

R13 GRAND CO-PO-PSO MATRIX

R13101	ENGLISH-I	C01	An ability to read and comprehend English stories and texts													
		C02	ability to improve listening skills particularly related to technical English and to improve life skills													
		C03	An ability to critically respond in English to a real life situations and to speak in English without inhibition and grammar													
		C04	An ability to improve essential grammar necessary for English communication and to write effectively using appropriate format													
		C05	An ability to expand vocabulary range and use it effectively and respond to real life situations and An ability to transfer verbal information into nonverbal information and vice versa													
		C06	An ability to improve life skills and core skills necessary for effective communication													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01						2		2	3	3		3	2		
	C02						2		2	3	3		3	3	2	
	C03						2		2	3	3		3			
	C04						2		2	3	3		3		2	
	C05						2		2	3	3		3	3		
	C06						2		2	3	3		3	2	1	

R13102	MATHEMATICS-I	C01	Able to solve first order ordinary Differential equations and their applications.													
		C02	Able to solve higher order ordinary differential equations													
		C03	Able to learn Laplace transforms and solve initial value problems in ordinary differential equations using Laplace transforms.													
		C04	Able to learn Partial differentiation													
		C05	Able to Solve first order partial differential equations													
		C06	Able to Solve higher order partial differential equations.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	2	1						3				2		
	C02	3	3	3						3				3	2	
	C03	2	3	3						2						
	C04	3	3	2						3					2	
	C05	3	3	3						2				3		
	C06	3	2	1						2				2	1	

R13104	ENGG.CHEMISTRY	C01	Able to know about water used in industries (boilers etc.)and for drinking purposes and Apply modern methods of softening of hard water to avoid boiler troubles ,construction and working of lime soda process													
		C02	Understanding the principles, Construction and working of galvanic cells, electrode potentials, concentration cells , rechargeable batteries and Analyze various types of fuel cells													
		C03	Apply the knowledge of electro chemistry to corrosion, distinguish various types of corrosions and able to solve corrosion problems													
		C04	Able to explain about synthesis, physical and mechanical properties, compounding and reframing & fabrication of polymers, plastics and elastomers and Applications of fibre reinforced polymers along with conducting polymers													
		C05	Recognize specific characteristic properties of fuels including calorific value determination , Ranking and Analysis of coal by proximate and ultimate method													
		C06	Use of advanced materials i.e.nano materials,liquid crystals, super conductors and Illustrate the applications of cleaner and greener synthetic methods adapt in industries for healthy living													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3		3		1			3	3	3	1	3	2		
	C02	3		3		2			3	3	3	2	3	3	2	
	C03	2		3		2			3	3	2	2	2			
C04	3		2		1			3	3	1	2	3		2		
C05	3		3		1			3	3	2	1	3	3			
C06	3		3		1			3	2	1	2	3	2	1		

R13105	COMPUTER PROGRAMMING	C01	Able to Design algorithmic solutions to problems and implementing algorithms inC.													
		C02	Able to Illustrate branching, iteration and data representation using arrays.													
		C03	Able to Implement modular programming and recursive solution formulation.													
		C04	Able to Comprehend pointers and dynamic memory allocation.													
		C05	Able to Implement user defined data types like structures and unions in C.													
		C06	Able to Comprehend file operations.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	1	1	3	1	1									3	3
	C02	2	2	2	2										3	2
	C03	2	2	3	2	2									3	2
C04	2	2	2	3	2									3	3	
C05	1	2	3	2	2									3	2	
C06	1	2	3	2	2									3	2	

	C01	Able to Understand The concepts of the ecosystem												
	C02	Able to Understand The natural resources and their importance												

R13106

ENVIRONMENTAL STUDIES

CO3	Able to learn The biodiversity of India and the threats to biodiversity ,and Apply conservation practices
CO4	Able to learn Various attributes of the pollution and their impacts
CO5	Able to Understand Social issues both rural and urban environment
CO6	Able to Understand About environmental Impact assessment and Evaluate the stages involved in EIA

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3			3	2		3	3			3	2	2	
C02	2			2	2		2	2			3	2	3	2
C03	3			3	2		2	2			3	3		
C04	2			3	2		2	2			3	3		2
C05	3			1	3		3	3			3	2	3	
C06	3			3	3		3	3			2	2	2	1

R13110

ENGG.MECHANICS

CO1	Able to explain the concepts of force and friction, direction and its application.
CO2	Able to explain the application of free body diagrams. Solution to problems using
CO3	graphical methods and law of triangle of forces.
CO4	Able to explain the concepts of centre of gravity.
CO5	Able to explain the concepts, moment of inertia and polar moment of inertia including
CO6	transfer methods and their applications.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	1						2				2	
C02	2	2	1						2				3	2
C03	2	1	1						2					
C04	2	1	2						2					2
C05	2	2	1						1				3	
C06	3	2	1						1				2	1

R13111

ENGLISH COMMUNICATION SKILLS LAB-I

CO1	Ability to analysis a topic of discussion & reading to it.
CO2	Ability to participate in discussion & influence them.
CO3	Ability to communicate ideas effectively.
CO4	Ability to present opinions coherently within a stipulated time.
CO5	Ability to speak clearly & coordinate with them.
CO6	Ability to improve upon English language pronunciation.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01						2		2	3	3		3	2	
C02						2		2	3	3		3	3	2
C03						2		2	3	3		3		
C04						2		2	3	3		3		2
C05						2		2	3	3		3	3	

E	C06					2		2	3	3		3	2	1
---	-----	--	--	--	--	---	--	---	---	---	--	---	---	---

R13115 ENGG. CHEMISTRY LABORATORY	C01	Able to understand water quality analysis.													
	C02	Able to understand significance of potentiometric & conductometric titrations.													
	C03	Able to analyze redoxometric titrations.													
	C04	Able to do quality analysis of cool drinks.													
	C05	Able to estimate amount of vitamin-c present in capsules.													
	C06	Able to determine concentration of unknown solutions by colorimeter.													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3		3		1			3	3	3	1	3	2	
	C02	3		3		2			3	3	3	2	3	3	2
	C03	2		3		2			3	3	2	2	2		
	C04	3		2		1			3	3	1	2	3		2
	C05	3		3		1			3	3	2	1	3	3	
	C06	3		3		1			3	2	1	2	3	2	1

R13116 C. PROGRAMMING LAB	C01	Able to Design solutions to the various problems in the field of computerscience.													
	C02	Able to Implement the concepts of arrays and strings.													
	C03	Ability to Analyze the concepts of modular programming and develop solutions.													
	C04	Able to Implement Programs with pointers and comprehend the dynamic memory allocation functions.													
	C05	Able to Develop programs that perform operations using derived data types													
	C06	Able to Implement programs for data transfers between files													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	1	1	3	1	1								3	3
	C02	2	2	2	2									3	2
	C03	2	2	3	2	2								3	2
	C04	2	2	2	3	2								3	3
	C05	1	2	3	2	2								3	2
	C06	1	2	3	2	2								3	2

ENGLISH-II	C01	An ability to read and comprehend English stories and texts												
	C02	ability to improve listening skills particularly related to technical English and to improve life skills												
	C03	An ability to critically respond in English to a real life situations and to speak in English without inhibition and grammar												
	C04	An ability to improve essential grammar necessary for English communication and to write effectively using appropriate format												

R13201	C05	An ability to expand vocabulary range and use it effectively and respond to real life situations													
	C06	An ability to improve life skills and core skills necessary for effective communication													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01						2		2	3	3		3	2	
	C02						2		2	3	3		3	3	2
	C03						2		2	3	3		3		
C04						2		2	3	3		3		2	
C05						2		2	3	3		3	3		
C06						2		2	3	3		3	2	1	

R13202	MATHEMATICS-III	C01	An Ability to Solve the system of linear equations and Analyse their applications.													
		C02	An Ability to Compute an Eigen values and eigen vectors													
		C03	Evaluate double and Triple integrals and Apply to find surface area and volumes of solids.													
		C04	Able to Compare definite integral with special functions													
		C05	Able to Differentiate the scalar and vector functions.													
		C06	Able to Understand line, surface and volume integrals and Establish vector integral theorems.													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C01		3	2	1						3				2		
C02		3	3	3						3				3	2	
C03		2	3	3						2						
C04		3	3	2						3					2	
C05		3	3	3						2				3		
C06		3	2	1						2				2	1	

R13203	GG. PHYSICS	C01	Able to Design an instrument to enhance the resolution for its operation and Application in physical Optics.													
		C02	Able to Understand the concepts of Lasers as Non-linear coherent sources and the structure property relationship for materials.													
		C03	Able to Understand the concepts of Magnetic, Dielectric and Superconducting properties and their Applications in various fields.													
		C04	Able to Know the Designing aspects of Buildings using the concepts of acoustics and the Computation of velocity of EM waves.													
		C05	Able to Understand the Classical and Quantum aspects of sub-atomic world dominated by electron and its presence and the formation of energy bands in solids using Band- Theory.													

EN	C06	Able to Know the Classification of Semiconductors and Apply their concepts in electronic transport Mechanism for LEDs, Photo conductors and solar cells.													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	3	3	2	2			3					3	2
	C02	2	2	2	3	2			3					3	2
	C03	3	2	2	2	3			3						2
	C04	2	2	3	3	3			2					3	2
	C05	3	2	3	2	2			3					1	1
C06	3	3	2	2	1			3					2	1	

R13207	MATHEMATICS-II (MM)	C01	Appropriate Numerical methods to find roots of algebraic & transcendental equations												
		C02	Able to Understand the interpolation and extrapolation techniques												
		C03	Able to Apply different numerical methods to Solve differential equations.												
		C04	Interpret Fourier series analysis which is central to many applications in engineering apart												
		C05	Able to Apply Fourier transforms to Evaluate improper integrals												
		C06	Able to Solve the discrete model problems using Z-transforms												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	2	1						3				2	
	C02	3	3	3						3				3	2
	C03	2	3	3						2					
	C04	3	3	2						3					2
	C05	3	3	3						2				3	
C06	3	2	1						2				2	1	

R13208	PROFESSIONAL ETHICS & HUMAN VALUES	C01	Able to introduce the basic philosophy of morals, values and ethics to the students that is relevant to resolving moral issues in engineering												
		C02	Able to impart reasoning and analytical skills needed to apply ethical concepts to engineering decisions												
		C03	Able to identify the moral issues involved in both management and engineering areas, and to provide an understanding of the interface between social, technological and natural environments												
		C04	Able to understand the unethical errors committed by the engineers in the implementation of the engineering projects.												
		C05	Able to minimize the occupational crimes in the corporate sector by the budding engineers and make them uncorrupted.												
		C06	Able to Focus on intellectual property rights and ethical engineering.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	1			1	1			3			1	1	2	1
	C02	2			2	1			2			3	2	1	2

C03	1			3	1			2			1	1	2	1
C04	2			1	2			2			1	1		2
C05	2			1	1			3			1	1		1
C06	1			1	2			3			1	1	1	2

R13209	ENGG. DRAWING	C01	Able to understand different scales used in industry and draw various curves.													
		C02	Able to recognize principles of projections to draw orthographic projections.													
		C03	Able to interpret the projection principles to draw projections of straight lines.													
		C04	Able to understand the various ways to draw projection of planes.													
		C05	Able to draw projections of solids by applying principles of orthographic projections and isometric projections													
		C06	Able to convert isometric views into orthographic views and orthographic views to isometric views													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	3	2						1			1	1		
	C02	3	2	2						1			1	1	2	
	C03	3	2	2						1			1	1	2	
	C04	2	2	2						1			1	2	2	
	C05	2	2	3						1			1	3	1	
	C06	2	2	3						1			1	1	1	

R13213	ENGLISH-COMMUNICATION SKILLS LAB-II	C01	Ability to analysis a topic of discussion & reading to it.													
		C02	Ability to participate in discussion & influence them.													
		C03	Ability to communicate ideas effectively.													
		C04	Ability to present opinions coherently within a stipulated time.													
		C05	Ability to speak clearly & coordinate with them.													
		C06	Ability to improve upon English language pronunciation.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01						2		2	3	3		3	2		
	C02						2		2	3	3		3	3	2	
	C03						2		2	3	3		3			
	C04						2		2	3	3		3		2	
	C05						2		2	3	3		3	3		
	C06						2		2	3	3		3	2	1	

	C01	Able to under stand basic knowledge fphysics &experimental experience like sound, acceleration &time.												
	C02	Able to understand basic electronics & experimental experience of electrical circuits.												

R13214

ENGINEERING PHYSICS LAB

C03	Able to understand electromagnetism and experimental experience.
C04	Able to understand the light properties & experimental experience of interference & diffraction.
C05	Able to understand basic electronics & experimental experience of electrical circuits.
C06	Able to understand electromagnetism and experimental experience.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	3	3	2	2			3					3	2
C02	2	2	2	3	2			3					3	2
C03	3	2	2	2	3			3						2
C04	2	2	3	3	3			2					3	2
C05	3	2	3	2	2			3					1	1
C06	3	3	2	2	1			3					2	1

R13216

ENGINEERING WORKSHOP & IT WORKSHOP

C01	To select suitable carpentry tools to prepare different types of joints.
C02	To identify tools required in the fitting operation to perform joint preparations.
C03	To understand the process of making different objects with thin sheets using proper tin smithytools.
C04	To differentiate single phase, 3 phase wiring connections.
C05	Identify the basic computer peripheral and gain sufficient knowledge on assembling and disassembling aPC.
C06	Learn the installation procedure of Windows and Linux OS, Acquire knowledge on basic networking infrastructure and acquire knowledge on basics of internet and worldwide web.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	3				2		2				3	2	
C02	3	3				2		2				3	3	2
C03	3	3				2		2				3		
C04	3	3				2		2				3		2
C05	3	3				2		2				3	3	
C06	3	3				2		2				3	2	1

ANCIAL ANALYSIS

C01	Able to Introduce Managerial Economics to engineering students, concepts of demand like law determinants.
C02	Able to evaluate the student knowledge of production & cost estimation.
C03	Able to introduce markets, theory of the firm and pricing policies in different markets.
C04	Able to know the different forms of business organization and their merits and demerits of both public and private enterprises.

RT21034	MANAGERIAL ECONOMICS & FIN.	C05	Able to understand the different accounting systems preparation of financial statements.													
		C06	Able to understand the concepts of capital, capitalization techniques used to evaluate capital budgeting.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	1										1	2	1
		C02	2	2	2									1	2	2
		C03	1	2	2	1								1	2	1
		C04	1	2	2	2								1	2	2
C05	1	2	2	2					1		1	1	2	1		
C06	1	2	2	2					1		1	1	2	2		

RT21042	DATA STRUCTURES	C01	Able to Define basic static and dynamic data structures and infer searching and sorting algorithms												
		C02	Able to Infer appropriate data structures like stacks or queues in simple programs or program parts												
		C03	Demonstrate usage of linked list in real world applications.												
		C04	Illustrate binary trees with examples.												
		C05	Relate binary trees, Binary search trees, and threaded binary tree.												
		C06	Apply algorithms for finding shortest path in graphs.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
C01	2	3	2	2									2		
C02	2	2	3											2	
C03		2		2	2							3	2		
C04	2	2			2							2			
C05		2										2	2		
C06	2			2								3		2	

RT21041	TRONIC DEVICES AND CIRCUITS	C01	To understand the basic concepts of semiconductor physics, which are useful to understand the operation of diodes and transistors												
		C02	To explain the operation and characteristics of PN junction diode and special diodes.												
		C03	Ability to understand operation and design aspects of rectifiers												
		C04	understand the characteristics of various transistor configurations and FETs												
		C05	To become familiar with different biasing, stabilization, compensation techniques used in transistor circuits.												
		C06	Develop a transistor linear circuit model at low frequencies thus explore the frequency response of Amplifiers												

ELEC		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	C01		3												3	
	C02		3												3	
	C03	3	3												3	
	C04		3													3
	C05		3													2
	C06			2												2

R13211	NETWORK ANALYSIS															
		C01	Use different circuit solving techniques like mesh analysis, nodal analysis, voltage division and current division.													
		C02	Analyze and design series and parallel A.C. circuits using different design parameters.													
		C03	Understand coupled circuits and resonance and design resonant circuit as per given parameters.													
		C04	Solve D.C. and A.C. circuits using different theorems like Thevenin's, Norton's, Maximum Power transfer theorems.													
		C05	Create different two port networks using two port network parameters like Impedance, admittance, h-parameters, and ABCD parameters.													
		C06	Analyze the switching behavior of both inductor and capacitor in time domain and Laplace transform.													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C01		3	2										3	2	3	
C02				3										2	3	
C03				3										3	2	
C04		3											3	3	3	
C05			2	3										3	3	
C06		3											3	3	3	

RT21044	SIGNALS AND SYSTEMS															
		C01	Describe signals mathematically and understand how to perform different operations on signals, understand principles of vector spaces, Concept of orthogonality.													
		C02	Analyze the continuous-time signals and continuous-time systems using Fourier series. Analyze the response of LTI systems to various signals.													
		C03	Apply sampling theorem to convert continuous-time signals to discrete-time signal and reconstruct the signal.													
		C04	Classify systems based on their properties and determine the response of LTI system. Understand the concept of stability.													
		C05	Compute Laplace transforms to analyze continuous time signals and systems and understand the concept of region of convergence.													
		C06	Calculate z-transform to analyze discrete-time signals and systems, and understand the concept of region of convergence.													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C01		3	3	2									2	3	3	
C02		3		2										3	3	
C03				3									3	2	2	
C04		3												2	3	
C05			2										2	3	3	
C06			2										2	3	3	

C01	Able to understand the principles of electro mechanical energy conversion.													
C02	Able to explain the operation of DC generator and analyze the characteristics of DC generator.													

RT21041	ELECTRICAL TECHNOLOGY	C03	Able to explain the principle of operation of DC motor and analyze their characteristics. Acquire													
		C04	Capability to develop equivalent circuit and evaluate performance of transformers.													
		C05	Ability to analyze speed-torque characteristics of induction motor and understand starting													
		C06	Capability to understand the operation of various special machines.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	2	1									1		
		C02	3	2	1									1		
	C03	3	2	1									1			
	C04	3	2	1									1			
	C05	3	2	1									1			
C06	1	1	1									1				

RT31022	MANGIERAL ECONOMICS AND FINANCIAL	C01	Understanding basics of Managerial Economics and concepts of demand.													
		C02	Remembering the concepts of production & cost and applying breakeven analysis to determine br													
		C03	Analyzing different market structures to determine pricing.													
		C04	Evaluating different forms of business organization.													
		C05	Applying accounting principles to know the financial position of the business organization.													
		C06	Create awareness about capital budgeting method to determine project worth.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01											2	2			
	C02		2									2	2			
	C03												2			
C04						3	2				2	2				
C05			2	2						2	2	2				
C06				2	2						3	2				

RT22028	ELECTRONIC DEVICES AND CIRCUITS LAB	C01	Provides an ability to recognize and verify functioning of various passive elements, CRO probes and													
		C02	Understand the characteristics of various diodes like PN- Junction diode, Zener diode and LED's													
		C03	Verify the working of different transistors and identifies the procedure of doing the experiment.													
		C04	Design the power supply circuits with basic semiconductor devices (active & passive elements) me													
		C05	Ability to measure and record the experimental data, analyze the results, and prepare a formal lab													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01			3	2		2							3	
	C02			3	2		2							3		
	C03			3	2									2		
	C04			3	2										2	
C05			3	3		3								2		

		C01	Able to understand the electrical network theorems.													
--	--	-----	---	--	--	--	--	--	--	--	--	--	--	--	--	--

RT	NETWORKS AND ELECTRICAL TECHNOLOGY LAB	C02	Able to explain the time response of RL/RC Networks.													
		C03	Able to understand the Two port network parameters analytical verification.													
		C04	Able to understand about the operation and performance of DC Machines.													
		C05	Able to understand about the operation and performance of Transformers.													
		C06	Ability to understand about performance characteristics of AC Machines.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	1	1		1				1	1			
C02	2	2	1	1						1	1	1				
C03	2	1	1							1						
C04	2	1	1			1		1								
C05	3	2	1				1			1	1					
C06	2	1		1						1						

R1622041	ELECTRONIC CIRCUIT ANALYSIS	C01	To Analyse and Remember the different parameters of BJT and FET at high frequencies												
		C02	To Design the multistage amplifiers under different coupling techniques												
		C03	To identify the type of negative feedback technique and formulate the Gain, Input and Output Impedances of different negative feedback Techniques												
		C04	To Understand and Design low frequency Oscillators using BJT and FET												
		C05	To Classify the Power amplifiers and Compare them in terms of efficiency.												
		C06	To Explain the different types of Tuned Amplifiers and their effects of Cascading.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
C01	3	2			2								3	2	
C02	3	3		2									3	2	
C03	3	2		3									2	3	
C04				3	3								3	2	
C05	2	3		3									3	2	
C06		3		2	3								2	3	

ONS	C01	To understand the concepts of analog communication systems.												
	C02	To analyse the different amplitude modulation and demodulation schemes in terms of spectral characteristics.												
	C03	To discriminate frequency modulation and amplitude modulation												

C06	2	3												2
-----	---	---	--	--	--	--	--	--	--	--	--	--	--	---

RT22022	SWITCHING THEORY AND LOGIC DESIGN	C01	To Understand the different number systems, binary arithmetic operations, r's complement repre												
		C02	To Apply different switching algebra theorems for logic functions and perform the reduction of log												
		C03	To Evaluate the combinational logic circuits: Decoder, Encoder, Multiplexer, Comparator and etc.												
		C04	To Memorize the combinational circuit design procedure and Apply the procedure to Design simpl												
		C05	To Analyse an element, different latches, flip-flops, registers and Design different modulus counte												
		C06	To Design the state machines and to perform simple projects with a few flip-flops.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01		2										2	1	2
	C02			2					2					2	1
	C03			3									2	2	2
	C04		3											2	1
	C05				3								2	2	2
	C06				3									2	1

RT32025	MANAGEMENT SCIENCE	C01	Understanding basics of management & organization												
		C02	Remembering principles of management and applying the concepts of work study and SQC to imp												
		C03	Analyze the functions of HRM and marketing.												
		C04	Applying PERT & CPM techniques to solve project management problems.												
		C05	Evaluating SWOT Analysis for formulating and implementing strategies.												
		C06	Creating awareness about modern or contemporary management practices.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01									2	2	2	2		
	C02										2	2	2		
	C03									2	3	2	2		
	C04			2							2	3	2		
	C05										2	2	2		
	C06					2					2	2	2		

RT22046	ELECTRONIC CIRCUITS AND ANALYSIS LAB	C01	Ability to simulation of various amplifier circuits.														
		C02	Designing oscillators of desired frequency														
		C03	Learn the effects of negative feedback.														
		C04	Practical evaluation of characteristics of high input impedance circuits.														
		C05	Verification of frequency sensitive nature of small signal, feedback and power amplifiers.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01			2	2		3						2	2	3		
	C02			2	2		3							2			
	C03			3	2								2	3			
	C04			3	2		3						2	3			
	C05			3	3		3						2		3		

C03	3	2	3										3	2
C04	3	2	3										3	3
C05	3												2	2
C06		2											2	2

RT31049

DIGITAL SYSTEM DESIGN AND DIGITAL IC APPLICATIONS LAB	C01	To understand the internal logical structure of Digital Integrated Circuits												
	C02	To learn the IEEE Standard Hardware Description Language.												
	C03	To develop VHDL/Verilog HDL Source code for Digital Integrated Circuits at several levels of abstractions, behavioural, structural												
	C04	To design and analyze basic digital circuits with combinatorial and sequential logic circuits using VHDL												
	C05	To perform simulation and analyze synthesis results using Equivalent Industry Standard Software.												
	C06	To verify and implement the logical operations on the latest FPGA Hardware.												

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01		2							3				3	2
C02		3							3				3	2
C03			3						3				2	3
C04			3						3				3	2
C05					3				3			3	2	3
C06			3		2				2			3	2	3

RT31048

LINEAR IC APPLICATIONS LAB	C01	To Understand the basic Mathematical operations of Operational Amplifier												
	C02	To Design and Observe the frequency response of Active Filters.												
	C03	To Measure the theoretical and practical frequency of oscillations of oscillators using Operational Amplifier												
	C04	To construct different Waveform Generators using Operational Amplifier and 555 Timer												
	C05	To Experiment with different Voltage Regulators IC's.												
	C06	To Build different Analog –Digital Converters and Digital – Analog Converters												

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2											3	2
C02		3							3			2	3	2
C03				3					3				2	3
C04				3					3				3	2
C05			2									3	2	3
C06			3						2			3	2	3

C01	To understand the concept of Linear & Non-Linear wave shaping circuits													
-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--

RT32056	IPR AND PATENT	C05	Identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautions steps to be taken to prevent infringement of proprietary rights in products and technology development													
		C06	Understanding, Identify various cybercrimes in online networks													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01					1		2							
		C02					1		2							
		C03					1		2							
		C04					1		2							
	C05					1		2								
	C06					1		2								

C05														
C06														

RT32045	VLSI DESIGN	C01	Identify the trends in MOS Technology, and how it impacts on fabrication and basic electrical prop												
		C02	Perceive about the knowledge of MOS layers, stick diagrams, layouts, and fabrication design rules												
		C03	Illustrate the basic circuit concepts like MOS transistor switching and to be aware of scaling of MO												
		C04	Categorize digital sub-systems using MOS circuits (Static and Switching characteristics of inverters												
		C05	Assess the concepts related to design issues like ASIC design flow, FPGA design flow and mixed sig												
		C06	Design of digital systems on FPGA platform and finally with, Design for Testability												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	C01	2		3		3								2	2
	C02		2	3			2							3	2
	C03	2	3	2										3	2
	C04					3								3	3
	C05				3								2	3	3
	C06			3									3	3	3

RT32053	COMPUTER NETWORKS	C01	Summarize the basic terminology and various protocols used in the networking as well as standards existed in the networking technology												
		C02	Demonstrate various techniques used in physical transmission of data without errors and various formats used in the packetization of data.												
		C03	Explain the design issues and protocols related to data transfer.												
		C04	Compare and Select the appropriate protocols used for controlling the medium access amongst nodes on a shared medium, controlled data transmission and routing methods												
		C05	Examine various transport layer protocols and its application in computer networks.												
		C06	Analyze the application areas of networking such as network security and maintenance that suits the requirements of an organization.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1

CELL	C01	3		2		2							3	2
	C02		3	3		3							3	2
	C03		3	3	3	3							2	3
	C04			3		2							3	2
	C05			3	3	3							3	2
	C06		3	3		3							3	2

RT42044A	WIRELESS SENSOR NETWORKS	C01	Describe the functions and usage of sensors especially for various sensing applications and be acc												
		C02	Illustrate various wireless standards and communication protocols on the Physical link layers												
		C03	Evaluate the medium access control protocols of wireless networks suitable for WSNs												
		C04	Explore key routing protocols for sensor networks and main design issues												
		C05	Understand and Learn transport layer protocols for sensor networks, and design requirements												
		C06	Analyze the design aspects of WSNs in terms of hardware and software.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01			3										3	
	C02			3										3	
	C03			3		2								2	
	C04			3		2								3	
	C05			3		2								3	
	C06			3		3									2

RT42042	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	C01	To select the instrument to be used based on the requirements.												
		C02	To Understand and analyse different signal generators and analysers												
		C03	To Illustrate the design of oscilloscopes for different applications.												
		C04	To Analyse various bridges and its applications												
		C05	To Choose different transducers for measurement of different parameters.												
		C06	To Measure the physical parameters like pressure, humidity, velocity etc												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3		3								2	3	3	
	C02	3							3				3	2	
	C03		3	3					3				2	2	
	C04		2			2						3	2	2	
	C05			3		2						3	3	3	
	C06	2		3								3	3	2	

IONS	C01	Identify the fundamentals of orbital mechanics, the characteristics of common orbits used by com												
	C02	Understand the systems required by a communications satellite to function and the trade-offs and limitations encountered in the design of a communications satellite system.												
	C03	Develop commands, monitoring power systems and understand the radio propagation channel for												
	C04	Calculate an accurate link budget for a satellite or other wireless communications link and able to calculate multiple access techniques like TDMA, CDMA, FDMA, DAMA.												

RT42043

SATELLITE COMMUNICAT

C05	Evaluate how analog and digital technologies are used for satellite communications networks and the topologies and applications of those networks, as well as to design different kinds of transmitter and receiver antennas.
C06	Demonstrate the impacts of GPS, Navigation, NGSO constellation design for tracking and launching

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01		2											2	3
C02	3	2											3	3
C03		3	3										3	2
C04		3	2										3	3
C05	3		3										2	2
C06	3		3										2	2

RT42025

PROJECT

C01	The student will be able to demonstrate a sound technical knowledge of their selected project topic
C02	The student will be able to understand problem identification, formulation and solution
C03	The student will be able to design engineering solutions to complex problems utilizing a systematic approach
C04	The student will be able to conduct an engineering project
C05	The student will be able to communicate with engineers and the community at large in written and oral forms
C06	The student will be able to demonstrate the knowledge, skills and attitudes of a professional engineer

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2			2							2		2	2
C02		2		2							2		2	2
C03			2	2							2		2	2
C04			2	2							2		2	2
C05									2	2	2		2	2
C06										2	2		2	2

