BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
Department of Electrical & Electronics Engineering
COURSE OUTCOMES
R19 REGULATION
I YEAR I SEMESTER

CO CODE	COURSE OUTCOME	TAXONOMY LEVEL
COURSE NAME:ENGLISH- (C111)		
C111.1	Classify and compare different things and cultures and behaviours of people from generation to generation.	UNDERSTANDING
C111.2	Select an inspiring personality and to achieve the new heights in personal and professional life	APPLYING
C111.3	Apply Science and Technology to transform lives despite physical disabilities and to invent latest Engineering tools for the needs of the Society	APPLYING
C111.4	Actively take part in protecting environment and the rights of the underprivileged despite challenges in personal and public life.	ANALYSING
C111.5	Develop the spirit of inquisitiveness in the areas of interest chosen and to offer insight into how to lead a successful life	CREATING
COURSE NAME:MATHEMATICS-I (C112)		
C112.1	Utilize mean value theorems to related to various engineering fields	APPLYING
C112.2	Solve the first order differential equations and able to apply physical problems	APPLYING
C112.3	Solve higher order linear differential equations with constant coefficients	APPLYING
C112.4	Find the partial derivative of different orders, finding maxima and minima of function of two variable, three variables and functional dependence	EVALAUTING
C112.5	Apply double integration techniques in evaluating areas bounded by region and also learn important tools of calculus in higher dimensions like 2-dimensional and 3-dimensional coordinate systems.	APPLYING
COURSE NAME:APPLIED CHEMISTRY (C113)		
C113.1	Define composite plasticmaterials and study the mechanism of conduction in conducting polymers	UNDERSTANDING
C113.2	Classify different typesof electrodes and batteries for technological applications	REMEMBERING
C113.3	Summarize the importance of engineering materials like nano materials ,plastics and rubbers	UNDERSTANDING
C113.4	Explain various methods of preparation and applications of liquid crystals	UNDERSTANDING
C113.5	Explain various models for energy by different natural sources	UNDERSTANDING
COURSE NAME:PROGRAMMING FOR PROBLEM SOLVING USING C (C114)		
C114.1	Interpret and debug programs in C language, Demonstrate syntaxes, predefined functions and operators in computer programming languages	UNDERSTANDING
C114.2	Build C programs involving decision making statements, looping statements and understanding the control flow of the programs	APPLYING
C114.3	Examine Arrays, Strings and Develop C programs using String manipulation functions	APPLYING
C114.4	Design programs using pointers and dynamic memory management functions	CREATING
C114.5	Construct functions, create files and develop programs using file handling functions	CREATING
COURSE NAME: ENGINEERING DRAWING (C115)		
C115.1	Construct the basic curved profiles, types of scales for engineering application like maps, buildings, and bridges	CREATING
C115.2	Categories the projection of points and analyze the concept of projections involving points and lines along with traces	ANALYSING
C115.3	Analyze & identify the types of planes and the problems involving in projection of planes	ANALYSING
C115.4	Classify the types of solids and analyze the concept of projection of solids involving multiple orientations with principle planes	ANALYSING
C115.5	Create the isometric projections by using orthographic projections and vice versa	CREATING
COURSE NAME:ENGLISH LAB (C116)		
C116.1	Conduct Research in safe and Responsible manners communicating the environmental subject more effectively	APPLYING

C116.2	Classify the words properly into disyllables, polysyllables and pronounce them correctly while communicating with others	ANALYZING
C116.3	Apply the principles of rhythm and intonation to enhance the clarity and	APPLYING
C116.4	Analyze spoken sentences and identify the words or syllables that are	ANALYZING
C116.5	: Identify and differentiate between primary and secondary stress, stress in	APPLYING

COURSE NAME: APPLIED CHEMISTRY LABORATORY(C117)

C117.1	Develop better understanding of titration	APPLYING
C117.2	Explain the difference between Solubility and dissociation in water and apply this knowledge	UNDERSTANDING
C117.3	Estimate the hardness of water in terms of Calcium and Magnesium ions	EVALUATING
C117.4	Apply safety rules in practice of laboratory investigations	APPLYING
C117.5	Explain the different instrumental methods of chemical analysis	UNDERSTANDING

COURSE NAME: PROGRAMMING FOR PROBLEM SOLVING USING C LAB (C118)

C118.1	Interpret and debug programs in C language, Demonstrate syntaxes, predefined functions and operators in computer programming languages	UNDERSTANDING
C118.2	Demonstrate C programs involving decision making statements, iterative statements and understanding the control flow of the programs	APPLYING
C118.3	Classify Arrays, Strings and Develop C programs using String manipulation functions	ANALYZING
C118.4	Design programs using pointers and dynamic memory management functions	CREATING
C118.5	Construct functions, create files and develop programs using file handling functions	CREATING

COURSE NAME: ENVIRONMENTAL SCIENCE (C119)

C119.1	Explain the eco system and it's function in the environment	UNDERSTANDING
C119.2	Aware the importance of natural resources and it's conversation	UNDERSTANDING
C119.3	Analyse the diversity of life on earth and it's importance	ANALYSING
C119.4	Execute different programmes in eco friendly	APPLYING
C119.5	Describe the different laws to protect our environment	ANALYSING
C119.6	Conduct Research in safe and Responsible manners communicating the environmental subject more effectively	APPLYING

I YEAR II SEMESTER

COURSE NAME: MATHEMATICS-II (C121)

C121.1	: Find Rank and Solve the linear system of equations by using different methods	APPLYING
C121.2	Find the inverse and power of a matrix by using Cayley Hamilton theorem. And alsodiagonalize the matrix by using various methods. Finding Rank, Index, Signature and Nature of a Quadratic form	APPLYING
C121.3	Solve the algebraic and transcendental equations by different methods	APPLYING
C121.4	Apply Newton's forward and back ward interpolation and Lagrange's formulae for equal and unequal intervals	APPLYING
C121.5	Find the Quadrature, the solutions of ordinary differential equations by different formulae	APPLYING

COURSE NAME: MATHEMATICS-III(C122)

C122.1	Utilize the vector differential operators (Gradient, Divergence and Curl) and Estimate the work done against a field, circulation and flux using vector	EVALUATING
C122.2	Solve the differential equations using Laplace transforms	APPLYING
C122.3	Find the Fourier series of periodic signals	APPLYING
C122.4	Able to form the PDE and identify the solutions of linear and non linear PDE .	APPLYING
C122.5	Identify the solution methods for 2nd order partial differential equations representing physical problems	APPLYING

COURSE NAME: APPLIED PHYSICS (C123)

C123.1	Explain concept of interference, Diffraction, resolving power of Microscope,Telescope and Grating	UNDERSTANDING
C123.2	Explain concept of Davisson Germer experiment ,G.P Thomson experiment and derive schrodinger wave equations	UNDERSTANDING
C123.3	Explain the concept of K-P model , classical and quantum free electron theories,effective mass of electron .	APPLYING
C123.4	Explain the concept of types of semiconductors, hall effect and drift,diffusion currents.	UNDERSTANDING
C123.5	Describe the concept of classification of magnetic materials,domain concept, Hysteresis-soft,hard magnetic materials and dielectric materials,types of polarization,Lorentz internal field and claussius - mossoti equation	ANALYZING

COURSE NAME:FUNDAMENTALS OF COMPUTERS (C124)

C124.1	Illustrate input and output devices of Computers and how it works and recognize the basic terminology used in computer programming	UNDERSTANDING

C124.2	Apply the basic concepts of programming language for Problem Solving and Programming	APPLYING
C124.3	Illustrate the basic concepts of Computer networks, types of networks and topologies	UNDERSTANDING
C124.4	Illustrate the basic concepts of Databases and System design	UNDERSTANDING
C124.5	Illustrate Advanced Computer Technologies like Distributed Computing & Wireless Networks	UNDERSTANDING
COURSE NAME:ELECTRICAL CIRCUIT ANALYSIS-1(C125)		
C125.1	Apply the solution methods such as nodal analysis and mesh analysis	APPLYING
C125.2	Illustrate magnetic circuits concepts	ANALYZING
C125.3	Apply ac circuits concepts to find various performance parameters of electrical network	APPLYING
C125.4	Explain single phase circuit concepts to obtain locus diagrams and resonance	UNDERSTANDING
C125.5	Evaluate various networks by using principles of network theorems	EVALUATING
COURSE NAME:ELECTRICAL ENGINEERING WORKSHOP(C126)		
C126.1	Explain the limitations, tolerances, safety aspects of electrical systems and wiring	UNDERSTANDING
C126.2	Make simple lighting and power circuits	ANALYZING
C126.3	Measure current, voltage and power in a circuit	UNDERSTANDING
COURSE NAME::APPLIED PHYSICS LABORATORY(C127)		
C127.1	Apply the knowledge of interference ,determine wavelength of a source-diffraction grating,radius of curvature of plano convex lens using newton's rings	APPLYING
C127.2	Analyze the knowledge of semiconductors determine energy gap of p-n junction diode,study of B-H curve,Hall voltage and Hall coefficients	APPLYING
C127.3	Explain the resolving power of telescope , grating and dispersive power of diffraction grating	UNDERSTANDING
C127.4	Analyze the variation of dielectric constant with temperature and also explain dielectric constant by charging and discharging method	ANALYZING
C127.5	Analyze the characteristics of Thermistor- temperature coefficients	ANALYZING
COURSE NAME:COMMUNICATION SKILLS LABORATORY(C128)		
C128.1	Develop the skills and confidence to speak publicly, which is valuable in both personal and professional settings	UNDERSTANDING
C128.2	Apply the knowledge of telephonic interviews to get ready for them, establish a rapport with the interviewer, and build trust over the phone	APPLYING
C128.3	select a suitable presentation with proper presentational aids to present the information	APPLYING
C128.4	Analyze the given topic, share the opinions and act efficiently as an individual and team member in Group Discussion	ANALYZING
C128.5	Develop an idea about various kinds and stages of interviews to face interviews confidently	APPLYING
COURSE NAME: ENGINEERING EXPLORATION PROJECT (C129)		
C129.1	Student can able to identify and solve the issues related to electrical engineering by using engineering concepts	APPLYING
C129.2	Student should do the literature survey and recall the basics of the subjects in the area from recent journals and other sources	EVALUATING
C129.3	Student can apply and simulate the result by using different softwares or possible extend that result as a prototype	APPLYING
C129.4	Students able to use conventional and latest technologies and apply the knowledge acquireand solve the problems in their project work	APPLYING
C129.5	Compare the result of their work to improve the quality of work	EVALUATING
II YEAR I SEMESTER		
COURSE NAME: ELECTRICAL CIRCUIT ANALYSIS-II (C211)		
C211.1	Solve the three-phase circuits under balanced load condition	APPLYING
C211.2	find the transient response of electrical networks for different types of excitations using Differential equations and Laplace Transforms	APPLYING
C211.3	find parameters for different types of network	ANALYZING
C211.4	realize electrical equivalent network for a given network transfer function	APPLYING
C211.5	Estimate different harmonics components from the response of an electrical network	EVALUATING
COURSE NAME:ELECTRICAL MACHINES-1(C212)		
C212.1	Assimilate the concepts of electromechanical energy conversion.	ANALYSING
C212.2	Mitigate the ill-effects of armature reaction and improve commutation in dc machines.	APPLYING
C212.3	Understand the torque production mechanism and control the speed of dc motors.	UNDERSTANDING
C212.4	Analyse the performance of single-phase transformers	ANALYSING
C212.5	Predetermine regulation, losses, and efficiency of single-phase transformers.	ANALYSING

	COURSE NAME: ELECTRONICS DEVICES & CIRCUITS (C213)	
C213.1	Students are able to understand the basic concepts of semiconductor physics, which are useful to understand the operation of diodes and transistors	REMEMBERING
C213.2	Students are able to demonstrate the operation and characteristics of PN junction diode and special diodes	UNDERSTANDING
C213.3	students are ability to understand operation and develop rectifiers and regulators	CREATING
C213.4	Students are able to analyze the characteristics of various transistor configurations and also compare the various configurations.	ANALYZING
C213.5	Students are able to explain the concepts of positive and negative feedback and also compare these feed backs, and also design baising	EVALUATING
	COURSE NAME:ELECTROMAGNETIC FIELDS(C214)	
C214.1	Determine electric fields and potentials using Guass's law or solving Laplace's or Possion's Determine equations, for various electric charge distributions and calculate and design capacitance, energy stored in dielectrics.	CREATING
C214.2	Calculate the magnetic field intensity due to current, the application of Ampere's law and the Maxwell's second and third equations.	EVALUATING
C214.3	Determine the magnetic forces and torque produced by currents in magnetic field.	EVALUATING
C214.4	Determine self and mutual inductances and the energy stored in the magnetic field.	ANALYZING
C214.5	Calculate induced EMF, understand the concepts of displacement current and Poynting vector.	EVALUATING
	COURSE NAME: THERMAL & HYDRO PRIME MOVERS(C215)	
C215.1	Apply the Otto, diesel cycles for finding the performance of S.I and C.I engine	APPLYING
C215.2	Illustrate the steam formation and its utilities through the standard steam data tables	UNDERSTANDING
C215.3	Examine the simple gas turbine fundamentals and methods to improve the efficiency of gas turbines	ANALYZING
C215.4	Evaluate the performance characteristics of centrifugal and reciprocating pumps	EVALUATING
C215.5	compare the constructional features, operational details of various types of hydraulic turbines	UNDERSTANDING
	COURSE NAME:MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS(C216)	
C216.1	Define the fundamental concepts of managerial economics.	REMEMBERING
C216.2	Classify and compare various costs in managerial decision making process.	UNDERSTANDING
C216.3	Identify the features of different market structures and various forms of Business organisations	APPLYING
C216.4	Identify fundamental concepts of accounting and Analyze financial statements.	APPLYING
C216.5	Evaluate various alternative investment proposals to make a better capital budgeting decisio	EVALUATING
	COURSE NAME:: THERMAL AND HYDRO LABORATORY(C217)	
C217.1	Apply the Otto, diesel cycles for finding the performance of S.I andC.Iengine	APPLYING
C217.2	Illustrate the steam formation and its utilities through the standard steam data tables	UNDERSTANDING
C217.3	Examine the simple gas turbine fundamentals and methods to improve the efficiency of gas turbines	ANALYZING
C217.4	Evaluate the performance characteristics of centrifugal and reciprocating pumps	EVALUATING
C217.5	compare the constructional features, operational details of various types of hydraulic turbines	UNDERSTANDING
	COURSE NAME: ELECTRICAL CIRCUITS LABORATORY (C218)	
C218.1	Evaluate various networks by using principles of network theorems	EVALUATING
C218.2	Apply ac circuits concepts to find various performance parameters of electrical network	REMEMBERING
C218.3	Analyze magnetic circuits concepts	ANALYZING
C218.4	Explain single phase circuit concepts to obtain locus diagrams and resonance	UNDERSTANDING
C218.5	Find the parameters of a network based on input and Output excitation/response.	REMEMBERING
C218.6	Solve the three-phase circuits under unbalanced load condition	APPLYING
	COURSE NAME: ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE (C219)	
C219.1	Identify the concept of Traditional knowledge and its importance	APPLYING
C219.2	Explain the need and importance of protecting traditional knowledge.	UNDERSTANDING
C219.3	Illustrate the various enactments related to the protection of traditional knowledge.	UNDERSTANDING
C219.4	Interpret the concepts of Intellectual property to protect the traditional knowledge.	UNDERSTANDING
C219.5	Explain the importance of Traditional knowledge in Agriculture and Medicine.	UNDERSTANDING
	II YEAR II SEMESTER	

COURSE NAME: ELECTRICAL MEASUREMENTS & INSTRUMENTATION (C221)

C221.1	To study the principle of operation and working of different types of instruments for measurement of Electrical Quantities	REMEMBERING
C221.2	To study the working principle of operation of different types of instruments for measurement of power and power factor	REMEMBERING
C221.3	To understand the principle of operation and working of various types of bridges for measurement of parameters –resistance, inductance, capacitance and frequency	UNDERSTANDING
C221.4	To Understand The Principle Of Operation And Working Of Transducers	UNDERSTANDING
C221.5	To study the principle of operation and working of DVMS, Power analyzer and applications of CRO	REMEMBERING
COURSE NAME: ELECTRICAL MACHINES-II (C222)		
C222.1	Understand the principle of operation and performance of 3-phase induction motor	UNDERSTANDING
C222.2	Quantify the performance of induction motor and induction generator in terms of torque and slip.	APPLYING
C222.3	Understand the torque producing mechanism of a single phase induction motor.	UNDERSTANDING
C222.4	Analyze the emf generation, and the effect of armature reaction and predetermination of voltage regulation in synchronous generators.	ANALYZING
C222.5	Study parallel operation and control of real and reactive powers for synchronous generators	ANALYZING
C222.6	Understand the operation,and analyze the performance and starting methods of synchronous motors.	ANALYZING
COURSE NAME: DIGITAL ELECTRONICS (C223)		
C223.1	Classify different number systems and apply to generate various codes	APPLYING
C223.2	Apply the concept of Boolean algebra in minimization of switching functions	APPLYING
C223.3	Analyse different types of combinational logic circuits.	ANALYZING
C223.4	Apply knowledge of flip-flops in designing of Registers and counters	APPLYING
C223.5	Produce innovative designs by modifying the traditional design techniques.	DESIGNING
COURSE NAME: CONTROL SYSTEMS (C224)		
C224.1	Model the transfer function of physical systems, determination of overall transfer function using block diagram algebra and signal flow graphs.	APPLYING
C224.2	Determine the time response specifications of second order systems and to estimate the error constants.	EVALUATING
C224.3	Analyze absolute stability and relative stability of LTI systems using Rout's stability criterion	ANALYZING
C224.4	Analyze stability of LTI systems using frequency response methods.	ANALYZING
C224.5	Designing of Lag, Lead, Lag-Lead compensators to improve systems performance using Bode diagram	CREATING
COURSE NAME: POWER SYSTEMS-1 (C225)		
C225.1	Identify the different components of thermal power plants	APPLYING
C225.2	Identify the different components of nuclear Power plants	APPLYING
C225.3	Identify the different components of air and gas insulated substations	APPLYING
C225.4	Identify single core and three core cables with different insulating materials	APPLYING
C225.5	Analyse the different economic factors of power generation and tariffs	ANALYZING
COURSE NAME:SIGNALS & SYSTEMS (C226)		
C226.1	Characterize the signals and systems and principles of vector spaces, Concept of orthgonality	ANALYZING
C226.2	Analyze the continuous-time signals and continuous-time systems using Fourier series, Fourier transform and Laplace transform	ANALYZING
C226.3	Apply sampling theorem to convert continuous-time signals to discrete-time signal and reconstruct back.	APPLYING
C226.4	Understand the relationships among the various representations of LTI systems.	UNDERSTANDING
C226.5	Understand the Concepts of convolution, correlation, Energy and Power density spectrum and their relationships. Analyze Discrete time systems using Z-transforms.	ANALYZING
COURSE NAME: ELECTRICAL MACHINES-1 LABORATORY(C227)		
C227.1	To determine and predetermined the performance of DC machines andTransformers	APPLYING
C227.2	To conduct experiment to control the speed of DC motor	APPLYING
C227.3	To convert three phases- Two phase Transformation	UNDERSTANDING
C227.4	To study the load sharing by two parallel connected transformers	REMEMBERING
C227.5	To separate the losses in a DC shunt machine and single phase transformer.	ANALYZING
C227.6	draw the performance curves for DC machines.	REMEMBERING
COURSE NAME: ELECTRONICS DEVICES & CIRCUITS LABORATORY(C228)		

C228.1	Explain about analog meters, digital meters, RPS, DMM and CRO	UNDERSTANDING
C228.2	Utilize the voltage and current relationships of PN Diode and Zener diode	APPLYING
C228.3	Construct and Develop efficiency and % regulations of Halfwave and Fullwave rectifiers with and without filters	APPLYING
C228.4	Identify and compare the characteristics of BJT, FET, SCR and UJT in different configurations	APPLYING
C228.5	Construct the different amplifier circuits for BJT and FET	APPLYING
COURSE NAME: PROFESSIONAL ETHICS AND HUMAN VALUES (C229)		
C229.1	Define the basic insights and inputs to the student on ethics, values,morals,	REMEMBERING
C229.2	Explain the ethical responsibilities of engineers.	UNDERSTANDING
C229.3	Demonstrate the knowledge on engineering as a social experimentation.	UNDERSTANDING
C229.4	Create the awareness about safety,risk,risk benefit analysis.	CREATING
C229.5	Develop knowledge about global issues and environmental ethics .	CREATING

III YEAR I SEMESTER

COURSE NAME: POWER SYSTEMS-II (C311)

C311.1	Calculate parameters of transmission lines for different circuit configurations	EVALUATING
C311.2	Determine the performance of short, medium and long transmission lines	EVALUATING
C311.3	Analyze the effect of travelling waves on transmission lines	UNDERSTANDING
C311.4	Analyze the various voltage control methods and effect of corona	ANALYZING
C311.5	Calculate sag/tension of transmission lines and performance of line insulators	EVALUATING
COURSE NAME:POWER ELECTRONICS (C312)		
C312.1	Explain the characteristics of various power semiconductor devices and analyze the static and dynamic characteristics of SCR's and design firing circuits for SCR.	DESINING
C312.2	Explain the operation of single phase full–wave converters and analyze harmonics in the input current.	ANALYZING
C312.3	Explain the operation of three phase full–wave converters.	ANALYZING
C312.4	Analyze the operation of different types of DC-DC converters.	ANALYZING
C312.5	Explain the operation of inverters and application of PWM techniques for voltage control and harmonic mitigation and analyze the operation of AC-AC regulators	ANALYZING

COURSE NAME: LINEAR IC APPLICATIONS (C313)

C313.1	Discuss types of Differential amplifier and analysis of AC & DC Differential amplifier	UNDERSTANDING
C313.2	Summarize functioning, parameters and Specifications and characteristics of IC 741	UNDERSTANDING
C313.3	Design the linear and non linear circuits by using Op-Amp	CREATING
C313.4	Design & analysis of types of filters both 1st order and 2nd order	ANALYZING
C313.5	Design the Multi vibrators by using IC555 & discuss the PLL & VCO Applications and different types of ADC & DAC and its specifications	CREATING
COURSE NAME: DIGITAL SIGNAL PROCESSING (C314)		
C314.1	Analyse the Discrete Time Signals and Systems in Time and Frequency Domain and Review of Z-Transforms.	ANALYZING
C314.2	Examine the properties of Discrete Fourier Series and Discrete Fourier Transforms and Explain the linear filtering methods based on DFT and FFT algorithms.	APPLYING
C314.3	Illustrate the analog filter approximations techniques and various implementations of IIR digital filter structures.	APPLYING
C314.4	Determine the different window techniques and frequency sampling techniques of FIR digital filter	APPLYING
C314.5	Explain the the concepts of multiple sampling rates for DSP	UNDERSTANDING
COURSE NAME: MICRO PROCESSOR & MICRO CONTROLLERS (C315)		
C315.1	Illustrate The 8086 Architecture and Register organization , Understand the Addressing modes and instrucion set	UNDERSTANDING
C315.2	Classify Minimum mode and maximum mode of 8086 and Understand the Various interfacing modules like 8255, ADC, DAC and Memory interacing With 8086	UNDERSTANDING
C315.3	Apply Various interfacing modules like 8251 Interfacing 8257, progamale interrupt controller and Key board/display controller interface with 8086	APPLYING
C315.4	Summarize The 8051 Micro Controller Architecture, timers, types of instructions and various modules.	UNDERSTANDING
C315.5	Illustrate The PIC, registers, serial IOs, architecture and understand the pic programming	UNDERSTANDING

COURSE NAME: ELECTRICAL MACHINES-II LAB (C316)

C316.1	Compute the Equivalent Circuit parameters of three phase & single phase Induction Motors	APPLYING
C316.2	Obtain the control of speed of three phase induction motor	APPLYING
C316.3	Predetermine the regulation of three–phase alternator by various methods	APPLYING
C316.4	Determine the Xd/ Xq ratio of alternator and asses the performance of three–phase synchronous motor.	EVALUATING
C316.5	Determine the performance single phase AC series motor.	EVALUATING

COURSE NAME: CONTROL SYSTEMS LAB(C317)

C317.1	Model the transfer function of physical systems, determination of overall transfer function using block diagram algebra and signal flow graphs.	APPLYING
C317.2	Determine the time response specifications of second order systems and to estimate the error constants	EVALUATING
C317.3	Designing the Lag, Lead, Lag-Lead compensators to improve systems performance using Bode diagram	CREATING

COURSE NAME: ELECTRICAL MEASUREMENTS& INSTRUMENATATION LABORATORY(C318)

C318.1	To understand the correct function of electrical parameters and calibration of voltage, current, single phase and three phase power and energy, and measurement of electrical characteristics of resistance, inductance and capacitance of a circuits through appropriate methods	UNDERSTANDING
C318.2	To understand the calibration of DC and AC Potentiometers.	UNDERSTANDING
C318.3	To understand the testing of CT and PT	UNDERSTANDING
C318.4	To Understand and the characteristics of Thermo couples, LVDT, Capacitive transducer, piezoelectric transducer.	UNDERSTANDING
C318.5	To understand the measurement of strain, Phase difference and frequency	UNDERSTANDING

COURSE NAME: SOCIALLY RELEVANT PROJECT (C319)

C319.1	Student can able to identify and solve the issues related to technological problems of society	ANALYZING
C319.2	Student can able to suggest technological changes which suits current needs of society	UNDERSTANDING
C319.3	Students able to use conventional and latest technologies and apply the knowledge acquired to solve the problems of the society.	UNDERSTANDING

III YEAR II SEMESTER
COURSE NAME:ELECTRIC DRIVES (C321)

C321.1	Explain the fundamentals of electric drive and different electric braking methods	UNDERSTANDING
C321.2	Analyze the operation of three phase converter fed dc motors and four quadrant operations of dc motors using dual converters	ANALYZING
C321.3	Describe the converter control of dc motors in various quadrants of operation	UNDERSTANDING
C321.4	Explain the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters.	UNDERSTANDING
C321.5	Differentiate the stator side control and rotor side control of three phase induction motor; explain the speed control mechanism of synchronous motors	ANALYZING

COURSE NAME :POWER SYSTEM ANALYSIS (C322)

C322.1	Develop impedance diagram for a power system network and calculate per unit quantities.	APPLYING
C322.2	Apply the load flow solution to a power system using different methods	APPLYING
C322.3	Develop Zbus for a power system networks and analyze the effect of symmetrical faults	ANALYZING
C322.4	Analyse the sequence components for power system Components and analyze its effects of unsymmetrical faults	ANALYZING
C322.5	Analyse the stability concepts of a power system.	ANALYZING

COURSE NAME: DATA STRUCTURES (C323)

C323.1	Describe various types of data structures and complexity notations. And interpret Arrays stack, queue operations and applications	UNDERSTANDING
C323.2	Evalute the given problem by choosing appropriate data structure	EVALUATING
C323.3	Create different trees like binary, threaded binary, heap etc	CREATING
C323.4	Analyze different paths algorithms related to the issue of how to find a shortest path with minimum cost	ANALYZING
C323.5	Implement various sorting and searching techniques.	CREATING

COURSE NAME: DIGITAL CONTROL SYSTEMS (C324)

C324.1	Model the transfer function of physical systems, determination of overall transfer function using block diagram algebra and signal flow graphs	APPLYING

C324.2	Determine the time response specifications of second order systems and to estimate the error constants.	EVALUATING
C324.3	Analyze absolute stability and relative stability of LTI systems using Rout's stability criterion and root locus method	ANALYZING
C324.4	Analyze stability of LTI systems using frequency response methods	ANALYZING
C324.5	Designing of Lag, Lead, Lag-Lead compensators to improve systems performance using Bode diagram	CREATING

COURSE NAME: INTERNET OF THINGS APPLICATIONS TO ELECTRICAL ENGINEERING (C325)

C325.1	Know the various fundamentals, architectures and technologies of Internet of Things.	UNDERSTANDING
C325.2	Understand various communication technologies used in the Internet of Things.	UNDERSTANDING
C325.3	Understand the various device connectivity methods using web and internet in the IoT environment.	UNDERSTANDING
C325.4	Understand various data acquisition methods, data handling using cloud for IoT applications.	UNDERSTANDING
C325.5	Know the implementation of IoT from the case studies like smart home, smart city, etc.	APPLYING

COURSE NAME: DATA BASE MANAGEMENT SYSTEMS (C326)

C326.1	Identify different architecture where database systems are used (Remembering)	REMEMBERING
C326.2	Classify and compare various data models (Analyzing)	ANALYZING
C326.3	Apply normalization on database for eliminating Redundancy (Applying)	APPLYING
C326.4	Compare various functions of database administrator (Evaluating)	EVALUATING
C326.5	Design basic database storage structures and access techniques (Creating)	CREATING

COURSE NAME: POWER ELECTRONICS LAB(C327)

C327.1	Understand the Characteristics of Thyristor, MOSFET & IGBT	UNDERSTANDING
C327.2	Design and development of a firing circuits for Thyristor and IGBT..	CREATING
C327.3	Investigate the performance of Single -Phase Half controlled and Full controlled converter with R and RL load	EVALUATING
C327.4	Describe the performance of AC Voltage Regulator and square wave bridge inverter with R and RL Loads.	UNDERSTANDING
C327.5	Able to Verify the voltage gains of Boost converter and buck converter in CCM & DCM operation	EVALUATING

COURSE NAME: MICROPROCESSORS AND MICROCONTROLLERS LAB (C328)

C328.1	Write in Assembly Language Proramming of the arithmatic, logic, string, and sorting operations of 8086 microprocessor	UNDERSTANDING
C328.2	Apply the interfacing techniques of the interfacing devices interfaced to 8086 microprocessor	APPLYING
C328.3	Analyse the programming of 8051 microcontroller of programs like reading and writing serial port, serial communication,timers etc	ANALYZING
C328.4	Apply interfacing technikus of interfacing various peripherals and devices, such as to 8051 such as memory interfacing and stepper motor interfacing	APPLYING

COURSE NAME:EMPLOYALIBILITY SKILLS(C329)

C329.1	Demonstrate effective presentation and interview skills to excel in their path(Understanding)	UNDERSTANDING
C329.2	Show positive personality traits , best etiquette and manners in both personal and professional life. (Understanding)	UNDERSTANDING
C329.3	Identify and apply time management techniques to attain effectiveness in their career (Applying)	APPLYING
C329.4	Develop strong leadership and decision making capabilities to choose right direction in corporate scenario.(Applying)	APPLYING
C329.5	Build balanced emotional intelligence for effective handling of stress and conflicts at work place. (Applying)	APPLYING

IV YEAR I SEMESTER

COURSE NAME: SWITCH GEAR & PROTECTION (C411)

C411.1	Understand the principles of arc interruption for application to high voltage circuit breakers of air, oil, vacuum, SF6 gas type.	UNDERSTANDING
C411.2	Understand the working principle and operation of different types of electromagnetic protective relays.	UNDERSTANDING
C411.3	Students acquire knowledge of faults and protective schemes for high power generator and transformers.	UNDERSTANDING

C411.4	Improves the ability to understand various types of protective schemes used for feeders and bus bar protection.	UNDERSTANDING
C411.5	Understand different types of static relays and their applications.	UNDERSTANDING
COURSE NAME: OOPS THROUGH JAVA (C412)		
C412.1	Understand Java programming concepts and utilize Java Graphical User Interface in Program writing.	UNDERSTANDING
C412.2	Write, compile, execute and troubleshoot Java programming for networking concepts	APPLYING
C412.3	Build Java Application for distributed environment.	APPLYING
C412.4	Design and Develop multi-tier applications.	APPLYING
C412.5	Identify and Analyze Enterprise applications	ANALYZING
COURSE NAME: RENEWABLE ENERGY SOURCES (C413)		
C413.1	Explain about the solar radiation data, extraterrestrial radiation, radiation on earth's	UNDERSTANDING
C413.2	Elaborate about solar photo voltaic systems	ANALYZING
C413.3	Explain about maximum power point techniques in solar pv and wind energy.	UNDERSTANDING
C413.4	Analyze wind energy conversion systems	ANALYZING
C413.5	Elaborate basic principle and working of hydro, tidal,biomass, fuel cell and geothermal systems systems	ANALYZING
COURSE NAME: UTILISATION OF ELECTRICAL ENERGY (C4141)		
C4141.1	Identify various illumination methods produced by different illuminating sources	APPLYING
C4141.2	Choose most appropriate Electric heating& Electric welding method for suitable application	APPLYING
C4141.3	Select a suitable motor for electric drives and industrial applications	APPLYING
C4141.4	Distinguish various traction system and determine the tractive effort and specific specific energyconsumption	ANALYZING
C4141.5	Justify the necessity and usage of different energy storage schemes for different applications and comparisons	EVALUATING
COURSE NAME: HIGH VOLTAGE ENGINEERING (C415)		
C415.1	Remember the theory of breakdown and withstand phenomena of all types of dielectric materials.	REMEMBERING
C415.2	Acquaint the techniques of generation of AC,DC and Impulse Voltages	UNDRSTANDING
C415.3	Apply Knowledge for measurement of High Voltage and High Current AC,DC and impulse	APPLYING
C415.4	Measure dielectric property of material used for HV equipment	EVALUATING
C415.5	Test various equipments used in HV engineering	ANALYZING
COURSE NAME: LINEAR & DIGITAL IC APPLICATIONS LABORATORY (C416)		
C416.1	Summarize functioning, parameters and Specifications of IC741, IC 555, IC 565, IC 566, IC 1496.	UNDERSTANDING
C416.2	Analyze and Develop various circuits using IC 741 op-amp for various applications. Analyze first order Active filter circuits using IC 741 op-ampAnalyze and design amplifiers, active filters and waveform generators.	ANALYZING
C416.3	Analyze the various applications of 555 timer.	ANALYZING
C416.4	Implementation of different combinational logic circuits using IC's	ANALYZING
C416.5	Realize and implementation of different Sequential logic circuits using IC's	ANALYZING
COURSE NAME: POWER SYSTEM AND SIMULATION LAB (C417)		
C417.1	Apply software packages like MATLAB/Simulink and PSCAD for power systems.	APPLYING
C417.2	Interpret positive, negative and zero sequence systems and fault analysis	EVALUATING
C417.3	Determine the dielectric strength of transformer oil using HV . testing kit and calibrate the Tong tester	EVALUATING
C417.4	Determine power flow solutions by using different methods	EVALUATING
C417.5	Analyze the performance of transmission lines	ANALYZING
COURSE NAME: INDUSTRIAL TRAINING /SKILL DEVELOPMENT PROGRAMS/ RESEARCH PROJECT (C418)		
C418.1	To give students the opportunity to apply the knowledge and skills they have acquired on campus in a real-life work situation	APPLYING
C418.2	To provide students with opportunities for practical, hands-on learning from practitioners in the students' areas of specialization	APPLYING

C418.3	To expose students to a work environment, common practices, employment opportunities and work ethics in their relevant field	APPLYING
C418.4	To enhance the employability skills of the students.	APPLYING
C418.5	To provide opportunities for students to be offered jobs in the organizations in which they undergo their Industrial Training.	APPLYING
	COURSE NAME: PROJECT-1 (C419)	
C419.1	Student can able to identify and solve the issues related to electrical engineering by using	APPLYING
C419.2	Student should do the literature survey and recall the basics of the subjects in the area from recer	EVALUATING
C419.3	Students able to use conventional and latest technologies and apply the knowledge	APPLYING

IV YEAR II SEMESTER
COURSE NAME: POWER SYSTEM OPERATION & CONTROL (C421)

C421.1	Compute optimal scheduling of Generators	APPLYING
C421.2	Estimate hydrothermal scheduling& Unit commitment Problem.	ANALYZING
C421.3	Develop knowledge on load frequency controllers and modelling of turbine generator &load	APPLYING
C421.4	Distinguish the load frequency control for single area & two area system with and without contr	ANALYZING
C421.5	Explore reactive power control in power systems and compensation of transmission lines	ANALYZING
	COURSE NAME: EMBEDED SYSTEMS (C422)	
C422.1	Understand the basic concepts of an embedded system and know the characteristics of an embedded system	UNDERSTANDING
C422.2	Explain the components required for an embedded system	UNDERSTANDING
C422.3	Analyze various embedded firmware design approaches on embedded environment.	ANALYZING
C422.4	Discuss the operating system basics and its components, list operating systems and know hardware software co-design	UNDERSTANDING
C422.5	Describe the embedded system development tools and learn the testing process	UNDERSTANDING
	COURSE NAME: HVAC & DC TRANSMISSION (C423)	
C423.1	Acquaint with HV transmission system with regard to power handling capacity, losses, conductor resistance and electrostatic field associate with HV and gained knowledge in area of bundle conductor system to improve electrical and mechanical performance.	APPLYING
C423.2	Develop ability for determining corona, radio interference, audible noise generation and frequency spectrum for single and three phase transmission lines.	APPLYING
C423.3	Acquire knowledge in transmission of HVDC power with regard to terminal equipment's, type of HVDC connectivity and planning of HVDC system.	APPLYING
C423.4	Develop knowledge with regard to choice of pulse conversion, control characteristic, firing angle control and effect of source impedance.	APPLYING
C423.5	Develop knowledge of reactive power requirements of conventional control, filters and reactive power compensation in AC. side of HVDC system.	APPLYING
	COURSE NAME: PROJECT-II (C424)	
C424.1	Student can able to identify and solve the issues related to electrical engineering by engneer	APPLYING
C424.2	Student should do t. he literature survey and recall the basics of the subjects in the area from recent journals and other sources	EVALUATING
C424.3	Student can apply and simulate the result by using different softwares or possible extend that result as a prototype	APPLYING
C424.4	Students able to use conventional and latest technologies and apply the knowledge acquired and solve the problems in their project work.	APPLYING
C424.5	Compare the result of their work to improve the quality of work	EVALUATING
C424.6	Student able to identify the future scope enhancement in their project and prepare a thesis or report in a required format and present their work to the panel	CREATING