outcome	I/I Sem on of this course, the student	• • • • • • • • • • • • • • • • • • • •	3	
1		ods and assumptions in modeling of machines.		
2		Ferent frames for modeling of AC machines.		
3			liffament machines	
4		ge and torque equations in state space form for o		
4	-	nematical models of various machines like, in	iduction motor and	
		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) Advanced Power System Protection	L: 3 T: 0 P: 0 C:	
Outcome	I/I Sem	(A953102)	3	
After the completio	on of this course, the student			
1		sic function of a circuit breaker, all kinds of circ	uit breakers and	
	relays			
2	·	and circuit breakers under fault condition		
3		nal details of static relays and importance of dual	lity of comparators	
	in them.			
4	Study the operation of static relay applied for over current protection			
5		ic relay for transformer and transmission line pro-		
6	117	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	
	on of this course, the student	s should be able to	7	
1		basic and modern control system for the rea	l time analysis and	
	design of control	•	Ĭ	
2	To perform state variables analysis for any real time system.			
3		t of optimal control to any system.		
4		a system for its stability, controllability and obse	rvabilitv.	
5	Implement basic principles and techniques in designing linear control systems.			
6		lve deterministic optimal control problems in te		
	indices.	opinion processis in the	This of portornames	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Outcome	I/I Sem	EHV AC Transmission (A953104)	4	
	on of this course, the student	s should be able to	7	
1		ent aspects of Extra High Voltage A.C and D.C	Γransmission	
2	•	AC transmission system components, protection		
	level for over volt	• • • • • • • • • • • • • • • • • • • •		
3			engineering	
	Estimate the Statistical procedures for line designs, scientific and engineering			
		er systems.		
4	Principles in power	er systems. 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 EHV lines				
6	Design the EHV c	ables 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		
After the completion	n of this course, the student				
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	Advanced Digital Signal Processing	3		
A6	Caller	(A953106)			
1	on of this course, the student	nderstanding of using advanced controllers in me	accurament and		
1	control instrument		casurement and		
2			n from field		
2		ata acquisition - process of collecting information	ii ii oiii iieid		
2	instruments.	mahla I ania Cantuallan (DI C). IO Madulas and i	into and of footstands		
3		mable Logic Controller (PLC), IO Modules and i	internal features.		
4		ramming in Ladder Logic, addressing of I/O.			
5	Apply PID and its	· ·			
6	-	adder logic programming for simple process	.		
Course	Year / semester	Subject Name (Subject Code) Power Quality (A953107)	L: 4 T: 0 P: 0 C:		
Outcome	I/I Sem	• • •	4		
	n of this course, the student		t		
$\frac{1}{2}$		architecture and addressing modes of a microco			
2	Distinguish types of computers & microcontrollers and explain the principles of top				
2		icrocontroller software development	120.1%		
3		ably language programs for the 8-bit, 16-bit and			
	Microcontroller, assembly language code for high-level language structures such as				
4	IF-THENELSE ar				
4		O interface and to discuss timing issues	, DEOG C		
5	Develop Real time Applications of Microcontrollers & Demonstrate RTOS for				
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '			
6		re applications using Microcontrollers. Subject Name (Subject Code)	T 4 T 4 D 4 G		
Course	Year / semester	Microcontrollers and applications (A953108)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	2.2	3		
	n of this course, the student		ntroller		
$\frac{1}{2}$		architecture and addressing modes of a microco of computers & microcontrollers and explain the			
2		icrocontroller software development	e principles of top		
3		ably language programs for the 8-bit, 16-bit and	1 22 hit		
3		• • • • •			
		assembly language code for high-level language	structures such as		
4	IF-THENELSE ar				
4		O interface and to discuss timing issues	, DTOC C		
5	_	e Applications of Microcontrollers & Demonstra	ie KIOS Ior		
	Microcontrollers.	1' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '			
6		re applications using Microcontrollers.	I 4E 4B 4C		
Course	Year / semester	Subject Name (Subject Code) Distribution Automation (A953109)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem		3		
After the completio	n of this course, the student	s should be able to structure of power system automation and its ev	olution		
1	Learn the need 01	structure of power system automation and its ev	OlutiOII.		

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2	Classify various p	ower system automation schemes			
3	Learn to implement power system automation and protection using SCADA.				
4	Learn the importance of EMS in power system operation.				
5		ture of PLC and its application in power system	automation		
6		schemes of distribution automation and substati			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:		
Outcome	I/I Sem	Optimization Techniques (A953110)	4		
After the completio	n of this course, the student				
1		optimisation in electrical engineering problems			
2	Learn the conventional or classical optimisation techniques				
3		e the problem with constrained and unconstrained	d cases		
4		nodern intelligent optimisation techniques			
5		iques to real world problems such as transportati	on problem,		
	travelling salesma	n problem			
6	•	tations in these techniques			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	Digital control systems (A953111)	3		
4	n of this course, the student				
1		l system to block diagram for various analysis	C		
2		oundation in sampling and reconstruction Z-tran			
3	Apply knowledge of mathematics, Z-plane analysis to discrete time control systems.				
4		nd reconstruction, Z -transforms.			
5	Replace the conventional control system with Digital control system.				
6	11.	Z-plane analysis of discrete time control system			
Course	Year / semester	Subject Name (Subject Code) Renewable energy systems (A953112)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem n of this course, the student		3		
1		enewable energy sources to produce electrical en	erav		
2					
3	Study the characteristics of PV cell- photo voltaic modules and its applications Learn the basics of wind energy conversion systems and bio-mass energy generation				
4		Vave energy conversion machines - Ocean Thern			
'	conversion schem		nai Energy		
5	Know the need of hybrid energy systems such as geothermal and fuel cells				
6		of various renewable energy sources on environment			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	HVDC Transmission (A953113)	3		
	n of this course, the student	s should be able to			
1	Study the basic po	ower handling capabilities of HVDC lines			
2	Explore various c	onfigurations and conversion principles of stat	ic power converters		
3	Learn the rectifier	and inverter operations, commutation process a	t converter stations.		
4	Apply AC/DC file	ters for harmonic elimination in HVDC link			
5	Explore various c	ontrols adapted in HVDC converters			
6	Identify various in	nstability problems in HV AC and DC system			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:		
Outcome	I/I Sem	Analysis of power Electronic converters	3		
		(A953114)			

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After the completion	n of this course, the student	s should be able to		
1	Understand the characteristics and principle of operation of modern power			
	semiconductor devices.			
2	Comprehend the concepts of different power converters and their applications			
3	Analyze and desig	Analyze and design switched mode regulators for various industrial applications		
4	Knowledge on var	rious converter topologies		
5	Choose appropriat	e device for a particular converter topology.		
6	Use power elect	ronic simulation packages for analyzing and	d designing power	
	converters.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/I Sem	Embedded Systems (A953115)	3	
After the completio	n of this course, the student			
1		sics of an embedded system		
2		of designing an embedded system for any type of		
3		erating systems concepts, types and choosing R	ΓOS	
4	<u> </u>	t 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:	
Outcome	I/I Sem	Power Systems Lab-I (A953116)	2	
After the completio	on of this course, the students should be able to			
1		te the symmetrical and unsymmetrical fault in the		
2		ti effect in the transmission line and implement f	teeder protection	
		operation by constructing the circuits	1. 11.1	
3		n various static relays for over current and over		
4		rential protection of transformer for external and		
Course	Year/Semester	Subject Name (Subject Code) Power System Dynamics (A953201)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem		3	
1	n of this course, the student		nte stability and	
1	transient stability	Learn the basics of system dynamics and able to analyse steady state stability and		
2	-	chronous machine to analyse steady state operat	ion analyse its	
	Able to model synchronous machine to analyse steady state operation analyse its dynamics of operation.			
3	Model the excitation system analyse the dynamics of the synchronous machine			
	connected to infinite bus.			
4	Examine the small signal stability of the system using Routh's Hurwitz criterion			
5	Know the need of PSS in control signals			
6	Dynamic compensator analysis of single machine infinite bus system with and			
	without PSS.			
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)	-	
After the completio	n of this course, the student			
1	Know the concepts and types of FACTS controllers			
2	Learn various converters employed for FACTS controllers			
3	Study the impact of FACTS devices in the power flow in the AC system			

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4	Learn various shunt compensation using SVC and STATCOM			
5	Learn various serie	es compensators such as TCSC, TSSC		
6	Explore the conce	Explore the concept 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)		
After the completio	n of this course, the student			
1	-	wledge on restructuring of power industry and n		
2		on fundamental concepts of congestion manage	ment	
3		rious 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		I	
Course	Year / semester	Subject Name (Subject Code) Programmable Logic Controllers and their	L: 4 T: 0 P: 0	
Outcome	I/II Sem		C:4	
After the completion	Applications (A953205) on of this course, the students should be able to			
1	Gain Comprehensive knowledge of using advanced controllers in measurement and			
	control instrument			
2		ata acquisition - process of collecting information	n from field	
	instruments.	and dequisition—process of conceeding information	n nom neid	
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			
6	11 6	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	
Outcome	1/11 Sem	(A953206)	3	
After the completio	n of this course, the student	s should be able to	1	
1		entals of magnetic devices		
2	Explore the properties of magnetic core materials			
3	Study the various effects that exists the round conductor carrying AC currents			
4	Evaluate the energy stored in coupled inductors of transformers			
5	Design of transformers for fly-back converters in CCM			
6	Design the integrated inductors and self capacitance for high frequency applications			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:	
Outcome	I/II Sem	Reactive Power Compensation and	4	
		Management (A953207)		
After the completio	n of this course, the student			
1	Identify the necessity of reactive power compensation			
2	Describe load compensation			
3	Select various types of reactive power compensation in transmission systems			
4	Characterize distribution side and utility side reactive power.			
5	Understand issues related to power system stability and control.			

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6	Detect reactive power compensation techniques & their practical importance		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:
Outcome	I/II Sem	Power System Reliability (A953208)	3
After the completio	n of this course, the student		
1		neration system model and recursive relation for	capacitive model
	building		
2	calculate the equiv	valent transitional rates, cumulative probability a	and cumulative
	frequency		
3		ive probability and cumulative frequency of non	i-identical
	generating units an	nd merging generation and load	
4	Distinguish variou	is approaches to evaluate operating reserves and	bulk power
	generation reserve		
5	-	ility indices on radial and weakly meshed distrib	
6	Study the effect of	f short circuits in substation and switching statio	ns.
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		
1	•	sity of reactive power compensation	
2	Describe load com		
3		es of reactive power compensation in transmissi	on systems
4		bution side and utility side reactive power.	
5		related to power system stability and control.	
6	Detect reactive power compensation techniques & their practical importance		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C:
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210)	
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation	L: 4 T: 0 P: 0 C:
Course Outcome After the completio	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler rature and pressure controls in turbine	L: 4 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear	Subject Name (Subject Code) Instrumentation & Control (A953210) schools be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation	L: 4 T: 0 P: 0 C: 4 nermal power plant
Course Outcome After the completion 1 2 3 4 5 6 Course	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation aportance of instrumentation in power generation acasuring and supervising systems involved in the boiler and turbine units as controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me Understand the im Explore various m processes such as Understand variou Explore the tempe Study the nuclear Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211)	L: 4 T: 0 P: 0 C: 4 nermal power plant
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear Year / semester I/II Sem of this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1	Year / semester I/II Sem n of this course, the student Survey various me 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 architect	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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	L: 4 T: 0 P: 0 C: dermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les 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 cificial neural network and its mathematical mode	L: 4 T: 0 P: 0 C: dermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3	Year / semester I/II Sem n of this course, the student Survey various me Understand the im Explore various m processes such as Understand various Explore the tempe Study the nuclear Year / semester I/II Sem n of this course, the student Learn the architect Learn the basic art	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation sportance of instrumentation in power generation seasuring and supervising systems involved in the boiler and turbine units seasontrols employed in boiler rature and pressure controls in turbine spower plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) seshould be able to ture of Intelligent control cificial neural network and its mathematical mode neural network with various configurations.	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 4 5 4 5 4 5 6 4 4 5 6 4 6 6 6 6 6 6 6	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic ard Train and test the	Subject Name (Subject Code) Instrumentation & Control (A953210) s should be able to ethods of power generation aportance of instrumentation in power generation the easuring and supervising systems involved in the boiler and turbine units as 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 cificial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems	L: 4 T: 0 P: 0 C: dermal power plant L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 5 5 5 6 5 6 Course Outcome After the completion 1 5 5 5 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems Intelligent system with fuzzy logic controller	L: 4 T: 0 P: 0 C: 4 L: 4 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 6 6 6 6	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po	Subject Name (Subject Code) Instrumentation & Control (A953210) should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) Intelligent Control (Efficial neural network and its mathematical mode ineural network with various configurations. Orithm for various optimisation problems Intelligent System with fuzzy logic controller ower system problem and apply GA, NN and Fu	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Course	Year / semester I/II Sem n of this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester	Subject Name (Subject Code) Instrumentation & Control (A953210) should be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units les controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) should be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems I different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C:
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3
Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome After the completion 1 2 3 4 5 6 Course Outcome	Year / semester I/II Sem nof this course, the student Survey various me 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 architect Learn the basic art Train and test the Apply genetic algo Model and control Explore various po Year / semester I/II Sem nof this course, the student	Subject Name (Subject Code) Instrumentation & Control (A953210) schoold be able to ethods of power generation portance of instrumentation in power generation leasuring and supervising systems involved in the boiler and turbine units less controls employed in boiler rature and pressure controls in turbine power plant instrumentation Subject Name (Subject Code) Intelligent Control (A953211) schoold be able to ture of Intelligent control difficial neural network and its mathematical mode neural network with various configurations. Orithm for various optimisation problems different system with fuzzy logic controller ower system problem and apply GA, NN and Fu Subject Name (Subject Code) Smart grid technologies (A953212)	L: 4 T: 0 P: 0 C: 4 L: 3 T: 0 P: 0 C: 3 L: 3 T: 0 P: 0 C: 3

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	conditions.			
2	Understand the advantages of DC distribution and developing technologies in			
	distribution			
3	Discriminate the trade-off between economics and reliability of an electric power			
	system.		_	
4	Differentiate varie	ous investment options (e.g. generation capac	cities, transmission,	
		d-side resources, etc) in electricity markets.		
5		opment of smart and intelligent domestic system	S.	
6		re of an electricity market in either regulated or		
	conditions.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	AI Techniques in Electrical Engineering	3	
		(A953213)		
After the completion	on of this course, the student	s should be able to on soft computing techniques such as artificial ne	ural natworks	
1	Fuzzy logic and go		urai networks,	
2		s of feed forward neural networks and feedback	neural networks	
		fuzziness involved in various systems and comp		
3	-	•	orenensive	
4	knowledge of fuzzy logic control and to design the fuzzy rules			
5		Acquire complete knowledge on genetic algorithm including three genetic operators Explore various power system problems which can utilize these AI techniques		
6			techniques	
		bility using AI techniques Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Course Outcome	Year / semester I/II Sem	Reliability Engineering (A953214)	1: 3 1: 0 P: 0 C: 3	
			3	
1	ompletion of this course, the students should be able to To identify the generation system model and recursive relation for capacitive model			
	building	•	1	
2	calculate the equiv	calculate the equivalent transitional rates, cumulative probability and cumulative		
	frequency	•		
3	Evaluate cumulative probability and cumulative frequency of non-identical			
	generating units ar	generating units and merging generation and load		
4		is approaches to evaluate operating reserves and	bulk power	
	generation reserve	;		
5	Analyse the reliability indices on radial and weakly meshed distribution networks			
6	Study the effect of short circuits in substation and switching stations.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C:	
Outcome	I/II Sem	Energy Auditing, Conservation &	3	
After the consulation		Management (A953215)		
1	on of this course, the student			
	Know the necessity of conservation of energy Generalize the methods of energy management			
2	Generalize the ma	Generalize the methods of energy management Ulustrate the factors to increase the efficiency of electrical equipment		
2			ent	
3	Illustrate the facto	rs to increase the efficiency of electrical equipme	ent	
3 4	Illustrate the facto Detect the benefits	rs to increase the efficiency of electrical equipmes of carrying out energy audits.		
3 4 5	Illustrate the facto Detect the benefits Analyze the powe	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system		
3 4 5 6	Illustrate the factor Detect the benefits Analyze the power Determine pay back	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system ock periods for energy saving equipment.	1	
3 4 5	Illustrate the facto Detect the benefits Analyze the powe	rs to increase the efficiency of electrical equipmes of carrying out energy audits. r factor and to design a good illumination system		

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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	