

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12	
	Engineering Graphics	S235.1	Recognize the value of engineering graphics as a language of communication and understanding BIS conventions of lettering, lines and dimensioning; Develop an engineering curve using different approaches.	2	1	2		3	2			3	2		1	
		S235.2	Comprehend the basics of orthographic projections and deduce orthographic projections of a point and a line.	3	2	2		3				3	2		1	
		S235.3	Visualize and deduce orthographic projections of planes	2	3	2		3				3	2		1	
		S235.4	Visualize wide variety of solid objects and drawing the missing views.	2	3	2		3				3	2		1	
		S235.5	Understand the significance of isometric drawing; apply the basic method of isometric drawing; infer the nature of engineering graphics, the relationship between 2D and 3D environments.	3	3	3		3	2			3	3		1	
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.				3						3	3		2
		L144.2	Articulate English with good pronunciation.				3						3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.				3						3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.				3						3	3		2
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the	2	3	1	1	1			1		1		2	

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			development environment.													
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1			1		1		2	
		L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1			1		1		2	
	Engineering Chemistry Lab	L140.1	Assess quality of water based on the procedures given.	3	3		2		2	2						
		L140.2	Perform different types of titrations in volumetric analysis	2	3											
		L140.3	Apply the principles of polymerization in the preparation of polymers.	3	2											
		L140.4	Exhibit skills in performing experiments based on theoretical fundamentals.	2	2											
	Basic Simulation Lab.	L114.1	Understand the different parts of a Lab VIEW program	1	2			3							1	
		L114.2	Learn simple debugging techniques	1	3			3							2	
		L114.3	Learn how to make decisions in Lab VIEW	1	2			3							1	
		L114.4	Learn how to create an executable file with Lab VIEW	1	2			3							1	
	E ENGINEERI	English – II	S240.1	Use English language effectively in written and spoken English						2			3	3		2
			S240.2	Express the right ideas in right context .						2			3	3		2
			S240.3	Manage the situation and negotiate business with good English communication						2			3	3		2

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	Basic Electronics Engineering	S238.5	Interpret the phenomenon of Super conductivity and their uses.	3	3		2	1							3	
		S145.1	Apply various semiconductor devices in engineering fields.	2	2	2										1
		S145.2	Analyze the operation and structure of the various electronic circuits.	2	2											
		S145.3	Examine the parameters and characteristics related to OP-AMP.	2	2											1
		S145.4	Apply the techniques of data conversion and timer operation.	2	2											
		S145.5	Analyze the basic digital electronic circuits	2	2											1
	Introduction to Engineering Mechanics	S282.1	Solve the different types of force systems under equilibrium condition	3	3	3	2						3	3	3	2
		S282.2	Analyze the effect of friction on bodies in static condition	3	3	3	3						2	2	3	3
		S282.3	Determine the area moment of inertia for various cross-sections	3	3	3	2						2	3	2	3
		S282.4	Determine the mass moment of inertia for various 3-D bodies	3	3	3	3						2	2	1	3
		S282.5	Analyze motion of bodies and their projectiles.	3	3	3	3						2	2	1	3
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelenth of light.	3	3	2	2						3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3
		L142.3	Determine the frequency of AC source.	3	3								3			3
		L142.4	Describe resonance and formation of stationary waves by using Melde's	3	3								3			3

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	Computer Aided Engineering Graphics Lab.		arrangement.													
		L124.1	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.					3				1		2	1	
		L124.2	Apply this idea and make design and modifications as required.					3				1		2	1	
		L124.3	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD					3				1		2	1	
		L124.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects					3				1		2	1	
	Engineering Workshop	L143.1	Model and Develop various basic prototypes in the carpentry trade	3		2	3	3	3				3			2
		L143.2	Develop various basic prototypes in the trade of Welding	3		2	3	3	3				3			2
		L143.3	Fabricate various basic prototypes in the trade of Tin smithy	3		2	3	3	3				3			2
		L143.4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3		2	3	3	3				3			2
	Basic Electronics Lab.	L122.1	Analyse the behavior of electronic circuits.	2	2		3						3	3		1
		L122.2	Identify a suitable electronic circuit for a particular application.	2	2	2	3						3	3		2
		L122.3	Illustrate the characteristics of various semiconductor devices	2	2		3						3	3		1
		L122.4	Design transistor & FET amplifier circuits	3	2	2	3						3	3		1

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	Engineering Chemistry	S232.1	Identify the troubles due to hardness of water and its maintenance in industrial applications.	3	3	2			2	1					2		
		S232.2	Analyse fuels, differentiate working of IC and diesel engines and identify the significance of flue gas analysis.	3	3	2			2	1						2	
		S232.3	Apply principles of corrosion and design and effective maintenance of various equipments.	3	2	3			2	1							2
		S232.4	Identify the importance of plastics and rubbers in technological applications.	3	2	2			2	1							2
		S232.5	Apply the principles of green chemistry and be able to use suitable liquid crystals in technology.	3	2	2			3	2							2
	Computer Programming	S170.1	Identify basic elements of C program structure (data types, expressions, control statements, various simple functions) in view of using them in problem solving.	2	3	1											1
		S170.2	Apply various operations on derived data types like arrays and strings in problem solving.	2	3	2											1
		S170.3	Design and Implement modular programming and memory management using pointers.	2	3	2											1
		S170.4	Implement user defined data structures used in specific applications.	2	3	2											1
		S170.5	Compare different file I/O operations on text and binary files.	2	3	2											1
Engineering Graphics	S235.1	Recognize the value of engineering graphics	2	1	2		3	2			3	2			1		

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			as a language of communication and understanding BIS conventions of lettering, lines and dimensioning; Develop an engineering curve using different approaches.													
		S235.2	Comprehend the basics of orthographic projections and deduce orthographic projections of a point and a line.	3	2	2		3				3	2		1	
		S235.3	Visualize and deduce orthographic projections of planes	2	3	2		3					3	2		1
		S235.4	Visualize wide variety of solid objects and drawing the missing views.	2	3	2		3					3	2		1
		S235.5	Understand the significance of isometric drawing; apply the basic method of isometric drawing; infer the nature of engineering graphics, the relationship between 2D and 3D environments.	3	3	3		3	2				3	3		1
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.					3					3	3		2
		L144.2	Articulate English with good pronunciation.					3					3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.					3					3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.					3					3	3		2
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1				1		1		2

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		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1			1		1		2	
		L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1			1		1		2	
	Engineering Chemistry Lab	L140.1	Assess quality of water based on the procedures given.	2	3											
		L140.2	Perform different types of titrations in volumetric analysis	3	2											
		L140.3	Apply the principles of polymerization in the preparation of polymers.	2	2											
		L140.4	Exhibit skills in performing experiments based on theoretical fundamentals.													
	Computer Aided Engineering Graphics Lab	L124.1	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.						3				1		2	1
		L124.2	Apply this idea and make design and modifications as required.						3				1		2	1
		L124.3	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD						3				1		2	1
		L124.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects						3				1		2	1
G DEPAR	English – II	S240.1	Use English language effectively in written and spoken English						2			3	3		2	
		S240.2	Express the right ideas in right context .						2			3	3		2	

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		S238.4	Classify the different types of magnetic materials and their applications.	3	3	3	2	2							3	
		S238.5	Interpret the phenomenon of Super conductivity and their uses.	3	3		2	1								3
	Applied Mechanics	S135.1	Simplify the system of forces and moments to equivalent systems and determine the resultant of a system	3	3						3					1
		S135.2	Construct free body diagrams and develop appropriate equilibrium equations	3	3						3					1
		S135.3	Locate centroid and determine moment of inertia for composite areas	3	3						3					1
		S135.4	Analyze systems with friction.	3	3						3					1
		S135.5	Determine the relations of particles under projectile motion	3	3						3					1
	Building Materials and Construction	S150.1	Assess the several properties of stones, bricks, cement and tiles used in construction.	2						3	3	3	2			2
		S150.2	Understand different types of brick and stone masonry in building construction	2						3	3	3	2			2
		S150.3	Gain knowledge on building components.	2						3	3	3	2			2
		S150.4	Know the various finishing's in building construction	2						3	3	3	2			2
		S150.5	Exposed to finishing of buildings	2						3	3	3	2			2
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelenth of light.	3	3	2	2						3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3
		L142.3	Determine the frequency of AC source.	3	3								3			3

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SCIENCE ENGINEERING	Building Planning and Computer Aided Drawing	L142.4	Describe resonance and formation of stationary waves by using Melde's arrangement.	3	3							3			3	
		L115.1	Draw different components of buildings with appropriate sign conventions					2	2	1						1
	L115.2	Understand the terminology used in building drawing					2	2	1						1	
	Engineering Workshop	L143.1	Model and Develop various basic prototypes in the carpentry trade	3		2	3	3	3				3			2
		L143.2	Develop various basic prototypes in the trade of Welding	3		2	3	3	3				3			2
		L143.3	Fabricate various basic prototypes in the trade of Tin smithy	3		2	3	3	3				3			2
		L143.4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3		2	3	3	3				3			2
	IT Workshop	L154.1	Develop skill in S/W and H/W trouble shooting, and solve the problems of assembling and OS installation.	1			1					1	3	1		2
		L154.2	Develop skill in using office suite.	2			1	3				1	1	1		2
		L154.3	Develop skill in using tools like RAPTOR, LaTeX and adobe Photoshop.	1			1	3				1	1	3		2
	English – I	S239.1	Read, write and aptly understand what ever is written and spoken in English						2				3	3		2
		S239.2	Speak fluently with acceptable pronunciation and write using appropriate words, spellings, grammar and syntax						2				3	3		2

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		S239.3	Read the lines, between lines and beyond lines excelling in comprehension skills						2			3	3		2	
		S239.4	Draft Reports, memos, mails & letters as part of their work						2			3	3		2	
		S239.5	Speak grammatically error free English						2			3	3		2	
	Applied Mathematics - I	S132.1	Apply first order and first degree differential equation to calculate orthogonal trajectories and current flow in a simple LCR circuit.	3	2	2										2
		S132.2	Discriminate among the structure and procedures of solving a higher order D.E with constant coefficients and variable coefficients.	3	2	2										2
		S132.3	Compute the Jacobians and Maxima and Minima (with constraints and without constraints) for functions of severable variables.	2	2	1										2
		S132.4	Distinguish among the Pros and Cons between the Row operation methods and Iterative methods in solving system of linear equations.	3	2	2										2
		S132.5	Compute the Eigen values and Eigen vectors and powers, Inverse of a square matrix through Cayley –Hamilton theorem.	3	2	2										2
	Engineering Chemistry	S232.1	Identify the troubles due to hardness of water and its maintenance in industrial applications.	3	3	2				2	1					2
		S232.2	Analyse fuels, differentiate working of IC and diesel engines and identify the significance of flue gas analysis.	3	3	2				2	1					2

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	English Communication Lab	S143.5	Analyse the parameters of electrical signals	3	2		3	1							1	
		L144.1	Withstand the global competition in the job market with proficiency in English communication.				3						3	3		2
		L144.2	Articulate English with good pronunciation.				3						3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.				3						3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.				3						3	3		2
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1				1		1		2
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1				1		1		2
		L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1				1		1		2
	Engineering Chemistry Lab	L140.1	Assess quality of water based on the procedures given.	3	3		2			2	2					
		L140.2	Perform different types of titrations in volumetric analysis	2	3											
		L140.3	Apply the principles of polymerization in the preparation of polymers.	3	2											
		L140.4	Exhibit skills in performing experiments based on theoretical fundamentals.	2	2											
	Works ho	L154.1	Develop skill in S/W and H/W trouble	1			1					1	3	1		2

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			ADT. Analyse example programs with data structures using analysing tools.														
		S178.2	Develop & analyse the algorithms for stack and queue operations leading to applications.	3	3	2										1	
		S178.3	Analyse, implement and compare searching and sorting Techniques.	3	3	1											1
		S178.4	Design & analyse algorithms for operations on Binary Search Trees & AVL Trees data structures.	3	3	2	1										1
		S178.5	Evaluate Graph traversal and Minimum cost spanning tree algorithms and compare hashing methods on hash table data structure.	3	3	2	1										1
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelenth of light.	3	3	2	2						3			3	
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3	
		L142.3	Determine the frequency of AC source.	3	3								3			3	
		L142.4	Describe resonance and formation of stationary waves by using Melde's arrangement.	3	3								3			3	
	Digital Electronics Lab	L131.1	Design and Test the functionalities and Properties of Basic Gates, Universal Gates and Special Gates using Logisim Software.	2	1	3	1	3				1	1	1			
		L131.2	Design and verify functionalities of basic building blocks used in Combinational logic circuits	1	2	3	1	3				1	1	1			

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	Computer Aided Engineering Drawing	L131.3	Design and verify functionalities of basic building blocks used in Sequential logic circuits	1	2	3	1	3			1	1	1			
		L123.1	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.					3				1		2	1	
		L123.2	Apply this idea and make design and modifications as required.					3				1		2	1	
		L123.3	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD					3				1		2	1	
		L123.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects					3				1		2	1	
	Data Structures Lab	L128.1	Implement & test the functionality of data structures like linked list, stacks & queues .	3	3	1	1					1	1	1		1
		L128.2	Implement & test the functionality of searching & sorting techniques.	3	3	1	1					1	1	1		1
		L128.3	Implement & test the functionality of trees and graph traversal techniques.	3	3	1	1					1	1	1		1
	AND COMMUNICATION ENGINEERING	English – I	S239.1	Read, write and aptly understand what ever is written and spoken in English						2			3	3		2
			S239.2	Speak fluently with acceptable pronunciation and write using appropriate words, spellings, grammar and syntax						2			3	3		2
S239.3			Read the lines, between lines and beyond lines excelling in comprehension skills							2			3	3		2
S239.4			Draft Reports, memos, mails and letters as							2			3	3		2

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	C programming Lab		circuits.												
		L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1			1		1		2
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1			1		1		2
	L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1			1		1		2	
	Engineering Workshop	L143.1	Model and Develop various basic prototypes in the carpentry trade	3		2	3	3	3			3			2
		L143.2	Develop various basic prototypes in the trade of Welding	3		2	3	3	3			3			2
		L143.3	Fabricate various basic prototypes in the trade of Tin smithy	3		2	3	3	3			3			2
		L143.4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3		2	3	3	3			3			2
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelenth of light.	3	3	2	2					3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2					3			3
		L142.3	Determine the frequency of AC source.	3	3							3			3
		L142.4	Describe resonance and formation of stationary waves by using Melde's arrangement.	3	3							3			3

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		S170.3	Design and Implement modular programming and memory management using pointers.	2	3	2									1	
		S170.4	Implement user defined data structures used in specific applications.	2	3	2										1
		S170.5	Compare different file I/O operations on text and binary files.	2	3	2										1
	Basic Engineering Mechanics	S146.1	Apply the principles of free body diagrams & equilibrium conditions in industries while designing any component	3	2		2	2								
		S146.2	Identify the forces and moments acting on rigid body	3	2		2	2								
		S146.3	Solve the static equilibrium of rigid bodies	3	2		2	2								
		S146.4	Estimate the trajectory and range of missiles in defense	3	2		2	2								
	Computer Aided Engineering Drawing	L123.1	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.					3					1		2	1
		L123.2	Apply this idea and make design and modifications as required.					3					1		2	1
		L123.3	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD					3					1		2	1
		L123.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects					3					1		2	1

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CTR ONI CS	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1			1		1		2	
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1			1		1		2	
		L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1			1		1		2	
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelength of light.	3	3	2	2						3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3
		L142.3	Determine the frequency of AC source.	3	3								3			3
		L142.4	Describe resonance and formation of stationary waves by using Melde's arrangement.	3	3								3			3
	Engineering Workshop	L143.1	Model and Develop various basic prototypes in the carpentry trade	3		2	3	3	3				3			2
		L143.2	Develop various basic prototypes in the trade of Welding	3		2	3	3	3				3			2
		L143.3	Fabricate various basic prototypes in the trade of Tin smithy	3		2	3	3	3				3			2
		L143.4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3		2	3	3	3				3			2
			S240.1	Use English language effectively in written and spoken English						2			3	3		2

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		S240.2	Express the right ideas in right context .						2			3	3		2	
		S240.3	Manage the situation and negotiate business with good English communication						2			3	3		2	
		S240.4	Think and analyze the situations and make good presentations of their work and decisions						2				3	3		2
		S240.5	Prepare oneself to face interviews and also to participate in group discussions.						2				3	3		2
		S133.1	Apply Laplace transforms to solve ordinary differential equations	3	2	2										2
	S133.2	Determine the Fourier coefficients in the Fourier series expansion of a given function in both Standard as well as arbitrary intervals.	3	2	2											2
	S133.3	Distinguish Among the three transformation techniques Fourier Transforms, Fourier cosine transforms and Fourier sine transforms.	2	2	1											2
	S133.4	Apply Z-transforms to solve difference equation.	3	2	2											2
	S133.5	Discriminate among Cartesian, polar and spherical coordinate multiple integrals and their respective applications to areas and volumes.	3	2	2											2
	Engineering Chemistry	S232.1	Identify the troubles due to hardness of water and its maintenance in industrial applications.	3	3	2			2	1						2
	S232.2	Analyse fuels, differentiate working of IC and diesel engines and identify the	3	3	2			2	1							2

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12	
St ruc t ur es			structures.													
		S178.5	Evaluate Graph traversal and Minimum cost spanning tree algorithms and compare hashing methods on hash table data structure.	3	3	2	1									1
	Engineering Chemistry Lab	L140.1	Assess quality of water based on the procedures given.	3	3		2		2	2						
		L140.2	Perform different types of titrations in volumetric analysis	2	3											
		L140.3	Apply the principles of polymerization in the preparation of polymers.	3	2											
		L140.4	Exhibit skills in performing experiments based on theoretical fundamentals.	2	2											
	Basic Simulation Lab.	L114.1	Understand the different parts of a Lab VIEW program	1	2			3								1
		L114.2	Learn simple debugging techniques	1	3			3								2
		L114.3	Learn how to make decisions in Lab VIEW	1	2			3								1
		L114.4	Learn how to create an executable file with Lab VIEW	1	2			3								1
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.				3						3	3		2
		L144.2	Articulate English with good pronunciation.				3						3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.				3						3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.				3						3	3		2
			L128.1	Implement & test the functionality of data	3	3	1	1				1	1	1		1

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	Circuit Theory	S156.1	Identify basic electrical components such as resistors, capacitors and inductors and define Ohm's law, Kirchoffs law and Faradays law of electromagnetic induction	3	3											
		S156.2	Describe the Electrical Circuit Concepts, Graph Theory, Concept of Reactance, self and mutual inductance, power factor and j notation	3	3											
		S156.3	Apply Kirchoff's voltage and current laws to the analysis of electric circuits, the concepts of electric network topology to solve circuit problems and different circuit theorems for AC and DC circuits to obtain solutions.	3	3											
		S156.4	Analyze circuits with ideal, independent, controlled voltage and current sources, Series R-L, R-C and R-L-C circuits .	3	3											
		S156.5	Design simple electrical networks and interpret them	3	3											
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1				1		1		2
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1				1		1		2
		L126.3	Design effectively the required programming components that efficiently solve computing problems.	2	3	1	1	1				1		1		2

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12	
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelength of light.	3	3	2	2					3			3	
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2					3			3	
		L142.3	Determine the frequency of AC source.	3	3							3			3	
		L142.4	Describe resonance and formation of stationary waves by using Melde's arrangement.	3	3							3			3	
	Engineering Workshop	L143.1	Model and Develop various basic prototypes in the carpentry trade	3		2	3	3	3				3			2
		L143.2	Develop various basic prototypes in the trade of Welding	3		2	3	3	3				3			2
		L143.3	Fabricate various basic prototypes in the trade of Tin smithy	3		2	3	3	3				3			2
		L143.4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3		2	3	3	3				3			2
	Computer Aided Engineering Drawing	L123.1	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.						3				1		2	1
		L123.2	Apply this idea and make design and modifications as required.						3				1		2	1
		L123.3	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD						3				1		2	1
		L123.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects						3				1		2	1

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ELECTRONICS AND INSTRUMENTATION ENGINEERING SEM II	English – II	S240.1	Use English language effectively in written and spoken English						2			3	3		2			
		S240.2	Express the right ideas in right context .						2				3	3		2		
		S240.3	Manage the situation and negotiate business with good English communication							2				3	3		2	
		S240.4	Think and analyze the situations and make good presentations of their work and decisions							2					3	3		2
		S240.5	Prepare oneself to face interviews and also to participate in group discussions.							2					3	3		2
	Applied Mathematics – II	S133.1	Apply Laplace transforms to solve ordinary differential equations	3	2	2											2	
		S133.2	Determine the Fourier coefficients in the Fourier series expansion of a given function in both Standard as well as arbitrary intervals.	3	2	2											2	
		S133.3	Distinguish Among the three transformation techniques Fourier Transforms, Fourier cosine transforms and Fourier sine transforms.	2	2	1												2
		S133.4	Apply Z-transforms to solve difference equation.	3	2	2												2
		S133.5	Discriminate among Cartesian, polar and spherical coordinate multiple integrals and their respective applications to areas and volumes.	3	2	2												2
	Engineering Chemistry	S232.1	Identify the troubles due to hardness of water and its maintenance in industrial applications.	3	3	2				2	1						2	

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		S178.3	Analyse, implement and compare searching and sorting Techniques.	3	3	1									1	
		S178.4	Design & analyse algorithms for operations on Binary Search Trees & AVL Trees data structures.	3	3	2	1									1
		S178.5	Evaluate Graph traversal and Minimum cost spanning tree algorithms and compare hashing methods on hash table data structure.	3	3	2	1									
	Engineering Chemistry Lab	L140.1	Assess quality of water based on the procedures given.	3	3		2		2	2						
		L140.2	Perform different types of titrations in volumetric analysis	2	3											
		L140.3	Apply the principles of polymerization in the preparation of polymers.	3	2											
		L140.4	Exhibit skills in performing experiments based on theoretical fundamentals.	2	2											
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.				3						3	3		2
		L144.2	Articulate English with good pronunciation.				3						3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.				3						3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.				3						3	3		2
	ELECTRONIC Devices and Circuits Lab	L139.1	Analyze the operation of devices like diodes, transistors and FETs practically.	3					3	2					2	3
		L139.2	Design electronic circuits using basic devices.	3					3	2					2	3

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12
			programming and memory management using pointers.												
		S170.4	Implement user defined data structures used in specific applications.	2	3	2									1
		S170.5	Compare different file I/O operations on text and binary files.	2	3	2									1
	Basic Electrical Engineering	S143.1	Analyze different types of electrical circuits.	1	1	1	2								3
		S143.2	Understand principle of working of different types of Machines	2	1	1	2								3
		S143.3	Use the techniques to measure efficiency and regulation of AC Machines	3	2	1	1								3
		S143.4	Understand the working of electrical and electronics measuring instruments.		1	2	3	2							3
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.				3						3	3	2
		L144.2	Articulate English with good pronunciation.				3						3	3	2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.				3						3	3	2
		L144.4	Face interviews and skillfully manage themselves in group discussions.				3						3	3	2
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1				1		1	2
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1				1		1	2

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12		
			differential equations														
		S133.2	Determine the Fourier coefficients in the Fourier series expansion of a given function in both Standard as well as arbitrary intervals.	3	2	2										2	
		S133.3	Distinguish Among the three transformation techniques Fourier Transforms, Fourier cosine transforms and Fourier sine transforms.	2	2	1											2
		S133.4	Apply Z-transforms to solve difference equation.	3	2	2											2
		S133.5	Discriminate among Cartesian, polar and spherical coordinate multiple integrals and their respective applications to areas and volumes.	3	2	2											2
	Engineering Physics	S238.1	Identify the nature of Interference, Diffraction and Polarization.	3	3		2									3	
		S238.2	Explain the dual nature of matter particle.	3	3		2									3	
		S238.3	Apply the Lasers and Optical fibers in different fields.	3	3	2	2	2								3	
		S238.4	Classify the different types of magnetic materials and their applications.	3	3	3	2	2								3	
		S238.5	Interpret the phenomenon of Super conductivity and their uses.	3	3		2	1								3	
	Electronic s Devices and Circuits	S224.1	Analyze the behaviour of charge particles in semi conductors.	3											2	2	
		S224.2	Gain the knowledge of various Diode characteristics.	3			3		2						2	2	

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		S224.3	Understand the operation of transistor	3			3		2					2	2	
		S224.4	Design the biasing techniques for BJT and FET.	3		3	2							2	2	
		S224.5	Apply the knowledge of diodes for design of rectifiers and regulators.	3		3	2		2					2	2	
	Data Structures	S178.1	Compare normal data type with abstract data type(ADT), explore the sections of ADT. Analyse example programs with data structures using analysing tools.	3	3	1										
		S178.2	Develop & analyse the algorithms for stack and queue operations leading to applications.	3	3	2										1
		S178.3	Analyse, implement and compare searching and sorting Techniques.	3	3	1										1
		S178.4	Design & analyse algorithms for operations on Binary Search Trees & AVL Trees data structures.	3	3	2	1									1
		S178.5	Evaluate Graph traversal and Minimum cost spanning tree algorithms and compare hashing methods on hash table data structure.	3	3	2	1									1
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelenth of light.	3	3	2	2						3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3
		L142.3	Determine the frequency of AC source.	3	3								3			3
		L142.4	Describe resonance and formation of	3	3								3			3

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L ENGIN EERIN	IT Workshop		stationary waves by using Melde's arrangement.														
		L154.1	Develop skill in S/W and H/W trouble shooting, and solve the problems of assembling and OS installation.	1			1				1	3	1		2		
		L154.2	Develop skill in using office suite.	2			1	3				1	1	1		2	
	Computer Aided Engineering Drawing	L154.3	Develop skill in using tools like RAPTOR, LaTeX and adobe Photoshop.	1			1	3				1	1	3		2	
		L123.1	Apply this idea and make design and modifications as required.					3					1		2	1	
		L123.2	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD					3					1		2	1	
		L123.3	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects					3					1		2	1	
		L123.4	Draw different plane and solid geometrical engineering objects and Visualize the sectional views of the objects					3					1		2	1	
		L128.1	Implement & test the functionality of data structures like linked list, stacks & queues .	3	3	1	1						1	1	1		1
		L128.2	Implement & test the functionality of searching & sorting techniques.	3	3	1	1						1	1	1		1
	L128.3	Implement & test the functionality of trees and graph traversal techniques.	3	3	1	1						1	1	1		1	
	English -I	S239.1	Read, write and aptly understand what ever is written and spoken in English							2			3	3		2	
		S239.2	Speak fluently with acceptable							2			3	3		2	

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			pronunciation and write using appropriate words, spellings, grammar and syntax													
		S239.3	Read the lines, between lines and beyond lines excelling in comprehension skills						2			3	3		2	
		S239.4	Draft Reports, memos, mails & letters as part of their work							2			3	3		2
		S239.5	Speak grammatically error free English							2			3	3		2
	Applied Mathematics - I	S132.1	Apply first order and first degree differential equation to calculate orthogonal trajectories and current flow in a simple LCR circuit.	3	2	2										2
		S132.2	Discriminate among the structure and procedures of solving a higher order D.E with constant coefficients and variable coefficients.	3	2	2										2
		S132.3	Compute the Jacobians and Maxima and Minima (with constraints and without constraints) for functions of severable variables.	2	2	1										2
		S132.4	Distinguish among the Pros and Cons between the Row operation methods and Iterative methods in solving system of linear equations.	3	2	2										2
		S132.5	Compute the Eigen values and Eigen vectors and powers, Inverse of a square matrix through Cayley –Hamilton theorem.	3	2	2										2
	Enginee ring Chemis try	S232.1	Identify the troubles due to hardness of water and its maintenance in industrial applications.	3	3	2				2	1					2

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		S232.2	Analyse fuels, differentiate working of IC and diesel engines and identify the significance of flue gas analysis.	3	3	2			2	1					2	
		S232.3	Apply principles of corrosion and design and effective maintenance of various equipments.	3	2	3			2	1						2
		S232.4	Identify the importance of plastics and rubbers in technological applications.	3	2	2			2	1						2
		S232.5	Apply the principles of green chemistry and be able to use suitable liquid crystals in technology.	3	2	2			3	2						2
	Computer Programming	S170.1	Identify basic elements of C program structure (data types, expressions, control statements, various simple functions) in view of using them in problem solving.	2	3	1										1
		S170.2	Apply various operations on derived data types like arrays and strings in problem solving.	2	3	2										1
		S170.3	Design and Implement modular programming and memory management using pointers.	2	3	2										1
		S170.4	Implement user defined data structures used in specific applications.	2	3	2										1
		S170.5	Compare different file I/O operations on text and binary files.	2	3	2										1
	Engineeri ng Graphics	S235.1	Recognize the value of engineering graphics as a language of communication and understanding BIS conventions of lettering, lines and dimensioning; Develop an	2	1	2		3	2			3	2		1	

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			engineering curve using different approaches.													
		S235.2	Comprehend the basics of orthographic projections and deduce orthographic projections of a point and a line.	3	2	2		3				3	2		1	
		S235.3	Visualize and deduce orthographic projections of planes	2	3	2		3					3	2		1
		S235.4	Visualize wide variety of solid objects and drawing the missing views.	2	3	2		3					3	2		1
		S235.5	Understand the significance of isometric drawing; apply the basic method of isometric drawing; infer the nature of engineering graphics, the relationship between 2D and 3D environments.	3	3	3		3	2				3	3		1
	English Communication Lab	L144.1	Withstand the global competition in the job market with proficiency in English communication.					3					3	3		2
		L144.2	Articulate English with good pronunciation.					3					3	3		2
		L144.3	Face competitive exams like GRE, TOEFL, IELTS etc.					3					3	3		2
		L144.4	Face interviews and skillfully manage themselves in group discussions.					3					3	3		2
	C programming Lab	L126.1	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.	2	3	1	1	1				1		1		2
		L126.2	Apply and practice logical formulations to solve some simple problems leading to specific applications.	2	3	1	1	1				1		1		2

Dept .	COURS E	COURS E CODE	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	P O 12		
			differential equations														
		S133.2	Determine the Fourier coefficients in the Fourier series expansion of a given function in both Standard as well as arbitrary intervals.	3	2	2										2	
		S133.3	Distinguish Among the three transformation techniques Fourier Transforms, Fourier cosine transforms and Fourier sine transforms.	2	2	1											2
		S133.4	Apply Z-transforms to solve difference equation.	3	2	2											2
		S133.5	Discriminate among Cartesian, polar and spherical coordinate multiple integrals and their respective applications to areas and volumes.	3	2	2											2
	Engineering Physics	S238.1	Identify the nature of Interference, Diffraction and Polarization.	3	3		2									3	
		S238.2	Explain the dual nature of matter particle.	3	3		2									3	
		S238.3	Apply the Lasers and Optical fibers in different fields.	3	3	2	2	2								3	
		S238.4	Classify the different types of magnetic materials and their applications.	3	3	3	2	2								3	
		S238.5	Interpret the phenomenon of Super conductivity and their uses.	3	3		2	1								3	
	BASIC Mechanica I Engineerin g	S147.1	Distinguishes various metal joining, manufacturing processes and machine tools components							2	2				1	1	
		S147.2	Apply the concepts of centroid, center of	3	3	1				3	1	2					

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	Engineering Thermodynamics		gravity and moment of inertia for plane figures and solid bodies.													
		S147.3	Analyze the concepts of thermodynamics and potential of other sources of energy.	3	3		2		2	1					2	
		S147.4	Comprehends the various fuels and lubricants for various engines.						2	2					1	1
		S147.5	Compare the working of heat engines, steam and gas turbine systems.						2	2					1	1
	Engineering Mechanics	S237.1	Analyze the stability of rigid bodies under different types of force systems through free body diagrams approach.	3	3	1										1
		S237.2	Analyze the stability of rigid bodies in contact under different types of friction and frictional forces	3	2	1										1
		S237.3	Compute the displacement, velocity and acceleration of the particles & Estimate the trajectory and range of projectiles.	3	2	1										1
		S237.4	Analyze the different types of motion and stability of rigid bodies on earth and in space under various force systems and different conditions of velocity and acceleration.	3	3	1										1
		S237.5	Analyze the stability of rigid bodies in motion and their stability using the work – energy principle.	3	3	1										1
	Engineering Physics Lab	L142.1	Explain the concept of diffraction and find the wavelength of light.	3	3	2	2						3			3
		L142.2	Estimate the specific rotation of sugar solution.	3	3	2	2						3			3

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		L113.3	Analyze valve and port timing diagrams in I.C engines.		3		2		2	2					1
		L113.4	Fabricate the different welded joints using different welding techniques and develop the skills to work on different machine tools.	3		3			2	2					1