R17 First Year Courses CO statements and CO PO mappings

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
17CE01	**17CE01.1**	Building Materials and Construction	Identify suitability of stones and bricks as building materials	1	1					1					1
	17CE01.2		Recognize the importance of lime and cement as building materials	1	1					1					1
	17CE01.3		Make out the appropriate masonry and mortar to be used for building construction	1	1										1
	17CE01.4		Pick up the appropriate building components for comfortable construction		1										1
	17CE01.5		Identify the appropriate type of finishing techniques to be used in buildings	1	1				1						1
17CE02	**17CE02.1**	Applied Mechanics	Acquire the knowledge of analyzing force and couple systems with regards to practical applications	2	2										1
	17CE02.2		Analyze and solve the engineering problems for different types of forces acting on rigid bodies in equilibrium conditions	2	2										1
	17CE02.3		Solve the problems associated with frictional forces in different applications	2	2										1

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	17CE02.4		Locate centroid and determine moment of inertia for composite areas and various cross sections	2	2										1
	17CE02.5		Acquire the knowledge to deal with kinematic analysis of particle both in translation and projectile motions	2	2										1
17CE03	**17CE03.1**	**Surveying**	Apply the basic Principles in surveying for conducting Chain and Compass survey	2	2	2									
	17CE03.2		Generate the Elevations and Contours of Different Points in the Field	2	2	2									
	17CE03.3		Compute the Area and Volume of a Given Field	3	2	2									
	17CE03.4		Generalize the Usage of Theodolite and Tacheometry in Civil Engineering Aspects	2	2	1									
	17CE03.5		Evaluate the Requirements for Setting the Curves In Civil Engineering Applications	3	2	2									1
17CE60	**17CE60.1**	**Computer Based Engineering Drawing Lab**	Draw simple objects using functional tools in AutoCAD	2		2		3					1		1
	17CE60.2		Develop and draw the positions and views of points, lines, planes and solids using AutoCAD	2		3		3					1		1
	17CE60.3		Develop and draw the	2		3		3					1		1

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
			orthographic and isometric projections of simple objects using Auto-CAD												
	17CE60.4		Develop and draw the projections of the solids by developing the surfaces using AutoCAD	2		3		3					1		1
17CE61	**17CE61.1**	**Civil Engineering Drafting Techniques Lab**	Draw simple objects based on principles of geometry	1	1										1
	17CE61.2		Develop the projections of an object based on the angles of projection	1	2										1
	17CE61.3		Draft simple objects using ArchiCAD software	1		1		2							1
	17CE61.4		Develop, draw and edit simple objects related to civil engineering applications using ArchiCAD	1		1		2							1
17CE62	**17CE62.1**	**Survey Filed Lab**	Compute linear and angular measurements in the field using chain and compass	2	2		2	2				2	1		
	17CE62.2		Plot a given area using plane table in the field		1		2	2				2	1		
	17CE62.3		Determine the elevations of different points in the field	1	2		2	2				2	1		
17CI01	**17CI01.1**	**Computer Programming**	Identify basic elements of C program structure (data types, expressions, control statements, various simple	2	3	1									1

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
			functions) in view of using them in problem solving.												
	17CI01.2		Apply various operations on derived data types like arrays and strings in problem solving.	2	3	2									1
	17CI01.3		Design and Implement modular programming and memory management using pointers.	2	3	2									1
	17CI01.4		Implement user defined data structures used in specific applications.	2	3	2									1
	17CI01.5		Compare different file I/O operations on text and binary files.	2	3	2									1
17CI02	**17CI02.1**	**Digital Logic Design**	Evaluate digital number systems and use Boolean algebra theorems, Properties and Canonical form for digital logic circuit design	3	3	1									1
	17CI02.2		Apply K-Maps and Tabulation methods for Simplification of Boolean expressions and construct logic circuit	3	3	3	1								
	17CI02.3		Design Combinational logic circuits using Adders, Subtractors, Decoders, Multiplexers and Magnitude	3	3	3	1								

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			Comparators												
	17CI02.4		Design Sequential logic circuits using Flip-flops, Shift registers, Counters and Memory unit	3	3	3	1								
	17CI02.5		Design Programmable logic devices (PROM,PAL,PLA)	2	3	3	1								
17CI05	**17CI05.1**	**Data Structures**	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	-	-	-	-	-	-	-	-	
	17CI05.2		Develop & analyse the algorithms for stack and queue operations leading to applications.	3	3	2	-	-	-	-	-	-	-	-	1
	17CI05.3		Analyse, implement and compare searching and sorting Techniques.	3	3	1	-	-	-	-	-	-	-	-	1
	17CI05.4		Design & analyse algorithms for operations on Binary Search Trees & AVL Trees data structures.	3	3	2	1	-	-	-	-	-	-	-	1
	17CI05.5		Evaluate Graph traversal and Minimum cost spanning tree algorithms and compare hashing methods on	3	3	2	1	-	-	-	-	-	-	-	1

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			hash table data structure.												
17CI60	**17CI60.1**	Computer Programming Lab	Apply control structures of C programming language to solve problems leading to specific applications	2	3	1	1	1							2
	17CI60.2		Design program components to solve computing problems in real-world using arrays,pointers and functions.	2	3	1	1	1							2
	17CI60.3		Design effectively the required programm components that efficiently solve computing problems using structures and files	2	3	1	1	1							2
	17CI60.4		Improve individual / team work skills, communication & report writing skills with ethical values.								2	2	2		
17CI61	**17CI61.1**	IT Workshop	Develop skill in S/W and H/W trouble shooting, and solve the problems of assembling and OS installation.	1			1								2
	17CI61.2		Develop skill in using office suite.	2			1	3							2
	17CI61.3		Develop skill in using tools like RAPTOR, LaTeX and adobe Photoshop.	1			1	3							2
	17CI61.4		Improve individual / team								2	2	2		

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			work skills, communication & report writing skills with ethical values.												
17CI63	**17CI63.1**	Data Structures Lab	Implement & test the functionality of data structures like linked list, stacks & queues .	3	3	1	1	-	-	-	-	-	-	-	1
	17CI63.2		Implement & test the functionality of searching & sorting techniques.	3	3	1	1	-	-	-	-	-	-	-	1
	17CI63.3		Implement & test the functionality of trees and graph traversal techniques.	3	3	1	1	-	-	-	-	-	-	-	1
	17CI63.4		Improve individual / team work skills, communication & report writing skills with ethical values.	-	-	-	-	-	-	-	2	2	2	-	-
17CS60	**17CS60.1**	Digital Logic Design Lab	Design and Test the functionalities and Properties of Basic Gates, Universal Gates and Special Gates using Logisim Software.	2	1	3	1	3							
	17CS60.2		Design and verify functionalities of basic building blocks used in Combinational logic circuits	1	2	3	1	3							
	17CS60.3		Design and verify functionalities of basic building blocks used in Sequential logic circuits	1	2	3	1	3							

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	17CS60.4		Improve individual / team work skills, communication & report writing skills with ethical values.								2	2	2		
17EC01	**17EC01.1**	**Electrical Circuits and Networks**	Understand Active & Passive elements, independent & dependent sources, Kirchhoff's laws, Delta to Star & Star to Delta transformation, AC fundamentals, Self and Mutual inductances, Dot conventions and two port parameters.	1	1	-	-	-	-	-	-	-	-	-	1
	17EC01.2		Apply Mesh & Nodal analysis and Network theorems for solving the parameters of Electrical circuits	2	3	1	-	-	-	-	-	-	-	-	1
	17EC01.3		Analyze Steady state & Transient response of RL, RC, & RLC circuits with DC & AC excitation	2	3	2	-	-	-	-	-	-	-	-	2
	17EC01.4		Evaluate Bandwidth, Quality factor & Selectivity of Series & Parallel resonant circuits and Two port network parameters of Series, Parallel & Cascade connections	2	3	2	1	-	-	-	-	-	-	-	2
17EC02	**17EC02.1**	**Devices and**	Summarize the transport phenomena of charge carriers in a semiconductors	1	-	-	-	-	-	-	-	-	-	-	1

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	17EC02.2		Understand the operation of Diode, Bipolar Junction Transistors and Field Effect Transistors	1	1	-	-	-	-	-	-	-	-	-	1
	17EC02.3		Analyze the operation and characteristics of Bipolar Junction Transistors and Field Effect Transistors.	2	3	-	-	-	-	-	-	-	-	-	2
	17EC02.4		Create Rectifier, filter, Regulator and Amplifier circuits to meet the needs of real time electronic circuit applications	2	3	3	-	-	-	-	-	-	-	-	2
17EC03	**17EC03.1**	**Analog Electronic Circuits**	Outline the effect of capacitances on frequency response	1	1										1
	17EC03.2		Analyze single stage & multistage amplifiers, Tuned amplifiers and Power amplifiers	1	2	2									1
	17EC03.3		Apply negative feedback amplifiers in real time applications	3	2	2									2
	17EC03.4		Design Sinusoidal oscillators using BJT and FET	2	2	3									2
17EC04	**17EC04.1**	**Digital Electronic Circuits**	Understand the importance of number systems, Boolean algebraic minimization for the realization of Digital electronic circuits.	2	1										1

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	17EC04.2		Analyze the Minimization and realization methods for Combinational & Sequential logic circuits	2	3	2									2
	17EC04.3		Apply minimization techniques for the realization of Combinational, Sequential, Finite state machines and Algorithmic State Machines	2	3	2									2
	17EC04.4		Create Digital Electronic circuits at Gate level, Combinational level and Sequential levels.	2	3	3									3
17EC60	**17EC60.1**	**Electrical Circuits and Networks Lab**	Apply Kirchhoff's laws and Network theorems to solve the parameters of Electrical circuits.	3	3	1	2	2							
	17EC60.2		Analyze Kirchhoff's laws, Voltage &Current division principles for electrical circuits.	2	3	2	2	3							
	17EC60.3		Evaluate the BW of Series & Parallel resonant circuits, Transient behavior of AC circuits and Two port network parameters of Series, parallel and Cascade connections.	3	2	3	2	3							
	17EC60.4		Adapt effective Communication, presentation and report writing skills								1	2	3		1

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17EC61	**17EC61.1**	Electronic Devices and Circuits Lab	Demonstrate the characteristics of Diodes, BJT, FET and UJT	1			2	1							
	17EC61.2		Analyze the electrical behaviour and circuit operation of Diodes	1	2		2	2							
	17EC61.3		Create Rectifier circuits using Diode.	2	2	3	2	2							
	17EC61.4		Adapt effective Communication, presentation and report writing skills								1	2	3		1
17EC62	**17EC62.1**	Analog and Digital Electronic Circuits Lab	Analyze Analog amplifiers, Oscillators, Flip-flops, Shift registers and Counters .	2	2	-	1	1	-	-	-	-	-	-	-
	17EC62.2		Apply knowledge on discrete components in the implementation of Amplifiers, Logic Gates and Combinational logic circuits.	2	2	3	2	1	-	-	-	-	-	-	-
	17EC62.3		Design of Analog amplifiers, Oscillators, Flip-flops, Shift registers and Counters .	1	2	3	2	1	-	-	-	-	-	-	-
	17EC62.4		Adapt effective Communication, presentation and report writing skills	-	-	-	-	-	-	-	1	2	3	-	1
17EE01	**17EE01.1**	Electronic Circuits and Devices	Illustrate the working of different types of semiconductor devices and their characteristics	3				2							1

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	17EE01.2		Analyse the diode and transistor circuits	3				2							1
	17EE01.3		Design transistor stabilizing circuits	3				2							
17EE50	**17EE50.1**	**Basic Electrical and Electronics Engineering**	Analyze the electrical circuits	3	2			2							2
	17EE50.2		Illustrate the performance of static and rotating machines	3	2										1
	17EE50.3		Illustrate basic semi conductor devices & logic circuits	3	2										1
	17EE50.4		Interpret the working of various electrical measuring instruments												2
17EE52	**17EE52.1**	**Basic Electrical Engineering**	Analyse AC and DC circuits.	3	2			2							2
	17EE52.2		Enumerate the working of static & rotating electrical machines	3	2										1
	17EE52.3		Analyze the performance of electrical machines	3	2			2							2
	17EE52.4		Interpret the working of various electrical measuring instruments	2											2
17EE60	**17EE60.1**	**Electronic Circuits and Devices Lab**	Analyze characteristics of semiconductor devices	3				2			2	2	2	1	1
	17EE60.2		Identify suitable electronic circuit for a particular application	3		2		2			2	2	2	1	1
	17EE60.3		Design amplifier circuits	3				2			2	2	2	1	
17EE71	**17EE71.1**	**rical Engin**	Demonstrate the use of various electrical components	3			2					3	3		3

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	17EE71.2		Analyze the performance of AC machines.	3	2		3	2				3	3		3
	17EE71.3		Evaluate the responses for the given circuit.	3			3	3				3	3		3
	17EE71.4		Interpret the concept of electrical resonance.	3			2					3	3		3
17EE72	**17EE72.1**	**Basic Electrical and Electronics Engineering Lab**	Analyze electrical circuits for both DC and AC excitations.	3	2		3					3	3		2
	17EE72.2		Demonstrate the usage of various electrical and electronic components.	3			2					3	3		3
	17EE72.3		Operate BJT under different configurations and explore how it works as an amplifier and switch.	2			3					3	3		2
17EI01	**17EI01.1**	**Material Science and Engineering**	Analyse different magnetic, optical and superconducting materials based on their properties	1	2										
	17EI01.2		Discuss the concept of superconductivity, types of superconductors along with different materilas by means of their critical parameters	1											
	17EI01.3		Analyse the structure of different materials and their properties through chemical bondings.	1		1	2								
	17EI01.4		Describe the concepts of	1	1	1									

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			fluorescence and phosphorescence used in different display devices												
	17EI01.5		Compare new smart materials viz., nano-phase materials, polymers by means of their properties and applications	1			3								
17FE01	**17FE01.1**	**Professional Communication I**	Use English vocabulary & grammar effectively while speaking and writing.				2					3	3		2
	17FE01.2		Comprehend the given texts and Communicate confidently in formal and informal contexts.		1		2		1			3	3		2
	17FE01.3		Draft E-mails& Memos				2					3	3		2
	17FE01.4		Understand the written and spoken information thoroughly.		1		2		1			3	3		2
	17FE01.5		Face interviews with confidence.				2					3	3		2
17FE02	**17FE02.1**	**Professional Communication II**	Use appropriate vocabulary to interpret data thoroughly and to write reports effectively.		1		1		1			3	3		2
	17FE02.2		Face any situation with confidence and voice opinions/decisions assertively.		1		1		1			3	3		2
	17FE02.3		Use English Language effectively in spoken and written forms.		1		1		1			3	3		2

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	17FE02.4		Work effectively in teams for better result.		1		1		1			3	3		2
	17FE02.5		Communicate effectively using verbal and non-verbal dimensions aptly.		1		1		1			3	3		2
17FE04	**17FE04.1**	**Differential Equation and Linear Algebra**	Apply first order and first degree differential equations to find Orthogonal trajectories and to calculate current flow in a simple LCR circuit.	3	2		1								1
	17FE04.2		Discriminate among the structure and procedure of solving a higher order differential equations with constant coefficients and variable coefficients.	3	2		1								1
	17FE04.3		Developing continuous functions as an infinite series and compute the Jacobian to determine the functional dependence.	3	2		1								1
	17FE04.4		Distinguish among the pros and cons between the Row operation methods and Iterative methods in solving system of linear equations.	3	2										1
	17FE04.5		Compute the Eigen values and Eigen vectors and powers, Inverse of a square matrix through Cayley – Hamilton	3	2										1

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			theorem												
17FE05	**17FE05.1**	Differential Equations and Numerical Applications	Apply first order and first degree differential equations to find Orthogonal trajectories and to calculate current flow in a simple LCR circuit.	3	2		1								1
	17FE05.2		Discriminate among the structure and procedure of solving a higher order differential equations with constant coefficients and variable coefficients.	3	2		1								1
	17FE05.3		Developing continuous functions as an infinite series and compute the Jacobian to determine the functional dependence.	3	2		1								1
	17FE05.4		Distinguish among the pros and cons between the Row operation methods and Iterative methods in solving system of linear equations.	3	2										1
	17FE05.5		Compute the Eigen values and Eigen vectors and powers, Inverse of a square matrix through Cayley – Hamilton theorem	3	2										1
17FE06	**17FE06.1**	ques	Apply the concepts of Laplace	3	2		1								1

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			Transforms to solve ordinary differential equations.												
	17FE06.2		Apply Z - Transforms to solve difference equations	3	2		1								1
	17FE06.3		Discriminate among Cartesian, Polar and Spherical coordinates in multiple integrals and their respective applications to areas and volumes	3	2		1								1
	17FE06.4		Evaluate the directional derivative, divergence and angular velocity of a vector function.	3	2		1								1
	17FE06.5		Apply Vector Integration for curves, surfaces and volumes and relationship among themselves.	3	2		1								1
17FE12	**17FE12.1**	**Applied Physics**	Define the nature of Interference and Diffraction.	3	3	1	1								1
	17FE12.2		Describe the polarization and LASER, types of lasers and their applications.	3	3	2	1								1
	17FE12.3		Estimate the electrical conductivity in metals.	3	3	1	1								1
	17FE12.4		Design the circuits of semiconductor diodes, LED, Photodiode, Solar cell.	3	3	1	1								1
	17FE12.5		Classify the different types of	3	3	1	1								1

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			polarisations in dielectric materials.												
17FE13	**17FE13.1**	Engineering Physics	Define the nature of Interference and Diffraction.	3	3	1	1								1
	17FE13.2		Describe the polarization and LASER, types of lasers and their applications.	3	3	2	1								1
	17FE13.3		Analyze the dual nature of matter waves and the crystal structures.	3	3	1	1								1
	17FE13.4		Identify the different types of magnetic materials and their applications.	3	3	2	1								1
	17FE13.5		Propose the different superconducting materials.	3	3	2	1								1
17FE14	**17FE14.1**	Applied Chemistry	Identify the troubles due to hardness of water and its maintenance in Industrial applications.	3	3	2			2	1					2
	17FE14.2		Analyze issues related to conventional fuels and apply the concepts of advanced fuels like bio, nuclear and rocket fuels in energy production.	3	2				3	2					2
	17FE14.3		Analyse different types of electrodes and batteries for technological applications.	3	3	3				2					2
	17FE14.4		Apply principles of corrosion for design and effective	3	2	3			2	1					2

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			maintenance of various equipments.												
	17FE14.5		Identify the important applications of engineering materials like plastics, rubbers and lubricants.	2	2				2	1					2
17FE15	**17FE15.1**	**Engineering Chemistry**	Analyze different types of electrodes and batteries for technological applications.	3	3	3				2					2
	17FE15.2		Apply principles of corrosion for design and effective maintenance of various equipments.	3	2	3			2	1					2
	17FE15.3		Identify the importance of engineering materials like nano materials, plastics and rubbers.	2	2				2	1					2
	17FE15.4		Analyze various photo chemical processes & applications of liquid crystals.	3	3					1					2
	17FE15.5		Identify the importance of analytical and spectroscopic techniques in chemical analysis.	2	3										1
17FE60	**17FE60.1**	**English Communication Skills Lab**	Articulate English with good pronunciation.				3					3	3		2
	17FE60.2		Manage skilfully through group discussions.				3					3	3		2
	17FE60.3		Communicate with the people				3					3	3		2

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			effectively.												
	17FE60.4		Collect and interpret data aptly.				3					3	3		2
17FE62	**17FE62.1**	**Applied Physics Lab**	Analyze the wave characteristics of light.	3	3	1	1					1			1
	17FE62.2		Estimate the wave length and width of the slit with lazer light source.	3	3	2	1					1			1
	17FE62.3		Analyze the characteristics of semi conductor Diodes.	3	3	1	1					1			1
	17FE62.4		Determine the energy band gap and the Dielectric constant of a material.	3	3	1	1					1			1
17FE63	**17FE63.1**	**Engineering Physics Lab**	Analyze the wave characteristics of light.	3	3	1	1					1			1
	17FE63.2		Estimate the wave length and width of the slit with lazer light source.	3	3	2	1					1			1
	17FE63.3		Evaluate the specific parameters in Electrical Circuits.	3	3	1	1					1			1
	17FE63.4		Analyze the characteristics of Torsional Pendulum, Thermister, Stewert and Gee's.	3	3	1	1					1			1
17FE64	**17FE64.1**	**Applied Chemistry Lab**	Estimate various parameters of water which decide the quality based on the procedures given.	3	3	3	2		3	1					1

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	17FE64.2		Distinguish different types of titrations in quantitative analysis and acquire practical knowledge to prepare polymers.	2	2	1			1	1					1
	17FE64.3		Improve skills in report writing, individual and team work with ethical values.								2	2	2		1
17FE65	**17FE65.1**	**Engineering Chemisty Lab**	Estimate alkalinity of water and the amount of dissolved salt by using procedures given.	3	3	3	2		3	1					1
	17FE65.2		Distinguish different types of titrations in quantitative analysis and acquire practical knowledge to prepare polymers.	2	2	1			1	1					1
	17FE65.3		Improve skills in report writing, individual and team work with ethical values.								2	2	2		1
17ME01	**17ME01.1**	**Engineering Graphics**	Represent the geometrical objects considering BIS standards.	2	1	2		3	2			3	2		1
	17ME01.2		Comprehend the basics of orthographic projections and deduce orthographic projections of a point and a line at different orientations.	3	2	2		3				3	2		1
	17ME01.3		Visualize geometrical planes of different positions in real	2	3	2		3				3	2		1

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
			life environment												
	17ME01.4		Imagine orthographic views of various solid objects at different orientations	2	3	2		3				3	2		1
	17ME01.5		Recognize the significance of isometric drawing to relate 2D environment with 3D environment	3	3	3		3	2			3	3		1
17ME02	**17ME02.1**	**Engineering Mechanics**	Analyse the coplanar force systems using free body diagram.	3		2									2
	17ME02.2		Analyse the rigid bodies associated with frictional forces using conditions of equilibrium	3		2									2
	17ME02.3		Locate the centroid/center of gravity and determine the moment of inertia of plane sections/solids	3		2									2
	17ME02.4		Examine the behaviour of moving bodies in rectilinear and trajectory motion using kinematic equations or motion curves.	3		2									2
	17ME02.5		Examine the behaviour of moving bodies using dynamic equilibrium/workenergy methods	3		2									2
17ME5	**17ME50.1**	**e e r i**	Analyze the coplanar force	3	1	1							1		1

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
			systems using free body diagrams.												
	17ME50.2		Analyze the rigid bodies associated with friction forces using conditions of equilibrium	1						1					
	17ME50.3		Determine the centroid and moment of inertia of plane sections.	1									1		
	17ME50.4		Determine the center of gravity and mass moment of inertia of solids.	3											
	17ME50.5		Examine the behaviour of moving bodies in rectilinear and trajectory motion using kinematic equations	2	1	1				1			1		1
17ME51	**17ME51.1**	**Thermal and Hydro Prime Movers**	Comprehend the laws of basic Thermodynamics and Fluid Mechanics.	2	2	1	1								1
	17ME51.2		Analyze the performance of steam turbines and gas turbines using principles of thermo dynamics.	3	3	2	1	2							2
	17ME51.3		Demonstrate the working of different types of IC engines.	2	1										2
	17ME51.4		Illustrate pressure and flow measurement devices with concepts of fluid mechanics.	3	2		1		1						2
	17ME51.5		Evaluate performance of	3	2	1	1	2							1

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
			hydraulic machines.												
17ME60	17ME60.1	Engineering Workshop	Design and model different prototypes in the carpentry trade such as Cross lap joint, Dove tail joint.	3		2	3	3	3			3			2
	17ME60.2		Fabricate and model various basic prototypes in the trade of fitting such as Straight fit, V-fit.	3		2	3	3	3			3			2
	17ME60.3		Produce various basic prototypes in the trade of Tin smithy such as rectangular tray, and open Cylinder.	3		2	3	3	3			3			2
	17ME60.4		Perform various basic House Wiring techniques.	3		2	3	3	3			3			2
17ME61	17ME61.1	Engineering Mechanics and Fuel Testing Lab	Verify the laws of Mechanics.									3	1		2
	17ME61.2		Evaluate the force in the mechanical systems.									3	1		2
	17ME61.3		Estimate the dynamic characteristics of fuel using Viscosity and Flash & Fire point data.									3	1		2
	17ME61.4		Determine calorific-value of fuels.									3	1		2
17ME62	17ME62.1	Computer Aided Engineering Graphics Lab	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.					3	3						2

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	17ME62.2		Understand the principle of Orthographic projections of points, lines, planes and solids.	3				3	2						2
	17ME62.3		Familiarize with the sectioning of solids and development of surfaces.	3				3							2
	17ME62.4		Convert orthographic to isometric vice versa.	3				3							2
17ME75	**17ME75.1**	**Computer Aided Engineering Drawing Lab**	Apply basic CAD commands to develop 2D & 3Ddrawings using Auto CAD					3	3						2
	17ME75.2		Perform basic sketching techniques where the speed & accuracy can be achieved	3				3	2						2
	17ME75.3		Create orthographic views of an object from the solid model	3				3							2
	17ME75.4		Sketch the auxiliary views and sectional views	3				3							2
17ME76	**17ME76.1**	**Thermal and Hydro Prime Movers Lab**	Evaluate performance of an IC engine for a given set of conditions and to draw valve timing and port timing diagrams	2		1	2								
	17ME76.2		Realize the need to minimize losses in engines by conducting Moore test		2		1		1						
	17ME76.3		Calibrate general purpose flow measurement devices.		2	2	1	1							

CODE	COURSE CODE	COURSE	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	17ME76.4		Analyze performance of hydraulic machines and forces due to impact of jet on vanes by impulse-momentum theorem	3	2		1								