SL.NO	SUBJECT CODE	SUBJECT/LAB	CO	DESCRIPTION OF COURSE OUTCOMES
1	RCS5D002	Artificial Intelligence and Machine Learning	CO-1	Analyze the design specifications for the structure of agents and distinguish among heuristic techniques
		Artificial Intelligence and Machine Learning	CO-2	Identify approaches and issues in knowledge representation and formulate Propositional and predicate logic.
		Artificial Intelligence and Machine Learning	CO-3	Formulate the logic of non monotonic reasoning and apply the techniques in Uncertainty domain.
		Artificial Intelligence and Machine Learning	CO-4	Analyze the planning and learning techniques in state space search.
		Artificial Intelligence and Machine Learning	CO-5	Formulate the design specification of game playing techniques, analyze expert systems, robotics and swarm intelligence systems.
		Artificial Intelligence and Machine Learning (RCS5D002)	CO-6	Identify approaches and issues in knowledge representation and formulate Propositional and predicate logic.
2	REC5C002	Analog and Digital Communication	CO-1	Understand the classification of Signals and analyze the Signals & Systems in the frequency domain.
		Analog and Digital Communication	CO-2	Apply the concept of design , various Analog Modulation and Demodulation Techniques.
		Analog and Digital Communication	CO-3	Learn and apply the knowledge of the Basics of Noise Theory and evaluate the effect of noise present in continuous wave and angle modulation techniques.
		Analog and Digital Communication	CO-4	Discriminate and implement different Pulse Modulation.
		Analog and Digital Communication	CO-5	Demonstrate and apply the concepts of generation and detection of various digital modulation techniques.
		Analog and Digital Communication	CO-6	Evaluate and determine the performance of line codes and methods to mitigate inter symbol interference and also can analyze the generation, detection signal space diagram,
3	RMA1A001	Mathematics –I	CO-1	To be able to find the effects of changing the conditions in a system
		Mathematics –I	CO-2	To acquire the skill to solve rate of change like weather and climate predictions and electrical circuits and planetary motions.
		Mathematics –I	CO-3	To acquire the skill to study population growth and the trends in financial markets and also study the problem of water pollution
		Mathematics –I	CO-4	Knowledge for computing values, graphing curves, providing formulas and exploring properties of solutions
		Mathematics –I	CO-5	To analyse linear dynamical system. Transform turns integral equations and differential equations to polynomial equations which are much easier to solve.
		Mathematics –I	CO-6	X

4	RCE1E001	Communicative English	CO-1	To be aware about the importance of basic English communication skill in daily life and the factors and barriers that affect English communication and importance of audience and
		Communicative English	CO-2	Transcription of words through IPA symbols ,syllabic division and stress pattern in words and sentences and rhythm and intonation in English.
		Communicative English	CO-3	Importance of workplace communication and the challenges faced in culturally diverse workforce, bias free communication and effective presentation.
		Communicative English	CO-4	To write business letters, notices, e-mails, circulars, reports, good and bad news letters as well as CVs and proposals.
		Communicative English	CO-5	Participation in GD, planning and preparation for interview, use of connected speech and learning team management and leadership skills.
5	ROP3B001	Object Oriented Programming Using JAVA	CO-1	Understand the concept of object-oriented programming fundamentals and engineering specialization to solution of complex programs.
		Object Oriented Programming Using JAVA	CO-2	Simulate the real-world problems using java technology
		Object Oriented Programming Using JAVA	CO-3	Familiarize the students with language environment
		Object Oriented Programming Using JAVA	CO-4	Able to understand the concept of exception handling and input/ output operations
		Object Oriented Programming Using JAVA	CO-5	Able to design the application of java and java applet
		Object Oriented Programming Using JAVA	CO-6	Able to Analyze and design the concepts of event handling, AWT and Swing
6	REL5C003	Electrical Machines-II	CO-1	Analyze different types of winding and their physical arrangement in stator and rotor andrelated terminologies
		Electrical Machines-II	CO-2	Understand classification,construction, operation and characteristics of different AC machines.
		Electrical Machines-II	CO-3	-Learn the parallel operation of alternator and the conditions to be satisfied for this
		Electrical Machines-II	CO-4	Analyze equivalent circuit and the performance characteristics for different electrical machines and obtain equivalent circuit of the machine
		Electrical Machines-II	CO-5	Study different methods of startinng and speed control of AC machines
		Electrical Machines-II	CO-6	able to test and calculate performance parameter of AC machines

7	REE3C002	Network Theory	CO-1	Apply the knowledge of Basic circuital law and simplify the network using reduction techniques
		Network Theory	CO-2	Analyze the circuit using Kirchoff's law and Network simplification theorems
		Network Theory	CO-3	Infer and evaluate transient response ,Steady state response, Network functions
		Network Theory	CO-4	Analyse circuits in the sinusoidal steady-state (single -phase and three phase)
		Network Theory	CO-5	Evaluate two port network parameters
8	REL5D004	Electric Drives	CO-1	EXAMINE THE DYNAMICS OF ELECTRICAL DRIVES
		Electric Drives	CO-2	DESCRIBE ABOUT THE CLOSED LOOP CONTROL OF DRIVES
		Electric Drives	CO-3	DETERMINE THE RATINGS OF ELECTRIC MOTORS ACCORDING TO DIFFERENT DUTY INTERVAL
		Electric Drives	CO-4	DISCUSS ABOUT THE CONVERTER BASED SPEED CONTROL , BRAKING OPERATION OF DC MOTOR
		Electric Drives	CO-5	CLASSIFY THE AC MOTORS FOR VARIOUS APPLICATION BASED ON CONTROL MECHANISMS
		Electric Drives	CO-6	IDENTIFY THE APPLICATIONS OF DC & AC MOTORS IN VARIOUS INDUSTRIES & TRACTION SYSTEM
9	REC5C001	Digital Signal Processing	CO-1	Get idea and can remember different types of discrete time signals and systems and their properties.
		Digital Signal Processing	CO-2	Can understand and can apply the principles of discrete-time signal analysis to perform various signal operations
		Digital Signal Processing	CO-3	Apply the principles of z-transforms to finite difference equations also apply the principles of discrete Fourier transform analysis to describe the frequency characteristics of discrete-time signals
		Digital Signal Processing	CO-4	Compute DFT using FFT algorithms and derive DFT properties.
		Digital Signal Processing	CO-5	Can Design IIR and FIR digital filters using various techniques, and Understand the applications of DSP in speech processing and spectrum analysis.
10	ROB3E002	Organisational Behaviour	CO-1	TO DEVELOP AN UNDERSTANDING OF THE BEHAVIOR OF INDIVIDUALS AND GROUPS INSIDE ORGANIZATIONS.
		Organisational Behaviour	CO-2	TO ENHANCE SKILLS IN UNDERSTANDING AND APPRECIATING INDIVIDUALS, INTERPERSONAL, AND GROUP PROCESS FOR INCREASED EFFECTIVENESS BOTH WITHIN AND OUTSIDE OF
		Organisational Behaviour	CO-3	TO DEVELOP THEORETICAL AND PRACTICAL INSIGHTS AND PROBLEM-SOLVING CAPABILITIES FOR EFFECTIVELY MANAGING THE ORGANIZATIONAL PROCESSES.
		Organisational Behaviour	CO-4	TO UNDERSTAND THE LATEST DEVELOPMENTS AND CULTIVATE AN UNDERSTANDING OF ORGANIZATIONAL CULTURE AND STRUCTURE.
		Organisational Behaviour	CO-5	TO UNDERSTAND APPLICATIONS OF ORGANIZATIONAL CHANGE, POWER AND CONFLICT.

11	REL4C003	Power Electronics	CO-1	students will be able to understand the differences between signal level and power level devices.
		Power Electronics	CO-2	students will be able to learn various characteristics of power switching devices
		Power Electronics	CO-3	Student will be able to analyze various single phase and three phase power rectifiers circuits and understand their applications.
		Power Electronics	CO-4	student will be able to analyze the operation of DC-DC choppers and their applications.
12	RCS5C003	Operating Systems	CO-1	Students will be able to comprehend the techniques used to implement the process manager
		Operating Systems	CO-2	Students will be able to comprehend virtual memory abstractions in operating systems
		Operating Systems	CO-3	Students will be able to design and develop file system interfaces, etc.
13	RPH1A001	Physics	CO-1	CO A 102.1: WAVES AND OSCILLATION: Aware of Oscillatory System and Propagation of different types of waves and apply the idea in solving the problems in their parent streams.
		Physics	CO-2	CO A102.2 : OPTICS: Explain natural physical processes and related technological advances by applying knowledge of interference and diffraction of light waves.
		Physics	CO-3	CO A102.3 : SOLID STATE PHYSICS: Analyse the structural properties of elemental solids, which has got potential application in Engineering to describe semiconductors, integral
		Physics	CO-4	CO 102.4 :LASER AND FIBRE OPTICS: Import knowledge to develop skils and to use modern devices in the field of communication, medical technology and Engineering
		Physics	CO-5	CO A102.5 :ELECTROMAGNETISM: Apply Maxwell's equation to solve practical electromagnetic field problems and explains the basics of communication Engineering.
		Physics	CO-6	CO A102.6 :QUANTUM MECHANICS: Gain knowledge about the quantum physics, which updates the basic concepts to implement the skills in Engineering Research and Development.
142		Power Electronics (REL4C003)	CO-5	student will be able to analyze the operation of voltage source inverters and their applications.
146		Digital Signal Processing (REC5C001)	CO-6	Can built an ability to use software tools for analysis and design of discrete-time systems.
14	REC5C003	Microprocessors & Microcontrollers	CO-1	It will help the student to understand the concept of microptrocessor and its practical application in industry.
		Microprocessors & Microcontrollers	CO-2	To understand the various architecture of microprocessor and controlling other device through interfacing.
		Microprocessors & Microcontrollers	CO-3	Able to perform various arithmetic and logical operation through programming.
		Microprocessors & Microcontrollers	CO-4	To understand the concept of interfacing and chip designing.
		Microprocessors & Microcontrollers	CO-5	To apply the concept of microcontroller for chip designing.
		Microprocessors & Microcontrollers	CO-6	Student will have both hardware and software knowledge which will help them in machine designing.

15	RCS5D005	Object Oriented Analysis & Design	CO-1	Select the basic elements of modeling such as Things, Relationships and Diagrams depending on the views of UML Architecture and SDLC.
		Object Oriented Analysis & Design	CO-2	Apply basic and Advanced Structural Modeling Concepts for designing real time applications
		Object Oriented Analysis & Design	CO-3	Design Class and Object Diagrams that represent Static Aspects of a Software System.
		Object Oriented Analysis & Design	CO-4	Analyze Dynamic Aspects of a Software System using Use Case, Interaction and Activity Diagram
		Object Oriented Analysis & Design	CO-5	Apply techniques of State Chart Diagrams and Implementation Diagrams to model behavioral aspects and Runtime environment of Software Systems.
16	RME5C002	Mechanisms and Machines	CO-1	Analyze mechanism of lower pairs
		Mechanisms and Machines	CO-2	Describe function of cam, flywheel
		Mechanisms and Machines	CO-3	Draw turning moment diagram of engines.
		Mechanisms and Machines	CO-4	Describe operation of gyroscope and governor
		Mechanisms and Machines	CO-5	Illustrate balancing of rotating components and linkages
		Mechanisms and Machines	CO-6	Understand fundamental of vibration
17	RCS5C002	Database Management Systems	CO-1	Able to understand the database system theory in order to apply that knowledge to any particular database implementation using SQL .
		Database Management Systems	CO-2	Able to learn and understand various database architecture and applications.
		Database Management Systems	CO-3	Develop an ability to remove data redundancy by translating created relational model into normalized design.
		Database Management Systems	CO-4	Use an SQL interface of a multi-user relational DBMS package to create, secure, populate, maintain, and query a database.
		Database Management Systems	CO-5	Formulate, using SQL, solutions to a broad range of query and data update problems.
		Database Management Systems	CO-6	Demonstrate a rudimentary understanding of programmatic interfaces to a database and be able to use the basic functions of one such interface.
18	RBE1B001	Basic Electrical Engineering	CO-1	Understand the definitions, derivations, principles involved in electrical and magnetic circuits
		Basic Electrical Engineering	CO-2	Apply ohm’s law, Kirchhoff’s laws, network theorems and laws in electromagnetism to find unknowns in electric and magnetic circuits.
		Basic Electrical Engineering	CO-3	Understand and analyze the single phase and three phase AC circuits.
		Basic Electrical Engineering	CO-4	Understand the construction, principle of operation and performance characteristics of Electrical machines.
		Basic Electrical Engineering	CO-5	Evaluate problems in single phase transformer, three phase induction motor and dc machines.

19	REL5C002	Control System	CO-1	CO1-- Categorize different types of system and identify a set of algebraic equations to represent and model a complicated system into a more simplified form.
		Control System	CO-2	CO2-Interpret different physical and mechanical systems in terms of electrical system to construct equivalent electrical models for analysis.
		Control System	CO-3	CO3- Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions
		Control System	CO-4	CO4- Formulate different types of analysis in frequency domain to explain the nature of stability of the system
		Control System	CO-5	CO5- Acquire knowledge of state space and state feedback in modern control systems, pole placement, design of state observers and output feedback controllers
20	REC3C001	Analog Electronic Circuits	CO-1	Understand the definitions, Construction and principles of Operation of Transistors involved in Analog Electronics
		Analog Electronic Circuits	CO-2	Characteristics Study of BJTs and MOSFETs in different Circuit Design
		Analog Electronic Circuits	CO-3	Understand and analyze the Biasing Circuits in an Amplifiers.
		Analog Electronic Circuits	CO-4	Small Signal Analysis of Amplifiers with different AC equivalent Models
		Analog Electronic Circuits	CO-5	Applications of Transistors and OPAMP in Feedback, Oscillators and other applications in OPAMP, OPAMP characteristics.
		Analog Electronic Circuits	CO-6	Efficient Power Calculations of different classifications of Power Amplifiers and Frequency Response of Amplifiers
21	REL5C001	Electric Power Transmission & Distribution	CO-1	DESCRIBE THE POWER SYSTEM STRUCTURE, EVOLUTION, SOURCES OF ENERGY & GENERATION OF POWER BY THERMAL, HYDRO & NUCLEAR PLANTS
		Electric Power Transmission & Distribution	CO-2	UNDERSTAND THE VARIOUS LINE PARAMETERS I.E. R, L & C SO AS TO FIND RESISTANCE, INDUCTANCE AND CAPACITANCE FOR DIFFERENT CONDUCTORS AND CIRCUITS.
		Electric Power Transmission & Distribution	CO-3	ANALYZE DIFFERENT TYPES OF LINES AND THEIR PERFORMANCE, VAR COMPENSATION.
		Electric Power Transmission & Distribution	CO-4	UNDERSTAND DIFFERENT TYPES OF INSULATORS, STRING EFFICIENCY & MECHANICAL DESIGN OF OVERHEAD LINES
		Electric Power Transmission & Distribution	CO-5	ANALYZE BALANCED & UNBALANCED FAULTS, DIFFERENT DISTRIBUTION SYSTEMS AND FIND THE VOLTAGE DROPS
		Electric Power Transmission & Distribution	CO-6	UNDERSTAND THE UNDERGROUND CABLE SYSTEM IN TRANSMISSION & DISTRIBUTION AND POWER SYSTEM EARTHING FOR DESIGNING THE SUB-STATION

22	RBE1B201	Basic Electrical Engineering Lab	CO-1	UNDERSTAND ELECTRICAL QUANTITIES SUCH AS CURRENT ,VOLTAGE,POWER,POWER FACTOR ENERGY AND FREQUENCY,AND TO KNOW ABOUT DIFFERENT MEASURING
		Basic Electrical Engineering Lab	CO-2	MEASURE THE POWER,POWER FACTOR OF A LOADED THREE PHASE CIRCUIT
		Basic Electrical Engineering Lab	CO-3	ANALYZE THE CHARECTERISTICS OF ANY ELECTRICAL AND MAGNETIC CIRCUIT
		Basic Electrical Engineering Lab	CO-4	ANALYZE DIFFERENT ELECTRICAL CIRCUIT BY USING DIFFERENT NETWORK THEOREMS
		Basic Electrical Engineering Lab	CO-5	UNDERSTAND AND THE OPERATION AND APPLICATION OF DIFFERENT ELECTRICAL MACHINES
23	REE3C202	Network Theory Lab	CO-1	Implement network theorems for the analysis of electrical circuit
		Network Theory Lab	CO-2	Evaluating the transient and steady state response of electrical circuit
		Network Theory Lab	CO-3	Analyse two port circuit behaviour
		Network Theory Lab	CO-4	Investigate the behaviour of Resonance circuits
		Network Theory Lab	CO-5	Evaluation of filter circuits
		Network Theory Lab	CO-6	To understand the fundamentals of electrical circuits & MATLAB simulation
24	RBM1B001	Basic Mechanical Engineering	CO-1	Explain the universal laws related to energy interaction.
		Basic Mechanical Engineering	CO-2	Describe energy interaction in Air compressors, Steam Power Plant, Refrigerators and Heat pump, I.C. Engines.
		Basic Mechanical Engineering	CO-3	Describe the working principle of power transmission devices.
		Basic Mechanical Engineering	CO-4	Explain robot anatomy, joints and links and robot configurations.
		Basic Mechanical Engineering	CO-5	Describe the working principle of mechanical measurement devices.

25	REC5D005	Electronics Instrumentation and Measurement	CO-1	ANALYZE THE PERFORMANCE CHARECTERISTICS OF EACH INSTRUMENT
		Electronics Instrumentation and Measurement	CO-2	ILLUSTRATE BASIC METERS SUCH AS VOLTMETER AMMETER AND DC & AC BRIDGES
26	REC3C201	Analog Electronic Circuits Lab (REC3C201)	CO-1	Determination of Operating Points of BJT, JFET and MOSFET using Biasing
		Analog Electronic Circuits Lab (REC3C201)	CO-2	Small Signal Analysis to Get Zi, Zo, Av and Ai by using AC equivalent Models
27	RCS4C003	Computer Organization and Architecture	CO-1	Draw the functional block diagram of a single bus architecture of a computer and describe the function of the instruction set, execution cycle, RTL interpretation of instructions, addressing
		Computer Organization and Architecture	CO-2	Write the algorithms for Integer and floating Point Arithmetic and its implementation in Computer architecture.
		Computer Organization and Architecture	CO-3	Concurrent access to memory, memory organization, cache mapping functions and cache coherency in Parallel Processors and describe the process.
		Computer Organization and Architecture	CO-4	Given a CPU organization and instruction, design a memory module and analyze its operation by interfacing with the CPU.
		Computer Organization and Architecture	CO-5	Given a CPU organization, assess its performance, and apply design techniques to enhance performance using pipelining, parallelism and RISC methodology.
28	RCS5C203	Operating Systems Lab	CO-1	To acquire the knowledge of operating system and their types, process, thread and scheduling algorithms
		Operating Systems Lab	CO-2	To understand the need of process synchronization and how it is achieved.
		Operating Systems Lab	CO-3	To understand the concept of deadlock and different ways to handle it
		Operating Systems Lab	CO-4	To understand the concept of memory management techniques, I/O management and file system
		Operating Systems Lab	CO-5	To understand the resource sharing among the users.
		Operating Systems Lab	CO-6	Be familiar with protection and security mechanism.
29	REC5C001	Geotechnical Engineering	CO-1	Provide the description and classification of soil and analysis of stresses in soils under different loading conditions
		Geotechnical Engineering	CO-2	Familiarize the students an understanding of permeability and seepage of soils
		Geotechnical Engineering	CO-3	To know about the consolidation and compaction effect on soil in lab and field
		Geotechnical Engineering	CO-4	To develop an understanding of the principles of effective stress in saturated soils, and its application to one dimensional compression and consolidation

30	REL5C201	Electric Power Transmission & Distribution Lab	CO-1	Analyze the Transmission line Parameters of a Medium Length line for its symmetricity & Reciprocity
		Electric Power Transmission & Distribution Lab	CO-2	Describe the Ferranti Effect phenomenon and its impact on performance of Transmission lines
		Electric Power Transmission & Distribution Lab	CO-3	Apply the concept of Corona Discharge & breakdown voltage for testing the insulation strength
		Electric Power Transmission & Distribution Lab	CO-4	Understand the Concept of Earth Resistance and its measurement
		Electric Power Transmission & Distribution Lab	CO-5	Compare different types of Lightning Arresters based upon their characteristics & various factors
		Electric Power Transmission & Distribution Lab	CO-6	Analyze the application of Thyristor Switched Capacitor for Power Factor Improvement in a Distribution System
31	RCI5C001	Design of Concrete Structures	CO-1	Understand the basic design philosophy and other fundamentals involved in R.C.C structure design.
		Design of Concrete Structures	CO-2	Design simple R.C.C beams for residential buildings under different combinations of loading using appropriate IS-456 code provisions.
		Design of Concrete Structures	CO-3	Design simple R.C.C slabs for residential buildings under different combinations of loading using appropriate IS-456 code provisions.
		Design of Concrete Structures	CO-4	Design simple R.C.C columns & foundations for residential buildings, retaing wall and water tank under different combinations of loading using appropriate IS-456 code
33	RME5D002	CAD/CAM	CO-1	Understand fundamentals of CAD/CAM.
		CAD/CAM	CO-2	Describe about the Design Workstation, CPU and Memory
		CAD/CAM	CO-3	Apply Computer Graphics Software and Database
		CAD/CAM	CO-4	Define Numerical Control and Numerical Part Programming
		CAD/CAM	CO-5	Use CIM in the Orgnisation
34	RCI5D004	Railway and Airport Engineering	CO-1	Describe the railway zoning, gauges and wheels,Explain the components of permanent way
		Railway and Airport Engineering	CO-2	Design geometry and turnout of a railway track,Explain junction and signals of track
		Railway and Airport Engineering	CO-3	Identify airports and surveys involved,Understand and design runway and taxiways
		Railway and Airport Engineering	CO-4	navigation aids at port and its types

35	RBC1B202	Basic Civil Engineering Lab	CO-1	various test conducted for brick.
		Basic Civil Engineering Lab	CO-2	setting time of opc.
		Basic Civil Engineering Lab	CO-3	linear measurement of a line using chain.
		Basic Civil Engineering Lab	CO-4	fore bearing and back bearing of a line.
36	RCS3C001	Digital Logic Design	CO-1	Understand the concept of switching theory & logic design fundamentals and engineering specialization to solution of complex problems
		Digital Logic Design	CO-2	Simulate the real-world problems using counter design
		Digital Logic Design	CO-3	Familiarize the students with sequential circuits
		Digital Logic Design	CO-4	Able to understand the concept of memory, circuits & timing diagrams
		Digital Logic Design	CO-5	Able to design the application of counters & shift registers
		Digital Logic Design	CO-6	Able to Analyze and design the concepts of multiplexers, demultiplexers & encoders
37	RME3C001	Mechanics of Solid	CO-1	Identify various stresses and strains, draw stress- strains diagrams for various materials.
		Mechanics of Solid	CO-2	Differentiate elastic constants and able to conduct material testing experiments to analyze and interpret the experimental data.Analyze all types of axially loaded members.
		Mechanics of Solid	CO-3	Categories between simple stress and compound stress. Illustrate the procedure Mohr's Circle for finding principal planes and stress.
		Mechanics of Solid	CO-4	Explain the benefits and the purposes of drawing the SFD and BMD of different beams.
		Mechanics of Solid	CO-5	Get knowledge on the theory of simple bending , buckling of columnsand deflections of beam, their importance in practical use and application.
		Mechanics of Solid	CO-6	Find strength of thin cylindrical and spherical vessels under internal pressure, shafts, springs, etc. for designing purposes.
38	RCH1A002	Chemistry	CO-1	Apply the basics of quantum mechanical concept. In solving the problems.
		Chemistry	CO-2	Compare the molecular interaction with electromagnetic. Radiation of the UV- Visible, microwave (Rotational), IR (Virbratinal) Spectra
		Chemistry	CO-3	Associate phase Rule in alloying & for prediction of behavior of one component, two component & Isomorphous system.
		Chemistry	CO-4	Analyze different types of solid, liquid and gaseous fuel processing and their characterization.
		Chemistry	CO-5	Categorize chemical, Electrochemical corrosion and their prevention methods.
		Chemistry	CO-6	Describe different types of nanomaterials synthesis and their application

39	RWO1B202	Workshop	CO-1	Identify hand tools used in fitting and welding practices.
		Workshop	CO-2	Describe the specifications and functions of welding equipment, Lathe, Milling machine, Shaper
		Workshop	CO-3	Do Turning, Threading, Grooving, Shaping, Milling Operations on Jobs.
		Workshop	CO-4	Make Lap and Butt Joints through Arc and Gas welding.
		Workshop	CO-5	Make Paper weight of Mild Steel using Hand tools.
40	RMA3A001	Mathematics -III	CO-1	Able to write clear,well organised and logical mathematical arguments
		Mathematics -III	CO-2	Able to identify,formulate, abstract and solve mathematical problems using tools from varitey of areas like algebra, probabilities and Differential Equation
		Mathematics -III	CO-3	Able to communicate effectively and to function well on multidisciplinary teams
		Mathematics -III	CO-4	A deep understanding of at least one or more area of specialization within mathematics or its application
		Mathematics -III	CO-5	Able to familiar with computer technology, software and algorithmic processes necessary in quantitative analysis and mathematical models
		Mathematics -III	CO-6	Demonstrate analytical skill and logical thinking of day-to-day life problems
41	RME5C003	Heat Transfer	CO-1	Describe the governing laws related to heat conduction ,convection and radiation
		Heat Transfer	CO-2	Analyze heat conduction process
		Heat Transfer	CO-3	Analyze heat transfer from extended surfaces with various boundary conditions
		Heat Transfer	CO-4	Analyze convection heat transfer process
		Heat Transfer	CO-5	Analyze radiation problems for various configurations
		Heat Transfer	CO-6	Analyze performance of heat exchanger using LMTD and NTU method

42	ROP3B201	Object Oriented Programming Using JAVA Lab	CO-1	To understand the concept of Object-oriented programming fundamentals & engineering specialization to solution of complex programs.
		Object Oriented Programming Using JAVA Lab	CO-2	To emulate the real-world problems using java technology.
		Object Oriented Programming Using JAVA Lab	CO-3	To be familiar with the students with language environment.
		Object Oriented Programming Using JAVA Lab	CO-4	To understand the concept of exception handling & input/output operations.
		Object Oriented Programming Using JAVA Lab	CO-5	Design the application of java & java applet.
		Object Oriented Programming Using JAVA Lab	CO-6	Analyse & design the concepts of event handling, AWT & Swing.
43	RBL1B002	Basic Electronics Engineering	CO-1	Acquire basic knowledge on the working of various semi-conductor devices
		Basic Electronics Engineering	CO-2	Apply concepts of BJT in solving various biasing Circuits
		Basic Electronics Engineering	CO-3	Apply the concepts of FET in CMOS circuits
		Basic Electronics Engineering	CO-4	Analyse various circuits using Op-Amp
		Basic Electronics Engineering	CO-5	Acquire knowledge on basics of digital electronic
		Basic Electronics Engineering	CO-6	Design simple combinational circuits
44	RCS3C002	Data Structure	CO-1	CO1 Ability to choose appropriate data structures to represent data items in real world Problems.
		Data Structure	CO-2	Ability to analyze the time and space complexities of Algorithms
		Data Structure	CO-3	Implement and know the application of algorithms for sorting
		Data Structure	CO-4	Ability to design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps,
		Data Structure	CO-5	Implement ADTs such as lists, graphs, search trees in C to solve problem
45	RCH1A202	Chemistry Lab	CO-1	Determine the amount of Sodium Hydroxide & Sodium Carbonate present in the given solution.
		Chemistry Lab	CO-2	Determine the total hardness of water by E.D.T.A method.
		Chemistry Lab	CO-3	Estimate Calcium, Iron, Chlorine & dissolve Oxygen present in sample water by volumetric analysis.
		Chemistry Lab	CO-4	Analyze the Coal by proximate analysis method.
		Chemistry Lab	CO-5	Determine Viscosity of lubricating oil by Red-wood viscometer.
		Chemistry Lab	CO-6	Determine the flash point and fire point of oil by Pensky marten apparatus.

46	RME5D004	Non-Conventional Energy Sources	CO-1	Understand Energy Resources, Non-Conventional Energy Sources, Energy Conservation
		Non-Conventional Energy Sources	CO-2	Understand Sun as a Source of Energy, Solar Radiation concepts, Solar Radiation Geometry
47	REC3C002	Signals and Systems	CO-1	Acquire basic knowledge on the signal representation, classification & operation
		Signals and Systems	CO-2	Apply the principle of discrete time signal analysis to perform various signal operations
		Signals and Systems	CO-3	Represent given function in terms of sine and cosine terms in Fourier series
		Signals and Systems	CO-4	Acquire basic knowledge in Fourier transforms
		Signals and Systems	CO-5	Apply the concepts of Z-transform on difference equations representing a system
		Signals and Systems	CO-6	Apply the concept of DFT for frequency domain sampling
48	RCI5C002	Water and Waste Water Engineering	CO-1	To identify and recognize the potential sources of water
		Water and Waste Water Engineering	CO-2	To identify cost effective water collection and distribution systems
		Water and Waste Water Engineering	CO-3	To undertake the laboratory experiments for assessing water quality.
		Water and Waste Water Engineering	CO-4	To understand the principals of water treatment and design treatment units and Prepare lay out plan and maintain water distribution and sewer-networks
50	RCI5D001	Structural Analysis-II	CO-1	To impart the principles of elastic structural analysis and behaviour of indeterminate structure
		Structural Analysis-II	CO-2	To impart knowledge about various methods involved in the analysis of indeterminate structure
		Structural Analysis-II	CO-3	To apply these methods for analyzing the indeterminate structures to evaluate the response of structures
		Structural Analysis-II	CO-4	To enable the student get a feeling of how real-life structures behave
		Structural Analysis-II	CO-5	To make the student familiar with latest computational techniques and software used for structural analysi

51	RME3C002	Fluid Mechanics and Hydraulic Machines	CO-1	Able to identify fundamental properties of fluid and classify fluid related to fluid mechanics
		Fluid Mechanics and Hydraulic Machines	CO-2	Illustrate pascal law , archimedes' principle , buoyancy ,floatation and effect of forces on submerged bodies.
		Fluid Mechanics and Hydraulic Machines	CO-3	Derive differential equations and identify parameters related to fluid mechanics.
		Fluid Mechanics and Hydraulic Machines	CO-4	Understand N-S ,Euler and Bernoulli's equation and its application to siphon, venturimeter, pitot tube and orificemeter.
		Fluid Mechanics and Hydraulic Machines	CO-5	Calculate the minor and major losses in pipe and solve numericals on fluid flow in pipes in parallel and series.
		Fluid Mechanics and Hydraulic Machines	CO-6	Understand and classify turbines and pumps and able to calculate their performance parameters.
52	RPH1A201	Physics Lab	CO-1	UNDERSTAND THE EXPERIMENTAL FACTS ABOUT RIGID BODY, ELASTICITY AND OSCILLATION
		Physics Lab	CO-2	ANALYZE GRAPHICALLY THE CHARACTERISTICS OF ELECTRONIC COMPONENTS VIZ DIODE AND TRANSISTOR. OBSERVE HALL EFFECT EXPERIMENTALLY
		Physics Lab	CO-3	UNDERSTAND EXPERIMENTALLY INTERFERENCE AND DIFFRACTION AND ANALYSE THE RESULTS WITH STANDARD VALUES.
		Physics Lab	CO-4	UNDERSTAND BASIC PRINCIPLES ASSOCIATED WITH ELECTRICAL CIRCUITS
53	RCS4C203	Computer Organization and Architecture Lab	CO-1	Understand basics of different computer peripherals ,interfaces and able to assemble & disassemble a PC
		Computer Organization and Architecture Lab	CO-1,CO-2	Study the function of SMPS
		Computer Organization and Architecture Lab	CO-2	Understanding of CPU Trouble Shooting.
		Computer Organization and Architecture Lab	CO-3	Solve basic binary math operations using the instructions of microprocessor 8085/8086.
		Computer Organization and Architecture Lab	CO-4	Design and implement combinational circuits like half adder/full adder, half subtractor/full subtractor, code converters, comparators, MUX/DEMUX
		Computer Organization and Architecture Lab	CO-5	Apply programming knowledge using C/C++ to perform both Integer & floating Point Arithmetic
		Computer Organization and Architecture Lab	CO-6	Knowledge about troubleshooting of Dot-Matrix Printer

54	REL5C202	Control & Instrumentation Lab	CO-1	EXAMINE THE AC AND DC BRIDGES FOR THE MEASUREMENT OF INDUCTANCE ,CAPACITANCE AND RESISTANCE
		Control & Instrumentation Lab	CO-2	SELECT VARIOUS TRANSDUCERS FOR THE MEASUREMENT OF PHYSICAL QUANTITIES LIKE TEMPERATURE,PRESSURE,DISTANCE AND DISPLACEMENT.
		Control & Instrumentation Lab	CO-3	EXAMINE THE FREQUENCY DOMAIN RESPONSE OF CLOSED LOOP CONTROL SYSTEM.
55	REN3E001	Engineering Economics	CO-1	Define the basic concept of micro and macro economics, engineering economics and their application in engineering economics
		Engineering Economics	CO-2	Evaluate numerically the effects of change in demand and supply on price determination of products and services
		Engineering Economics	CO-3	The ability to account for time value of money using engineering economics factors and formula
		Engineering Economics	CO-4	Apply knowledge of engineering economics and engineering principles to solve engineering problems, and know the concept of depreciation, tax and inflation e
56	RCS3C202	Data Structure Lab.	CO-1	Be capable to identity the appropriate data structure for given problem
		Data Structure Lab.	CO-2	Have practical knowledge on the applications of data structures
		Data Structure Lab.	CO-3	Have practical knowledge on the applications of data structures
57	RCS5C001	Formal Languages and Automata Theory	CO-1	Understand the concept of automaton, automata theory of formal language and grammars.
		Formal Languages and Automata Theory	CO-2	Identify different formal language classes and their relationships.
		Formal Languages and Automata Theory	CO-3	Prove and disprove theorems establishing key properties of formal languages and automata.
		Formal Languages and Automata Theory	CO-4	Demonstrate knowledge of basic mathematical models of computation and describe how they relate to the corresponding languages.
		Formal Languages and Automata Theory	CO-5	Analyse and design finite automata, pushdown automata and Turing machines.
		Formal Languages and Automata Theory	CO-6	Determine the decidability and intractability of computational problem.
58	RBM1B201	Basic Mechanical Engineering Lab	CO-1	Explain the working of steam power plant
		Basic Mechanical Engineering Lab	CO-2	Compare two stroke and four stroke I.C.Engine
		Basic Mechanical Engineering Lab	CO-3	Describe the working of refrigerator and air-conditioner
		Basic Mechanical Engineering Lab	CO-4	Explain the function of automobile parts
		Basic Mechanical Engineering Lab	CO-5	Verify Bernoulli’s theorem
		Basic Mechanical Engineering Lab	CO-6	Compare gear trains

59	REC5C201	Analog and Digital Communication Lab	CO-1	Identify the basic elements of a communication system.
		Analog and Digital Communication Lab	CO-2	Analyse baseband signals in the time domain and in the frequency domain.
		Analog and Digital Communication Lab	CO-3	Evaluate the performance of various analog and digital modulation and demodulation techniques.
		Analog and Digital Communication Lab	CO-4	Apply multiplexing concepts in different modulation techniques.
		Analog and Digital Communication Lab	CO-5	Use computer simulation tools such as MATLAB to carry out design experiments as it is a key analysis tool of engineering design.
		Analog and Digital Communication Lab	CO-6	Explain the importance of synchronization in communication systems.
60	RME3C202	Fluid Mechanics and Hydraulic Machines Lab.	CO-1	Apply the concept of metacentric height for stability of floating bodies.
		Fluid Mechanics and Hydraulic Machines Lab.	CO-2	Determine Cv & Cd of orifices.
		Fluid Mechanics and Hydraulic Machines Lab.	CO-3	Evaluate the impact of jets on vanes.
		Fluid Mechanics and Hydraulic Machines Lab.	CO-4	Evaluate the performance of Francis and Kaplan turbine
		Fluid Mechanics and Hydraulic Machines Lab.	CO-5	Evaluate the performance of Centrifugal and Reciprocating pump
		Fluid Mechanics and Hydraulic Machines Lab.	CO-6	Determine the Reynold’s number through Reynold’s apparatus
61	RME5C202	Mechanisms and Machines Lab	CO-1	Design of working model of cam set up.
		Mechanisms and Machines Lab	CO-2	Determine the gyroscopic couple using gyroscopic test rig
		Mechanisms and Machines Lab	CO-3	Evaluate the performance characteristics of a spring loaded governor.
		Mechanisms and Machines Lab	CO-4	Analyse static and dynamic balancing using balancing apparatus
		Mechanisms and Machines Lab	CO-5	Determine natural frequencies of un-damped as well as damped vibrating systems.
62	RUH5F001	Universal Human Values (RUH5F001)	CO-1	Analyze the significance of value inputs provided in formal education along with skills for a broader perspective about life and learning

63	REC5C202	Digital Signal Processing Lab	CO-1	Understand and Simulate different discrete time waveforms using DSP Kit/MATLAB simulation software.
		Digital Signal Processing Lab	CO-2	Will be able to illustrate the effect of sampling theorem and also correlate different signals.
		Digital Signal Processing Lab	CO-3	Will be able to calculate the power of a signal
		Digital Signal Processing Lab	CO-4	Will be able to analyse and make use of different filters in processing a signal.
		Digital Signal Processing Lab	CO-5	Will be able to implement adaptive filters for various applications of DSP.
		Digital Signal Processing Lab	CO-6	Can apply the concepts of signal processing to a biomedical signal and analyse it
64	RME5C203	Heat Transfer Lab	CO-1	Determine the Thermal conductivity of composite slab
		Heat Transfer Lab	CO-2	Determine the heat transfer coefficient in forced convection
		Heat Transfer Lab	CO-3	Determine the surface emissivity
		Heat Transfer Lab	CO-4	Evaluate the performance characteristics of parallel flow and counter flow heat exchanger
65	REL5C203	Electrical Machines Lab - II	CO-1	Analyze the different types of winding and their physical arrangement in stator and rotor.
		Electrical Machines Lab - II	CO-2	Understand the construction, operation and characteristics of different AC machines.
		Electrical Machines Lab - II	CO-3	Learn the parallel operation of alternator and the conditions to be satisfied for this.
66	RME3C201	Mechanics of Solid Lab.	CO-1	Determine strength (tensile, compressive and bending) of a material by Universal Testing Machine.
		Mechanics of Solid Lab.	CO-2	Determine shear stress of different materials in Universal Testing Machine.

67	RCS5C202	Database Management Systems Lab	CO-1	Implement the basic knowledge of SQL queries and relationalalgebra
		Database Management Systems Lab	CO-2	Apply normalization techniques for refining of databases.
		Database Management Systems Lab	CO-3	Construct database models for different databaseapplications
		Database Management Systems Lab	CO-4	Practice various triggers, procedures, and cursors usingPL/SQL.
		Database Management Systems Lab	CO-5	Apply advanced queries execution such as relational constraints, joins, set operations, aggregate functions, trigger, views and embedded SQL.
68	REC5C203	Microprocessors & Microcontrollers Lab	CO-1	It will help the student to understand the concept of microptrocessor and its practical application in industry.
		Microprocessors & Microcontrollers Lab	CO-2	To understand the various architecture of microprocessor and controlling other device through interfacing.
		Microprocessors & Microcontrollers Lab	CO-3	Able to perform various arithmetic and logical operation through programming.
		Microprocessors & Microcontrollers Lab	CO-4	To understand the concept of interfacing and chip designing.
		Microprocessors & Microcontrollers Lab	CO-5	To apply the concept of microcontroller for chip designing.
		Microprocessors & Microcontrollers Lab	CO-6	Student will have both hardware and software knowledge which will help them in machine designing.
69	RIP3H201	Evaluation of Internship - I	CO-1	Describe use of 7 R in commercial applications
70		Building Drawing using AutoCAD (RCI3C201)	CO-1	2D,to know about drafting commands,modifying commands,Use of layer and its advantages,Various type of AutoCAD layout conversion (pdf, jpeg)
71	RCI5C202	Water and Waste Water Engineering Lab.	CO-1	Analyze the hardness of water.
		Water and Waste Water Engineering Lab.	CO-2	Analyze the acidity and alkalinity of water sample.
		Water and Waste Water Engineering Lab.	CO-3	Determine the chlorides, residual chlorine sample water.
		Water and Waste Water Engineering Lab.	CO-4	Determine dissolved Oxygen, COD and BOD of waste water.
		Water and Waste Water Engineering Lab.	CO-5	Measure the PH, Electrical conductivity of water sample.
		Water and Waste Water Engineering Lab.	CO-6	Determine the turbidity of water sample by nephelometer

72	RCE1E201	English Language Lab	CO-1	To assist students master the writing skills
73	REL5C001	Fiber Optics & Opto Electronics Devices	CO-1	Understand the principles and operation optical fiber communication, structure, propagation and transmission properties of an optical fiber.
		Fiber Optics & Opto Electronics Devices	CO-2	Examine different kind of losses, signal distortion and propagation characteristics of an optical signal in different types of fibers.
		Fiber Optics & Opto Electronics Devices	CO-3	Discuss fiber fabrication, optical connectors, splicing techniques, and losses during coupling.
		Fiber Optics & Opto Electronics Devices	CO-4	Classify the construction, principle of operation, and characteristics of optoelectronic sources, and detectors.
		Fiber Optics & Opto Electronics Devices	CO-5	Explain basic optical amplifier operation and its effect on signal power and noise in the system.
		Fiber Optics & Opto Electronics Devices	CO-6	Analyze the different network access schemes and packet switching in the OFC system and the operational principles of WDM.
74	RCS5C201	Formal Languages and Automata Theory Lab	CO-1	Understand the concept of automaton, automata theory of formal language and grammars.
		Formal Languages and Automata Theory Lab	CO-2	Analyse and design finite automata and its relationship with Regular expressions
		Formal Languages and Automata Theory Lab	CO-3	Use of JFLAP tool to construct finite automaton
		Formal Languages and Automata Theory Lab	CO-4	Implementation of context free languages
		Formal Languages and Automata Theory Lab	CO-5	Implementation of Recursively Enumerable Languages
		Formal Languages and Automata Theory Lab	CO-6	Implementation of parsing algorithms
75	REL4D003	Electrical and Electronics Measurement	CO-1	Identify various types of electronic instrument suitable for specific measurement
		Electrical and Electronics Measurement	CO-2	Classify various errors present in measuring instruments
		Electrical and Electronics Measurement	CO-3	Understand construction,working principle and types of oscilloscopes
		Electrical and Electronics Measurement	CO-4	Comprehend different types of singal generators and analyzers,their construction and operation.Describe the working principle,selection criteria
		Electrical and Electronics Measurement	CO-5	Describe the working principle,selection criteria and applications of various transducers used in measurement systems

76	RPL2B001	Programming for Problem Solving using C	CO-1	Formulate simple algorithms for arithmetic and logical problems
		Programming for Problem Solving using C	CO-2	Translate the algorithm to programs (using C language)
		Programming for Problem Solving using C	CO-3	Test and execute the programs and implement conditional branching and iteration
		Programming for Problem Solving using C	CO-4	Decompose a problem into functions & synthesize a complete program using divide & conquer approach.
		Programming for Problem Solving using C	CO-5	Apply arrays, pointers and structure in programming to solve matrix addition and multiplication problems and searching & sorting problems
		Programming for Problem Solving using C	CO-6	Apply programming to solve simple numerical method problems, namely root finding function, differentiation of function and simple integration.
77	RCS6C001	Software Engineering	CO-2	Students will be able to know different designing tools and case tools
		Software Engineering	CO-3	The student will be able to know testing procedures to debug the software.
		Software Engineering	CO-4	An ability to function on multi-disciplinary teams
		Software Engineering	CO-5	An ability to identify, formulate and solve engineering problems
		Software Engineering	CO-6	The ability to work in one or more significant application domains
78	RCS4C201	Problem Solving and Python Programming Laboratory	CO-1	Write, test, and debug simple Python programs.
		Problem Solving and Python Programming Laboratory	CO-2	Implement Python programs with conditionals and loops.
		Problem Solving and Python Programming Laboratory	CO-3	Develop Python programs step-wise by defining functions and calling them.
		Problem Solving and Python Programming Laboratory	CO-4	Use Python lists, tuples, dictionaries for representing compound data.
		Problem Solving and Python Programming Laboratory	CO-5	Read and write data from/to files in Python
79	RCI6C001	Design of Steel Structures	CO-1	Understand the force transferring mechanism, design and detail the connections as bolted and welded connections
		Design of Steel Structures	CO-2	Design and detail of steel tension members.
		Design of Steel Structures	CO-3	Design and detail of steel compression members.
		Design of Steel Structures	CO-4	Design and detail of steel flexure members.
		Design of Steel Structures	CO-5	Classify the structural steel connections in industrial building
		Design of Steel Structures	CO-6	Design and detail column base.

80	RCS6C002	Compiler Design	CO-1	To be familiar with complier architecture and concepts involved in compilation process.
		Compiler Design	CO-2	To understand the use of lexical analyzer, parser generator tools, Register allocation and de-allocation and compiler optimization.
		Compiler Design	CO-3	Able to understand the use of various tools like LEX, YACC,FLEX, JFLAP.
		Compiler Design	CO-4	To write a scanner, parser and semantic analyzer.
		Compiler Design	CO-5	To understand and describe techniques for intermediate code and machine code generation
		Compiler Design	CO-6	To understand and describe techniques for code optimization.
81		Wireless Sensor Networks	CO-1	To understand the state of the art in Wireless sensor network protocols, Sensor node architectures and applications.
		Wireless Sensor Networks	CO-2	To analyse existing wireless sensor network protocols and Wireless sensor networks
		Wireless Sensor Networks	CO-3	To develop new protocols in wireless sensor networking
		Wireless Sensor Networks	CO-4	To investigate novel ideas in the area of wireless sensor networking via long term research.
		Wireless Sensor Networks	CO-5	To introduce the hardware and software platforms and tool in WSN
		Wireless Sensor Networks	CO-6	Understand the Sensor management, sensor network middleware, operating systems.
82	ROE6A001	Optimization in Engineering	CO-1	Apply the theory of optimization method and algorithm to develop and for solving various types of optimization problems
		Optimization in Engineering	CO-2	Solve the mathematical problem and numerical technique of optimization theory to concrete engineering problems by using computer applications
		Optimization in Engineering	CO-3	Apply the optimisation technique in research for various engineering and technical application
		Optimization in Engineering	CO-4	Create an engineering design methodology using mathematical formulation of a design problem to support selection of the optimal design among alternatives

83	REC6C002	Wireless Communication	CO-1	Understanding the concepts of Wireless Communication fundamentals and finding solutions to complex problems
		Wireless Communication	CO-2	Simulating the Real World Problems Using Cell Design
		Wireless Communication	CO-3	Familiarizing The Students With Different Propagation Models
		Wireless Communication	CO-4	Able to Understand The Concepts of FDMA, TDMA, SDMA & CDMA
		Wireless Communication	CO-5	Able to Design The Application of Networks & Protocols
		Wireless Communication	CO-6	Able to Analyse & Design The Concepts of Bands, Navigation, ATC, 5G, WiMax
84	REE6C002	Microprocessor and Microcontroller	CO-1	To understand the various architecture of microprocessor and controlling other device through interfacing.
		Microprocessor and Microcontroller	CO-2	Able to perform various arithmetic and logical operation through programming.
		Microprocessor and Microcontroller	CO-3	To understand the concept of interfacing and chip designing.
		Microprocessor and Microcontroller	CO-4	To apply the concept of microcontroller for chip designing.
		Microprocessor and Microcontroller	CO-5	Student will have both hardware and software knowledge which will help them in machine designing.
		Microprocessor and Microcontroller	CO-6	It will help the student to understand the concept of microptrocessor and its practical application in industry.
85	RCS6C201	Software Engineering Lab	CO-1	Students will be able to know about various processes used in software development
		Software Engineering Lab	CO-2	Students will be able to know different designing tools and case tools
		Software Engineering Lab	CO-3	The student will be able to know testing procedures to debug the software.
		Software Engineering Lab	CO-4	An ability to function on multi-disciplinary teams
		Software Engineering Lab	CO-5	The student will be able to know testing procedures to debug the software.
		Software Engineering Lab	CO-6	Students will be able to know different designing tools and case tools

86	RCS6C202	Compiler Design Lab	CO-1	To be familiar with complier architecture and concepts involved in compilation process.
		Compiler Design Lab	CO-2	The students will able to find appropriate idealization for converting real world problems to artificial intelligence search problems formulated using appropriate search algorithm.
		Compiler Design Lab	CO-3	Able to understand the use of various tools like LEX, YACC,FLEX, JFLAP
		Compiler Design Lab	CO-4	To write a scanner, parser and semantic analyzer
		Compiler Design Lab	CO-5	To understand and describe techniques for intermediate code and machine code generation
		Compiler Design Lab	CO-6	To understand and describe techniques for code optimization
87	RCI6D001	Foundation Engineering	CO-1	To understand the foundation engineering and it help to calculate the earth pressure at different conditions and also know the retaining wall
		Foundation Engineering	CO-2	Estimate bearing capacity of soil and select a suitable foundation.
		Foundation Engineering	CO-3	To understand the types of foundation and design the pile foundation and the problem.
		Foundation Engineering	CO-4	Design a suitable shallow or deep foundation
		Foundation Engineering	CO-5	Estimate the load carrying capacity of pile and pile group and pressure distribution behind retaining walls
		Foundation Engineering	CO-6	The students will know the types of sub soil exploration and different plate load tests.
88	REL5D005	Renewable Power Generation Systems	CO-1	understand the concept of basic properties of different renewable sources of energy and their utilization.
		Renewable Power Generation Systems	CO-2	compare advantages and disadvantages of different renewable sources of energy.
		Renewable Power Generation Systems	CO-3	analyze the process of solar energy conversion and the field application of solar energy.
		Renewable Power Generation Systems	CO-4	Identify wind energy as an alternate form of energy and to know how it can be used for electricity production.
		Renewable Power Generation Systems	CO-5	explain biogas generation & it’s impact on environment.
		Renewable Power Generation Systems	CO-6	understand different typed of hybrid energy system and use of hybrid energy system.

89	REL4C002	Electrical Machines-I	CO-1	UNDERSTAND THE CONCEPT OF MAGNETIC FIELD & CIRCUITS
		Electrical Machines-I	CO-2	IMPLEMENT THE CONCEPT OF ELECTROMAGNETIC FORCE & TORQUE IN ELECTRICAL MACHINES
		Electrical Machines-I	CO-3	UNDERSTAND THE CONSTRUCTION, WINDINGS AND COMMUTATION PROCESS IN DC MACHINES
		Electrical Machines-I	CO-4	ANALYZE THE DIFFERENCES IN OPERATION OF DIFFERENT DC MACHINE CONFIGURATIONS
		Electrical Machines-I	CO-5	EXAMINE DIFERENT TYPES OF TRANSFORMERS BASED UPON THEIR CONSTRUCTION, OPERATION & APPLICATIONS
		Electrical Machines-I	CO-6	ANALYZE THE PHASE CONVERSION TECHNIQUES IN A THREE PHASE TRANSFORMER
90	REL4C202	Electrical Machines-I Laboratory	CO-1	DETERMINE THE EFFICIENCY & PARAMETERS OF A SINGLE PHASE TRANSFORMER BY PERFORMING VARIOUS TESTS
		Electrical Machines-I Laboratory	CO-2	ANALYZE THE LOAD SHARING IN BETWEEN THE TRANSFORMERS BY PERFORMING PARALLEL OPERATION
		Electrical Machines-I Laboratory	CO-3	ANALYZE THE SPEED CONTROL OF THREE PHASE INDUCTION MOTORS BY VARIABLE FREQUENCY DRIVE
		Electrical Machines-I Laboratory	CO-4	DETERMINE THE EFFICIENCY & PARAMETERS OF A THREE PHASE INDUCTION MOTOR BY PERFORMING VARIOUS TESTS
		Electrical Machines-I Laboratory	CO-5	EVALUATE THE PARAMETERS OF VARIOUS SINGLE PHASE INDUCTION MOTORS
		Electrical Machines-I Laboratory	CO-6	EXAMINE THE PERFORMANCE OF GRID CONNECTED INDUCTION GENERATOR
91	RCN4F001	Constitution of India	CO-1	Understand the evolution, history of constitution, meaning of constitutional law & constitutionalism
		Constitution of India	CO-2	Recognize the scheme of fundamental rights & duties
		Constitution of India	CO-3	Describe the federal structure & distribution of legislative & financial powers between union & states
		Constitution of India	CO-4	Understand the parliamentary form of government of India
		Constitution of India	CO-5	Recognize the procedure of constitutional amendment & historical amendments
		Constitution of India	CO-6	Compare between the different emergency provisions

92	RCS4C002	Design and Analysis of Algorithms	CO-1	1. For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.
		Design and Analysis of Algorithms	CO-2	2. Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.
		Design and Analysis of Algorithms	CO-3	3. Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divideand-conquer algorithms. Derive and solve recurrence relation.
		Design and Analysis of Algorithms	CO-4	4. Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming and develop the dynamic programming algorithms.
		Design and Analysis of Algorithms	CO-5	5. For a given model engineering problem model it using graph and write the corresponding algorithm to solve the problems.
		Design and Analysis of Algorithms	CO-6	6. Explain the ways to analyze randomized algorithms (expected running time, probability of error).
93	RBE2B001	Basic Electrical Engineering	CO-1	UNDERSTAND ELECTRICAL QUANTITIES SUCH AS CURRENT, VOLTAGE, POWER, POWER FACTOR, ENERGY AND FREQUENCY.
		Basic Electrical Engineering	CO-2	APPLY THE KNOWLEDGE OF BASIC ELECTRICAL CONCEPTS TO SOLVE ENGINEERING PROBLEMS
		Basic Electrical Engineering	CO-3	PREDICT THE BEHAVIOUR OF ANY ELECTRICAL AND MAGNETIC CIRCUITS.
		Basic Electrical Engineering	CO-4	ANALYZE DIFFERENT ELECTRIC CIRCUITS BY USING DIFFERENT NETWORK THEOREMS
		Basic Electrical Engineering	CO-5	IDENTIFY THE TYPE OF ELECTRICAL MACHINES FOR A GIVEN APPLICATION.
		Basic Electrical Engineering	CO-6	UNDERSTAND THE OPERATION AND APPLICATION OF DIFFERENT AC & DC MACHINES
94	REC4C003	Network Theory	CO-1	Apply network theorems for the analysis of electrical circuits.
		Network Theory	CO-2	Obtain the transient and steady state response of electrical circuits.
		Network Theory	CO-3	Analyze circuits in the sinusoidal steady state (single-phase and three-phase).
		Network Theory	CO-4	Analyze two port circuit behavior.
		Network Theory	CO-5	Apply the knowledge of Basic circuital law and simplify the network using reduction techniques
		Network Theory	CO-6	Analyze of couple circuits.

95	RME6C001	Design of Machine Elements	CO-1	Explain the fundamentals of mechanical engineering design and design procedure.
		Design of Machine Elements	CO-2	Select suitable materials for a machine element on the basis of functions, production and applications.
		Design of Machine Elements	CO-3	Design temporary and permanent joints.
		Design of Machine Elements	CO-4	Design key, shaft, and coupling.
		Design of Machine Elements	CO-5	Design mechanical springs.
		Design of Machine Elements	CO-6	Design rolling contact and sliding contact bearings.
96	REL4C205	Microprocessor and Microcontroller Lab	CO-1	8085 microprocessor trainer kit descroption
		Microprocessor and Microcontroller Lab	CO-2	8085 programming
97	RCS4C202	Design and Analysis of Algorithms Lab	CO-1	Design algorithms using divide and conquer, greedy and dynamic programming
		Design and Analysis of Algorithms Lab	CO-2	Execute sorting algorithms such as sorting, graph related and combinatorial algorithm in a high level language.
		Design and Analysis of Algorithms Lab	CO-3	Analyze the performance of merge sort and quick sort algorithms using divide and conquer technique.
		Design and Analysis of Algorithms Lab	CO-4	Apply the dynamic programming technique to solve real world problems such as knapsack and TSP.
98	RIT6C002	Internet and Web Technology	CO-1	Ability to relate practical problems to internet web technology concepts.
		Internet and Web Technology	CO-2	Ability to model problems using standard web technology concepts.
		Internet and Web Technology	CO-3	Ability to apply web technology skills in real-world problem solving.
99	RCS4D001	Data Communication	CO-1	Able to understand working of basic communication systems.
		Data Communication	CO-2	Able to learn Transmission mediums in communication system.

100	RPL2B201	Programming for Problem Solving using C Lab	CO-1	To formulate simple algorithms for arithmetic & logical problems
		Programming for Problem Solving using C Lab	CO-2	To translate the algorithm to programs(C language)
		Programming for Problem Solving using C Lab	CO-3	To test & execute the programs and correct syntax logical errors
		Programming for Problem Solving using C Lab	CO-4	To decompose a problem into functions & synthesize a complete program using divide & conquer approach.
		Programming for Problem Solving using C Lab	CO-5	To apply programming to solve matrix addition and multiplication problems and searching & sorting problems
		Programming for Problem Solving using C Lab	CO-6	To apply programming to solve simple numerical method problems, namely root finding function, differentiation of function and simple integration
101	RME4G003	Data Structure	CO-1	Ability to choose appropriate data structures to represent data items in real world Problems.
		Data Structure	CO-2	Ability to analyze the time and space complexities of Algorithms
		Data Structure	CO-3	Implement and know the application of algorithms for sorting
		Data Structure	CO-4	Ability to design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps,
		Data Structure	CO-5	Implement ADTs such as lists, graphs, search trees in C to solve problem
102	REL4C001	Digital Electronics	CO-1	Understanding of the fundamental concepts and techniques in numbers systems and logic Gate used in digital electronics
		Digital Electronics	CO-2	Analyze and Design various Combinational Circuits and Implementation
		Digital Electronics	CO-3	Analyze and Design various Sequential Logic Circuits and Implementation
		Digital Electronics	CO-4	Applications of FFs in various Sequential Circuits
		Digital Electronics	CO-5	Various Process to convert an Analog Signal to Digital Signals
		Digital Electronics	CO-6	Construction and Implementation of Various Memory Devices

103	REM2B001	Engineering Mechanics	CO-1	Understand the laws and principles of mechanics.
		Engineering Mechanics	CO-2	Describe equilibrium of concurrent coplanar forces through methods of projections and moments.
		Engineering Mechanics	CO-3	Understand the concept of friction and able to draw the free body diagram.
		Engineering Mechanics	CO-4	Understand the concepts of centre of gravity and moment of inertia and analyze the concepts of plane trusses and virtual work.
		Engineering Mechanics	CO-5	Illustrate the kinematics of rectilinear motion and curvilinear motion.
		Engineering Mechanics	CO-6	Explain the kinetics of rectilinear and curvilinear motion and the concept of projectile.
104	RCS4C204	Database Management Systems Lab	CO-1	Insertion, deletion, join, updation using SQL
105	RME4C002	Engineering Thermodynamics	CO-1	Analyze different laws related to energy interaction.
		Engineering Thermodynamics	CO-2	Explain the relationship between thermodynamic properties and exergy, anergy analysis.
		Engineering Thermodynamics	CO-3	Analyze vapour power cycles.
		Engineering Thermodynamics	CO-4	Analyze thermodynamic cycles related to I.C. engines.
		Engineering Thermodynamics	CO-5	Analyze thermodymanic cycles related to refrigeration systems.
		Engineering Thermodynamics	CO-6	Analyze the performance of air compressor.
106	RCI4G001	Introduction to Physical Metallurgy and Engineering Materials	CO-1	Evaluate the crystallographic structures, crystallographic planes, direction and voids in metallic materials
		Introduction to Physical Metallurgy and Engineering Materials	CO-2	Understand the concept of solidification in metal and alloys, crystal imperfections and strengthening mechanisms
		Introduction to Physical Metallurgy and Engineering Materials	CO-3	Identify and describe different types of material processing techniques for composite
		Introduction to Physical Metallurgy and Engineering Materials	CO-4	Classify and select appropriate composite materials for different applications.

107	RBM2B001	Basic Mechanical Engineering	CO-1	Explain the universal laws related to energy interaction.
		Basic Mechanical Engineering	CO-2	Apply thermodynamic laws and principles to solve problems .
		Basic Mechanical Engineering	CO-3	Describe energy interaction in Air compressors, Steam Power Plant, Refrigerators and Heat pump, I.C. Engines.
		Basic Mechanical Engineering	CO-4	Describe the working principle of power transmission devices.
		Basic Mechanical Engineering	CO-5	Explain robot anatomy, joints and links and robot configurations.
		Basic Mechanical Engineering	CO-6	Describe the working principle of mechanical measurement devices.
108	RCH2A002	Chemistry	CO-1	Apply the basics of quantum mechanical concept. In solving the problems.
		Chemistry	CO-2	Compare the molecular interaction with electromagnetic. Radiation of the UV- Visible, microwave (Rotational), IR (Virbratinal) Spectra
		Chemistry	CO-3	Associate phase Rule in alloying & for prediction of behavior of one component, two component & Isomorphous system.
		Chemistry	CO-4	Analyze different types of solid, liquid and gaseous fuel processing and their characterization.
		Chemistry	CO-5	Categorize chemical, Electrochemical corrosion and their prevention methods.
		Chemistry	CO-6	Describe different types of nanomaterials synthesis and their application
109	RCH2A202	Chemistry Lab	CO-1	Apply the basics of quantum mechanical concept. In solving the problems.
		Chemistry Lab	CO-2	Compare the molecular interaction with electromagnetic. Radiation of the UV- Visible, microwave (Rotational), IR (Virbratinal) Spectra
		Chemistry Lab	CO-3	Associate phase Rule in alloying & for prediction of behavior of one component, two component & Isomorphous system.
		Chemistry Lab	CO-4	Analyze different types of solid, liquid and gaseous fuel processing and their characterization.
		Chemistry Lab	CO-5	Categorize chemical, Electrochemical corrosion and their prevention methods.
		Chemistry Lab	CO-6	Describe different types of nanomaterials synthesis and their application

110	RME4D002	Mechanical Measurement, Metrology & Reliability	CO-1	Explain concepts of measuring instruments
		Mechanical Measurement, Metrology & Reliability	CO-2	the types of transducers and strain measurement
		Mechanical Measurement, Metrology & Reliability	CO-3	working of pressure measuring instruments
		Mechanical Measurement, Metrology & Reliability	CO-4	Explain the various measurement principles
		Mechanical Measurement, Metrology & Reliability	CO-5	Explain reliability and improvement.
		Mechanical Measurement, Metrology & Reliability	CO-6	principle of mechanical measurement devices
111	RME6C002	Machining Science and Technology	CO-1	Explain the cutting tool geometry and principle of machining.
		Machining Science and Technology	CO-2	Describe orthogonal cutting, oblique cutting, mechanism of chip formation and cutting tool materials.
		Machining Science and Technology	CO-3	Analyze cutting forces during machining.
		Machining Science and Technology	CO-4	Analyze tool wear mechanism, failure of cutting tools, machinability and economics of machining
		Machining Science and Technology	CO-5	Describe the conventional machining processes, machine tools, their specification and application
		Machining Science and Technology	CO-6	Illustrate the non-conventional machining processes, machine tools, their specification and application.
112	RME6D001	Smart and Composite Materials(Elective)	CO-1	Introduction to composite materials
		Smart and Composite Materials(Elective)	CO-2	concepts and importance of composite materials
		Smart and Composite Materials(Elective)	CO-3	Explain metal matrix composites
		Smart and Composite Materials(Elective)	CO-4	Explain ceramics matrix composites
		Smart and Composite Materials(Elective)	CO-5	Describe polymer matrix composites
		Smart and Composite Materials(Elective)	CO-6	Awareness on sandwich structures

113	RME4C003	Introduction to Physical Metallurgy and Engineering Materials	CO-1	Classify different type of materials and material properties
		Introduction to Physical Metallurgy and Engineering Materials	CO-2	Illustrate the crystallographic structures, crystallographic planes, directions and voids in metallic materials.
		Introduction to Physical Metallurgy and Engineering Materials	CO-3	Explain the concept of solidification in metal and alloys, crystal imperfections and strengthening mechanism.
		Introduction to Physical Metallurgy and Engineering Materials	CO-4	Interpret Iron- Carbon diagram and the concept of heat treatment of steel.
		Introduction to Physical Metallurgy and Engineering Materials	CO-5	Identify and describe different types of composites and their material processing techniques.
		Introduction to Physical Metallurgy and Engineering Materials	CO-6	Classify and select appropriate plastics, ceramics and composite materials for different applications.
114	RME4C001	Kinematics & Dynamics of Machines	CO-1	Describe the theory of kinematics and dynamics of machines.
		Kinematics & Dynamics of Machines	CO-2	Apply techniques for studying motion of machines and their components.
		Kinematics & Dynamics of Machines	CO-3	Analyze graphically and analytically the position, velocity and acceleration considering static and inertia forces.
		Kinematics & Dynamics of Machines	CO-4	Derive mathematically the geometry and the motions of the parts of a machine considering the forces that produce this motion.
		Kinematics & Dynamics of Machines	CO-5	Analyze the performance of power transmission devices.
115	RME6C202	Machining Science and Technology Lab	CO-1	Produce parts using various machining processes in Lathe and milling machines.
		Machining Science and Technology Lab	CO-2	Produce surfaces like flat, angular, cutting, key-ways,etc by using shaper, Planner and slotting machines.
		Machining Science and Technology Lab	CO-3	Produce parts using grinding machine.
		Machining Science and Technology Lab	CO-4	Measure cutting force during machining using dynamometer.
		Machining Science and Technology Lab	CO-5	Produce parts using codes in CNC Machine
		Machining Science and Technology Lab	CO-6	Describe the non-conventional machining processes (USM, AJM, EDM & ECM)

116	REL4G003	Embedded System	CO-1	Understand the fundamentals ideas regarding Embedded Systems and it's applications
		Embedded System	CO-2	Gain Ideas about Embedded System Processors and it's Instruction set architecture.
		Embedded System	CO-3	Gain Knowledge about different communication Interfaces and standards.
		Embedded System	CO-4	Students will get the knowledge and Techniques of RTOS.
		Embedded System	CO-5	Understand the ideas about different modelling Techniques of Embedded Systems.
		Embedded System	CO-6	To get Idea and able to Develop Low power Embedded System designs.
117	REL5C001	Electric Power Transmission and Distribution	CO-1	Analyse the significance for economic analysis of power generation and power factor
		Electric Power Transmission and Distribution	CO-2	Determine the parameters of transmission line.
		Electric Power Transmission and Distribution	CO-3	Evaluate the performance of short, medium and long transmission lines.
		Electric Power Transmission and Distribution	CO-4	Understand the role of insulators and able to calculate the string efficiency
		Electric Power Transmission and Distribution	CO-5	Analyse the selection of underground cables, different distribution system topologies.
118	REL4C201	Digital Electronics Laboratory	CO-1	Demonstration and Analysis of Logic Gates and Simplification of Boolean Function
		Digital Electronics Laboratory	CO-2	Design and Implementation of Combinational Circuits and use of Universal gate
		Digital Electronics Laboratory	CO-3	Testing of FFs and their application for sequential circuits
		Digital Electronics Laboratory	CO-4	Testing of Combinational Circuits
		Digital Electronics Laboratory	CO-5	Design and Implementation of Sequential Logic Circuits
119	RCI4C001	Surveying	CO-1	Remember the basic of surveying and different method of surveying ,understand working principle of surveying instruments and the basic surveying techniques using chain

120	REC4C203	Network Theory Laboratory	CO-1	IMPLEMENT NETWORK THEOREMS FOR THE ANALYSIS OF ELECTRICAL CIRCUIT.
		Network Theory Laboratory	CO-2	EVALUATING THE TRANSIENT AND STEADY STATE RESPONSE OF ELECTRICAL CIRCUIT.
		Network Theory Laboratory	CO-3	ANALYSE TWO PORT CIRCUIT BEHAVIOUR
		Network Theory Laboratory	CO-4	INVESTIGATE THE BEHAVIOUR OF RESONANCE CIRCUITS.
		Network Theory Laboratory	CO-5	EVALUATION OF FILTER CIRCUITS.
		Network Theory Laboratory	CO-6	TO UNDERSTAND THE FUNDAMENTALS OF ELECTRICAL CIRCUITS AND METLAB
121	RCS4C001	Discrete Mathematics	CO-1	Understand the basic principles of sets and operations in sets
		Discrete Mathematics	CO-2	Apply counting principles to determine probabilities
		Discrete Mathematics	CO-3	Demonstrate an understanding of relations and functions and variable to determine their properties.
		Discrete Mathematics	CO-4	Demonstrate different traversal methods for trees and graphs.
		Discrete Mathematics	CO-5	Model problems in computer science using graphs and trees
		Discrete Mathematics	CO-6	Able to write an argument using logical notation and determine if argument is valid or not.
122	REL6C201	Power System Operation and Control Lab	CO-1	Interpret real and reactive power flow and per unit studies in power system network
		Power System Operation and Control Lab (REL6C201)	CO-2	Investigate operation of relays
123	RBM2B201	Basic Mechanical Engineering	CO-1	Explain the working of steam power plant
		Basic Mechanical Engineering	CO-2	Compare two stroke and four stroke I.C engine
		Basic Mechanical Engineering	CO-3	Describe the working of refrigerator and air conditioner
		Basic Mechanical Engineering	CO-4	Explain the function of different automobile parts
		Basic Mechanical Engineering	CO-5	Compare gears and gear trains
		Basic Mechanical Engineering	CO-6	Verify Bernoullis's theorem

124	REL4C004	Electrical Machines	CO-1	UNDERSTAND THE CONCEPT OF MAGNETIC CIRCUIT WITH THE HELP OF ASSOCIATED LAWS AND CHARACTERISTICS CURVE OF MAGNETIC CIRCUIT.
		Electrical Machines	CO-2	ANALYZE THE CONSTRUCTION & WORKING PRINCIPLE OF DIFFERENT AC & DC MACHINES.
		Electrical Machines	CO-3	ESTIMATE VARIOUS TYPES OF LOSSES & EFFICIENCY IN DIFFERENT DC AND AC MACHINES
		Electrical Machines	CO-4	STUDY OF EQUIVALENT CIRCUIT OF ELECTRICAL MACHINES.
		Electrical Machines	CO-5	STUDY DIFFERENT METHODS OF SPEED CONTROL OF MOTOR
125	RCS4D001	Data Communication	CO-4	Understand and apply transmission mediums like metalic and optical fiber cables
		Data Communication	CO-5	To understand wireless communications systems and communication equipments.
		Data Communication	CO-6	Determine the various modulation and error detection and correction techniques and their application in communication systems.
126	RWO2B202	Workshop	CO-1	Identify hand tools used in fitting and welding practices.
		Workshop	CO-2	Describe the specifications and functions of welding equipment, Lathe, Milling machine, Shaper
		Workshop	CO-3	Do Turning, Threading, Grooving, Shaping, Milling Operations on Jobs.
		Workshop	CO-4	Make Lap and Butt Joints through Arc and Gas welding.
		Workshop	CO-5	Make Paper weight of Mild Steel using Hand tools.
127	REC4C201	Electronic Device Laboratory	CO-1	Understand the device simulation tools HFSS, CST.
		Electronic Device Laboratory	CO-2	Analyze the Current and charge flow of electromagnetic wave in a rectangular waveguide
		Electronic Device Laboratory	CO-3	Apply HFSS/CST tools to determine modes of a rectangular waveguide
		Electronic Device Laboratory	CO-4	Understand Transverse Electric Waves in a Parallel-Plate Waveguide
		Electronic Device Laboratory	CO-5	Apply the knowledge of theoretical & practical aspects of high frequency circuits to find azimuth and elevation patterns
		Electronic Device Laboratory	CO-6	Analyze input and output impedance of rectangular waveguide.

128	REC6D001	Antenna Engineering	CO-1	Remember and understand the basics and theory behind antenna radiation mechanisms, identify major types of antennas and their applications, different antennas parameters interpret the relationships be
		Antenna Engineering	CO-2	Understand the principles behind broadband and frequency-independent antenna. Distinguish among different types of wave propagation.
		Antenna Engineering	CO-3	Analyse the power radiated by different antennas and their radiation characteristics.
		Antenna Engineering	CO-4	Apply knowledge of mathematics, science, and engineering and use mathematical concepts in the analysis of antennas.
		Antenna Engineering	CO-5	Apply concepts to the design and simulation of practical antennas by varying characteristic elements to optimize their system performance.
		Antenna Engineering	CO-6	Identify, formulate, and solve engineering problems and observe simulations of different types of antennas.
129	REC4C002	Digital Systems Design	CO-1	Able to understand and remember concept of digital and binary systems, number conversion, concept of Boolean algebra.
		Digital Systems Design	CO-2	Postulate Boolean algebra to minimize combinational functions, design and analyze combinational logic circuits
		Digital Systems Design	CO-3	Design and analyze sequential logic circuits.
		Digital Systems Design	CO-4	Design and analyze combinational logic circuits.
		Digital Systems Design	CO-5	Implement Digital Logic circuits using VHDL and functions using logic gates.
		Digital Systems Design	CO-6	Reinforce theory and techniques taught in the classroom through experiments and projects in the laboratory.
130	RIK7F001	Essence of Indian Knowledge Tradition - II	CO-1	DEVELOP AN UNDERSTANDING OF THE BEHAVIOR OF INDIVIDUALS AND GROUPS INSIDE ORGANIZATIONS.
		Essence of Indian Knowledge Tradition - II	CO-2	ENHANCE SKILLS IN UNDERSTANDING AND APPRECIATING INDIVIDUALS, INTERPERSONAL, AND GROUP PROCESS FOR INCREASED EFFECTIVENESS BOTH WITHIN AND OUTSIDE OF
131	RIK6F001	Essence of Indian Knowledge Tradition - I	CO-1	Ability to understand basics of Indian Traditional knowledge modern scientific perspective.
		Essence of Indian Knowledge Tradition - I	CO-2	Connect up Indian Traditional knowledge modern scientific perspective.
		Essence of Indian Knowledge Tradition - I	CO-3	Explain basics of Indian Traditional knowledge modern scientific perspective.

132	RME4C202	Engineering Thermodynamics Laboratory	CO-1	Describe the working principle of 2 stroke and 4 stroke Diesel Engine/Petrol engine through cut-section model study.
		Engineering Thermodynamics Laboratory	CO-2	Describe the working of steam power plant and gas turbine power plant.
		Engineering Thermodynamics Laboratory	CO-3	Explain the working principle of refrigeration system.
		Engineering Thermodynamics Laboratory	CO-4	Analyze the performance of reciprocating air compressor and gear pump.
		Engineering Thermodynamics Laboratory	CO-5	Determine the steam quality using calorimeter.
		Engineering Thermodynamics Laboratory	CO-6	Analyze the performance of 4-stroke single cylinder C.I. engine through load test and 4 stroke 4 cylinder S.I. engine through Morse test.
133	REC6C001	Microwave Engineering	CO-1	Understand the types of waveguides and their respective modes of propagation, strip lines used to transmit the microwave frequencies, terminologies associated with
		Microwave Engineering	CO-2	Apply the fundamental concepts of propagation of waves in rectangular and circular waveguide, their characteristics, modes of propagation and power losses & transmission
		Microwave Engineering	CO-3	Identify various microwave multiport junctions like, E-Plane Tee, H-plane Tee, Directional Couplers, attenuators, Gyrator, circulator, isolator and to understand microwave conventional
		Microwave Engineering	CO-4	Study of high frequency amplifiers, HEMT, Doherty amplifier, Gunn Oscillator, Mixer and other active devices
		Microwave Engineering	CO-5	Define the concept of antenna arrays, its analysis and their different types
		Microwave Engineering	CO-6	Measure the various parameters used for characterizing antennas and their optimum values
134	RCI4C202	Transportation Engineering Laboratory	CO-1	Identify the engineering properties of aggregate
135	REC4C202	Digital System Design Laboratory	CO-1	Describe and explain the operation of fundamental digital gates. And can design digital circuit with gate minimization techniques
		Digital System Design Laboratory	CO-2	Analyze the operation of combinational circuits like the encoder, decoder, multiplexer, de-multiplexer, adder.
		Digital System Design Laboratory	CO-3	Analyze the operation of a flip-flop
		Digital System Design Laboratory	CO-4	Analyze the operation of counters and shift registers.
		Digital System Design Laboratory	CO-5	Design operate practical digital logic circuits.
		Digital System Design Laboratory	CO-6	Develop or create digital system using VHDLs programming and can optimize the digital system performance.

136	REC4D003	Sensors and Transducers	CO-1	Apply a basic concept of transducers to sensor based personal computer system.
		Sensors and Transducers	CO-2	Identify the variable characteristics of sensors to make them work on different platforms.
		Sensors and Transducers	CO-3	Illustrate how the different peripherals (sensors & transducers) are interfaced with amplifiers.
		Sensors and Transducers	CO-4	Classify the properties of Transducers
		Sensors and Transducers	CO-5	Analyze the sensor readings in LVDT displacement sensors.
		Sensors and Transducers	CO-6	Implement the knowledge in real world application
137		Microwave Engineering Lab	CO-1	Understand the characteristics of various microwave components.
		Microwave Engineering Lab	CO-2	Explain various microwave bench setups for measuring various parameters
		Microwave Engineering Lab	CO-3	Analyze the operation of different microwave sources (i.e., Reflex Klystron, Gunn Diode).
		Microwave Engineering Lab	CO-4	Determine the measurements of microwave power, attenuation, frequency, VSWR, and impedance
		Microwave Engineering Lab	CO-5	Demonstrate the radiation patterns of different antennas
		Microwave Engineering Lab	CO-6	Describe the working of microwave passive circuits such as isolators, circulators, Directional couplers, attenuators etc.
138	REC4G002	Data Structure	CO-1	Analyze the concepts of algorithm evaluation and find time and space complexities.
		Data Structure	CO-2	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.
		Data Structure	CO-3	Describe the hash function and concepts of collision and its resolution methods
		Data Structure	CO-4	Implement linear data structure such as stacks, queues, linked lists and their applications.
		Data Structure	CO-5	Implement basic operations on binary trees and their applications.
		Data Structure	CO-6	Demonstrate the representation and traversal techniques of graphs and their applications

139	RME4C203	Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-1	Describe the crystallographic structures for SC, BCC, FCC and HCP.
		Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-2	Explain principle and operation of Metallurgical Microscope
		Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-3	Evaluate microstructure of alloys.
		Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-4	Explain the different heat treatment processes
		Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-5	Evaluate impact strength of metals by Charpy or Izod
		Introduction to Physical Metallurgy and Engineering Materials Laboratory	CO-6	Evaluate hardness of ferrous material.
140	REL6D001	Electric Power System Protection	CO-2	Learn about various protective devices in power system for protecting equipments.
		Electric Power System Protection	CO-3	Acquire knowledge of various types of circuit breakers, their design and constructional details.
		Electric Power System Protection	CO-4	Acquire knowledge of various conventional relays, their design and latest developments.
		Electric Power System Protection	CO-5	Classify various protection schemes used for apparatus protection.
		Electric Power System Protection	CO-6	Acquire knowledge of standards and specifications related to switchgear and protection
141	RME4C201	Kinematics & Dynamics of Machines Laboratory	CO-1	Able to know the fundamental of screw jack
		Kinematics & Dynamics of Machines Laboratory	CO-2	To determine radius of gyration
		Kinematics & Dynamics of Machines Laboratory	CO-3	To determine power transmission device
		Kinematics & Dynamics of Machines Laboratory	CO-4	Analyse velocity and acceleration