

ANNA UNIVERSITY CHENNAI
KATHIR COLLEGE OF ENGINEERING, COIMBATORE
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
R2017 REGULATION

PROGRAMME OUTCOMES (POs)

Students graduating from Electrical and Electronics Engineering should be able to:

PO1.Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2.Problem analysis: Identity, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3.Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4.Conduct investigations of complex problems: Use research – based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5.Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in self, and lifelong learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOME (PSOs)

PSO1: Ability to Integrate the fundamental knowledge of mathematics, science, electrical engineering to solve complex problems in electrical, electronics and interdisciplinary areas.

PSO2: Ability to design and meet the demands of industry using the state of the art components and software tools

COURSE OUTCOMES

I - SEMESTER	
Course code	C101
Subject code	HS8151
Subject name	Communicative English
COURSE OUTCOMES	
CO1	Speak clearly, confidently, comprehensibly, and communicate with one or many listeners using appropriate communicative strategies.
CO2	Write cohesively and coherently and flawlessly avoiding grammatical errors, using a wide vocabulary range, organizing their ideas logically on a topic.
CO3	Read different genres of texts adopting various reading strategies.
CO4	Listen/view and comprehend different spoken discourses/excerpts in different accents.
CO5	Gaining capacity, skills enabling the students to write personal letters, official letters and E-mails in English effectively. Enabling students to enhance their conversational skills in spoken and written forms.

Course code	C102
Subject code	MA8151
Subject name	Engineering Mathematics - I
COURSE OUTCOMES	
CO1	Have basic knowledge and understanding in one field of materials, integral and differential calculus.
CO2	Utilize methods of integration to compute volumes of objects with circularshaped aspects, and compute lengths of curves.
CO3	Read and understand problem descriptions, then be able to formulate equations modelling the problem usually by applying geometric or physical principles.
CO4	Use integration to compute problems important in physics and engineering.
CO5	Find the area of plane curves and volume of solids using double and triple integrals.

Course code	C103
Subject code	PH8151
Subject name	Engineering Physics
COURSE OUTCOMES	
CO1	Have knowledge on the basics of physics related to properties of matter, optics, and acoustics.
CO2	Apply these fundamental principles to solve practical problems related to materials used for engineering applications.
CO3	Understand working principle of a LASER, components and working of different laser system and their engineering applications
CO4	Understand the principle and working of particle detectors
CO5	Examine the characteristics of laser and optical fiber.

Course code	C104
Subject code	CY8151
Subject name	Engineering Chemistry
COURSE OUTCOMES	
CO1	Apply this knowledge to the analysis and design of batteries.
CO2	Phase rule concept is used to know the heat treatment process of alloy.
CO3	Know the properties of Lubricants.
CO4	The knowledge gained on polymer chemistry, thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concepts on these subjects for further learning.
CO5	Outline the synthesis, characteristics and the applications of nano materials.

Course code	C105
Subject code	GE8151
Subject name	Problem Solving and Python Programming
COURSE OUTCOMES	
CO1	Develop algorithmic solutions to simple computational problems.
CO2	Read, write, execute by hand simple Python programs.
CO3	Structure simple Python programs for solving problems.
CO4	Decompose a Python program into functions.
CO5	Represent compound data using Python lists, tuples, dictionaries. Read and write data from/to files in Python Programs.

Course code	C106
Subject code	GE8152
Subject name	ENGINEERING GRAPHICS
COURSE OUTCOMES	
CO1	Perform free hand sketching of basic geometrical constructions and multiple views of objects.
CO2	Do orthographic projection of lines and plane surfaces.
CO3	Draw projections and solids and development of surfaces.
CO4	Prepare isometric and perspective sections of simple solids.
CO5	Demonstrate computer aided drafting.

Course code	C107
Subject code	GE8161
Subject name	Problem Solving and Python Programming Laboratory
COURSE OUTCOMES	
CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops.
CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.

Course code	C108
Subject code	BS8161
Subject name	Physics and Chemistry Laboratory
COURSE OUTCOMES	
CO1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.
CO2	Outfit with hands-on knowledge in the quantitative chemical analysis of water quality related parameters
CO3	Determine the DO content in water sample by winkler's method and molecular weight of polymer by Ostwald viscometer.
CO4	Find the strength of an acid using pH meter and conductometer
CO5	Estimate the amount of weak and strong acids in a mixture by conductometer

II - SEMESTER

Course code	C109
Subject code	HS8251
Subject name	Technical English
COURSE OUTCOMES	
CO1	Speak convincingly, express their opinions clearly, initiate a discussion, negotiate, and argue using appropriate communicative strategies.
CO2	Write effectively and persuasively and produce different types of writing such as narration, description, exposition and argument as well as creative, critical, analytical and evaluative writing.
CO3	Read different genres of texts, infer implied meanings and critically analyse and evaluate them for ideas as well as for method of presentation.
CO4	Listen/view and comprehend different spoken excerpts critically and infer unspoken and implied meanings.
CO5	Enhancing student's skills in report writing, job application, paragraph writing and other forms of writing skills.

Course code	C110
Subject code	MA8251
Subject name	Engineering Mathematics - II
COURSE OUTCOMES	
CO1	Develop the fundamentals and basic concepts in vector calculus, ODE, Laplace transform and complex functions.
CO2	Solve problems related to engineering applications by using these techniques.
CO3	To have an ability of mathematical modelling of systems using differential equations and ability to solve the differential equations.
CO4	Use Green's theorem to evaluate line integrals along simple closed contours on the plane and use Stokes' theorem to give a physical interpretation of the curl of a vector field.
CO5	Expand functions of two variables as Taylor's and Laurent's series and evaluate Contour integrals using Cauchy's formula.

Course code	C111
Subject code	PH8253
Subject name	Physics For Electronics Engineering
COURSE OUTCOMES	
CO1	Knowledge on classical and quantum electron theories, and energy band structures
CO2	Knowledge on basics of semiconductor physics and its applications in various devices
CO3	Knowledge on magnetic and dielectric properties of materials
CO4	Understanding on the functioning of optical materials for optoelectronics
CO5	Understanding on the functioning of Nano electronic devices

Course code	C112
Subject code	BE8252
Subject name	Basic Civil and Mechanical Engineering
COURSE OUTCOMES	
CO1	Appreciate the Civil and Mechanical Engineering components of Projects
CO2	Explain the usage of construction material and proper selection of construction materials
CO3	Measure distances and area by surveying
CO4	Identify the components used in power plant cycle and demonstrate working principles of petrol and diesel engine
CO5	Elaborate the components of refrigeration and Air conditioning cycle

Course code	C113
Subject code	BE8252
Subject name	Circuit Theory
COURSE OUTCOMES	
CO1	Introduce electric circuits and its analysis
CO2	Impart knowledge on solving circuits using network theorems
CO3	Introduce the phenomenon of resonance in coupled circuits
CO4	Educate on obtaining the transient response of circuits
CO5	Introduce Phasor diagrams and analysis of three phase circuits

Course code	C114
Subject code	GE8291
Subject name	Environmental Science and Engineering
COURSE OUTCOMES	
CO1	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
CO2	Public awareness of environmental is at infant stage.
CO3	Ignorance and incomplete knowledge has lead to misconceptions
CO4	Development and improvement in std. of living has lead to serious environmental disasters.
CO5	Explain the causes of population growth and explosion.

Course code	C115
Subject code	GE8261
Subject name	Engineering Practices Laboratory
COURSE OUTCOMES	
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations.
CO4	Make the models using sheet metal works. Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings.
CO5	Carry out basic home electrical works and appliances. Measure the electrical quantities. Elaborate on the components, gates, soldering practices.

Course code	C116
Subject code	EE8261
Subject name	Electric Circuits Laboratory
COURSE OUTCOMES	
CO1	Analyze and simulate circuit systems using Ohm's law, Kirchhoff's law, Mesh and nodal analysis
CO2	Apply network theorems to solve AC & DC circuits and able to simulate the complexity of circuits
CO3	Know the concept of measuring self-inductance of a coil
CO4	Understand transient response of R-L and R-C circuits
CO5	Understand to simulate the frequency response of series & parallel

	resonance circuits
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III - SEMESTER	
Course code	C201
Subject code	MA 8353
Subject name	Transforms and Partial Differential Equations
COURSE OUTCOMES	
CO1	Fourier series analysis which is central to many applications in engineering apart from its use in solving boundary value problems
CO2	Fourier series analysis which is central to many applications in engineering apart from its use in solving boundary value problems.
CO3	To introduce the effective mathematical tools for the solutions of partial differential equations that model several physical processes and to develop Z transform techniques for discrete time systems
CO4	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
CO5	To understand the mathematical principles on transform and partial differential equations would provide them the ability to formulate

Course code	C202
Subject code	EE8351
Subject name	Digital Logic Circuits
COURSE OUTCOMES	
CO1	Ability to study various number systems and simplify the logical expressions using Boolean functions
CO2	Ability to design combinational Circuits
CO3	Ability to design synchronous sequential Circuits
CO4	Ability to introduce asynchronous sequential circuits and PLDs
CO5	Ability to introduce digital simulation for development of application oriented logic circuits

Course code	C203
Subject code	EE8391
Subject name	Electromagnetic Theory
COURSE OUTCOMES	
CO1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields
CO2	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications

CO3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications
CO4	Ability to understand the different methods of emf generation and Maxwell's equations
CO5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters

Course code	C204
Subject code	EE8301
Subject name	Electrical Machines-I
COURSE OUTCOMES	
CO1	Ability to analyze the magnetic-circuits
CO2	Ability to acquire the knowledge in constructional details of transformers
CO3	Ability to understand the concepts of electromechanical energy conversion
CO4	Ability to acquire the knowledge in working principles of DC Generator
CO5	Ability to acquire the knowledge in working principles of DC Motor and various losses taking place in D.C. Machines

Course code	C205
Subject code	EE 8353
Subject name	Electron Devices and Circuits
COURSE OUTCOMES	
CO1	Explain the structure and working operation of basic electronic devices
CO2	Able to identify and differentiate both active and passive elements
CO3	Analyze the characteristics of different electronic devices such as diodes and transistors
CO4	Choose and adapt the required components to construct an amplifier circuit
CO5	Employ the acquired knowledge in design and analysis of oscillators

Course code	C206
Subject code	ME8792
Subject name	Power Plant Engineering
COURSE OUTCOMES	
CO1	Explain the layout, construction and working of the components inside a thermal power plant
CO2	Explain the layout, construction and working of the components inside a

	Diesel, Gas and Combined cycle power plants
CO3	Explain the layout, construction and working of the components inside nuclear power plants
CO4	Explain the layout, construction and working of the components inside Renewable energy power plants
CO5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production

Course code	C207
Subject code	EC8311
Subject name	Electronics Laboratory
COURSE OUTCOMES	
CO1	Attain skills in different types of diodes and transistor characteristics and its studies
CO2	Gain skills of using Common Base, Common Collector, and Common Emitter Configurations
CO3	Explain and design engineering concept of applications related to photo diode, Light activated relay circuits
CO4	Categorize and comprehend different types of rectifier
CO5	Capability to form a group and develop or solve Active and passive filter circuits

Course code	C208
Subject code	EE8311
Subject name	Electrical Machines Laboratory-I
COURSE OUTCOMES	
CO1	Knowledge on performance of DC Shunt and Series Motor
CO2	Knowledge on the open circuit and load Characteristics of DC generators
CO3	Acquire skills in testing of transformers
CO4	Explain and design engineering concept of applications related electromechanical energy conversion
CO5	Categorize and comprehend different types of DC motor

IV - SEMESTER	
Course code	C209
Subject code	MA8491
Subject name	Numerical Methods
COURSE OUTCOMES	
CO1	Understand the basic concepts and techniques of solving algebraic and transcendental equations
CO2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations
CO3	Apply the numerical techniques of differentiation and integration for engineering problems
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications

Course code	C210
Subject code	EE8401
Subject name	Electrical Machines - II
COURSE OUTCOMES	
CO1	Ability to understand the construction and working principle of Synchronous Generator
CO2	Ability to acquire knowledge on Synchronous motor
CO3	Ability to understand the construction and working principle of Three phase Induction Motor
CO4	Ability to understand the various speed control methods of Three phase Induction Motor
CO5	Ability to understand the construction and working principle of Special Machines

Course code	C211
Subject code	EE8402
Subject name	Transmission and Distribution
COURSE OUTCOMES	
CO1	Understand the importance and the functioning of transmission line parameters
CO2	Acquire knowledge on the performance of Transmission lines
CO3	Understand the concepts of Lines and Insulators

CO4	Acquire knowledge on Underground Cables
CO5	Familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components

Course code	C212
Subject code	EE8403
Subject name	Measurements and Instrumentation
COURSE OUTCOMES	
CO1	Acquire knowledge on Basic functional elements of instrumentation
CO2	Understand the concepts of Fundamentals of electrical and electronic instruments
CO3	Ability to compare between various measurement techniques
CO4	Understand the operational features of storage and display Devices
CO5	Understand the concepts Various transducers and the data acquisition systems

Course code	C213
Subject code	EE8451
Subject name	Linear Integrated Circuits and Applications
COURSE OUTCOMES	
CO1	Ability to acquire knowledge in IC fabrication procedure
CO2	Ability to analyze the characteristics of Op-Amp
CO3	To understand the importance of Signal analysis using Op-amp based circuits
CO4	Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits
CO5	Ability to understand and analyse, linear integrated circuits their Fabrication and Application

Course code	C214
Subject code	IC8451
Subject name	Control Systems
COURSE OUTCOMES	
CO1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals
CO2	Ability to do time domain and frequency domain analysis of various models of linear system
CO3	Ability to interpret characteristics of the system to develop

	mathematical model
CO4	Ability to design appropriate compensator for the given specifications
CO5	Ability to come out with solution for complex control problem

Course code	C215
Subject code	EE8411
Subject name	Electrical Machines Laboratory - II
COURSE OUTCOMES	
CO1	Ability to understand and analyze EMF and MMF methods
CO2	Ability to analyze the characteristics of V and Inverted V curves
CO3	Ability to understand the importance of Synchronous machines
CO4	Ability to understand the importance of Induction Machines
CO5	Ability to acquire knowledge on separation of losses

Course code	C216
Subject code	EE8461
Subject name	Linear and Digital Integrated Circuits Laboratory
COURSE OUTCOMES	
CO1	Ability to understand and implement Boolean Functions.
CO2	Ability to understand the importance of code conversion
CO3	Ability to Design and implement 4-bit shift registers
CO4	Ability to acquire knowledge on Application of Op-Amp
CO5	Ability to Design and implement counters using specific counter IC.

Course code	C217
Subject code	EE8412
Subject name	Technical Seminar
COURSE OUTCOMES	
CO1	Review, prepare and present technological developments
CO2	Face the placement interviews
CO3	Use various teaching aids such as overhead projectors, power point presentation and demonstrative models
CO4	Present technical reports
CO5	Ability to acquire knowledge on communication skills development

V - SEMESTER

Course code	C301
Subject code	EE8501
Subject name	Power System Analysis
COURSE OUTCOMES	
CO1	Ability to model the power system under steady state operating condition
CO2	Ability to understand and apply iterative techniques for power flow analysis
CO3	Ability to model and carry out short circuit studies on power system
CO4	Ability to acquire knowledge on Fault analysis
CO5	Ability to model and understand various power system components and carry out power flow, short circuit and stability studies

Course code	C302
Subject code	EE8551
Subject name	Microprocessors and Microcontrollers
COURSE OUTCOMES	
CO1	Ability to acquire knowledge in hardware architecture of 8085 processor
CO2	Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051
CO3	Ability to explain the architecture of Microcontroller
CO4	Ability to understand the importance of Interfacing
CO5	Ability to write the assembly language programme

Course code	C303
Subject code	EE8552
Subject name	Power Electronics
COURSE OUTCOMES	
CO1	Understand basic operation of various power semiconductor devices and passive components
CO2	Examine and design AC/DC rectifier circuit
CO3	Investigate and design DC/DC converter circuits
CO4	Study DC/AC inverter circuit
CO5	Evaluate and design AC/AC converter circuits

Course code	C304
Subject code	EE8591
Subject name	Digital Signal Processing
COURSE OUTCOMES	
CO1	Ability to acquire knowledge on Signals and systems & their mathematical representation
CO2	Ability to understand and analyse the discrete time systems
CO3	Ability to analyse the transformation techniques & their computation
CO4	Ability to understand the types of filters and their design for digital implementation
CO5	Ability to acquire knowledge on programmability digital signal processor & quantization effects

Course code	C305
Subject code	CS8392
Subject name	Object Oriented Programming
COURSE OUTCOMES	
CO1	Develop Java programs using OOP principles
CO2	Develop Java programs with the concepts inheritance and interfaces
CO3	Build Java applications using exceptions and I/O streams
CO4	Develop Java applications with threads and generics classes
CO5	Develop interactive Java programs using swings

Course code	C306
Subject code	OMD551
Subject name	Basics of Biomedical Instrumentation
COURSE OUTCOMES	
CO1	To Learn the different bio potential and its propagation
CO2	To get Familiarize the different electrode placement for various physiological recording
CO3	Ability to design bio amplifier for various physiological recording
CO4	Understand various technique non electrical physiological measurements
CO5	Understand the different biochemical measurements

Course code	C307
Subject code	OAN551
Subject name	Sensors And Transducers
COURSE OUTCOMES	
CO1	Expertise in various calibration techniques and signal types for sensors
CO2	Apply the various sensors in the Automotive and Mechatronics applications
CO3	Study the basic principles of various smart sensors
CO4	Implement the DAQ systems with different sensors for real time applications
CO5	Understand the fundamentals of signal conditioning, data acquisition and communication systems used in mechatronics system development

Course code	C308
Subject code	OAN551
Subject name	Sensors And Transducers
COURSE OUTCOMES	
CO1	Expertise in various calibration techniques and signal types for sensors
CO2	Apply the various sensors in the Automotive and Mechatronics applications
CO3	Study the basic principles of various smart sensors
CO4	Implement the DAQ systems with different sensors for real time applications
CO5	Understand the fundamentals of signal conditioning, data acquisition and communication systems used in mechatronics system development

Course code	C309
Subject code	OCE551
Subject name	Air Pollution And Control Engineering
COURSE OUTCOMES	
CO1	Understand the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
CO2	ability to identify, formulate and solve air and noise pollution problems
CO3	ability to design stacks and particulate air pollution control devices to meet applicable standards
CO4	Ability to select control equipments
CO5	. Ability to ensure quality, control and preventive measures

Course code	C310
Subject code	EE8511
Subject name	Control and Instrumentation Laboratory
COURSE OUTCOMES	
CO1	Ability to understand control theory and apply them to electrical engineering problems
CO2	Ability to analyze the various types of converters
CO3	Ability to design compensators
CO4	Ability to understand the basic concepts of bridge networks and signal conditioning circuits
CO5	Ability to study the simulation packages

Course code	C311
Subject code	HS8581
Subject name	Professional Communication
COURSE OUTCOMES	
CO1	Make effective presentations
CO2	Participate confidently in Group Discussions
CO3	Attend job interviews and be successful in them
CO4	Make Employability Graduates
CO5	Develop adequate Soft Skills required for the workplace

Course code	C312
Subject code	CS8383
Subject name	Object Oriented Programming Laboratory
COURSE OUTCOMES	
CO1	Develop and implement Java programs for simple applications that make use of classes
CO2	Develop and implement Java programs for simple applications that make use of packages and interfaces.
CO3	Develop and implement Java programs with array list, exception handling and multithreading .
CO4	Design applications using file processing, generic programming and event handling
CO5	Develop and implement mini project based on Java programs

VI - SEMESTER

Course code	C313
Subject code	EE8601
Subject name	Solid State Drives
COURSE OUTCOMES	
CO1	Ability to study about the steady state operation and transient dynamics of a motor load system
CO2	Ability to analyse the operation of the converter/chopper fed dc drive
CO3	Ability to analyse the operation and performance of induction motor drives
CO4	Ability to analyse the operation and performance of synchronous motor drives
CO5	Ability to analyse and design the current and speed controllers for a closed loop solid state DC motor drive

Course code	C314
Subject code	EE8602
Subject name	Protection and Switchgear
COURSE OUTCOMES	
CO1	Ability to analyse the characteristics and functions of relays and protection schemes
CO2	Ability to understand and analyse Electromagnetic and Static Relays
CO3	Ability to find the causes of abnormal operating conditions of the apparatus and system
CO4	Ability to study about the apparatus protection, static and numerical relays
CO5	Ability to suggest suitability circuit breaker

Course code	C315
Subject code	EE8691
Subject name	Embedded Systems
COURSE OUTCOMES	
CO1	Ability to understand and analyse Embedded systems
CO2	Ability to suggest an embedded system for a given application
CO3	Ability to operate various Embedded Development Strategies
CO4	Ability to understand basics of Real time operating system
CO5	Ability to acquire knowledge on various applications on embedded systems

Course code	C316
Subject code	EE8004
Subject name	Modern Power Converters
COURSE OUTCOMES	
CO1	Ability to suggest converters for AC-DC conversion and SMPS
CO2	Ability to understand and analyse AC-DC converters
CO3	Ability to design DC-AC converters
CO4	Know about the various topologies and operation of AC-AC converters
CO5	Ability to apply advanced soft switching techniques

Course code	C317
Subject code	EE8005
Subject name	Special Electrical Machines
COURSE OUTCOMES	
CO1	Ability to acquire the knowledge on construction and operation of stepper motor
CO2	Ability to construction, principle of operation, switched reluctance motors
CO3	Ability to acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors
CO4	Ability to acquire the knowledge on construction and operation of permanent magnet synchronous motors
CO5	Ability to select a special Machine for a particular application

Course code	C318
Subject code	EE8661
Subject name	Power Electronics and Drives Laboratory
COURSE OUTCOMES	
CO1	Ability to practice and understand converter and inverter circuits and apply software for engineering problems
CO2	Ability to experiment about switching characteristics various switches
CO3	Ability to analyse about AC to DC converter and DC to AC converters
CO4	Ability to analyse about DC to AC circuits
CO5	Ability to acquire knowledge on simulation software

Course code	C319
Subject code	EE8681
Subject name	Microprocessors and Microcontrollers Laboratory
COURSE OUTCOMES	
CO1	Ability to understand and apply computing platform and software for engineering problems
CO2	Ability to programming logics for code conversion
CO3	Ability to acquire knowledge on A/D and D/A
CO4	Ability to understand basics of serial communication
CO5	Ability to understand basics of software simulators

Course code	C320
Subject code	EE8611
Subject name	Mini Project
COURSE OUTCOMES	
CO1	Students are facilitated to probe into technical issues and solve them effectively in a systematic manner
CO2	By team work students are able to develop professionalism, built self-confidence and practice ethical responsibilities
CO3	Intellectual capability and innovating thinking of the students are ignited
CO4	Acquire proficiency to prepare and present the project report
CO5	On Completion of the mini project work students will be in a position to take up their final year project work and find solution by formulating proper methodology

VII - SEMESTER

Course code	C401
Subject code	EE8701
Subject name	High Voltage Engineering
COURSE OUTCOMES	
CO1	Ability to understand Transients in power system
CO2	Ability to understand Generation and measurement of high voltage
CO3	Ability to understand High voltage testing
CO4	Ability to understand various types of over voltages in power system
CO5	Ability to test power apparatus and insulation coordination

Course code	C402
Subject code	EE8702
Subject name	Power System Operation and Control
COURSE OUTCOMES	
CO1	Ability to understand the day-to-day operation of electric power system
CO2	Ability to analyse the control actions to be implemented on the system to meet the minute-to-minute variation of system demand
CO3	Ability to understand the significance of power system operation and control
CO4	Ability to acquire knowledge on real power-frequency interaction
CO5	Ability to design SCADA and its application for real time operation

Course code	C403
Subject code	EE8703
Subject name	Renewable Energy Systems
COURSE OUTCOMES	
CO1	Ability to create awareness about renewable Energy Sources and technologies
CO2	Ability to get adequate inputs on a variety of issues in harnessing renewable Energy
CO3	Ability to acquire knowledge about solar energy
CO4	Ability to understand basics about biomass energy
CO5	Ability to recognize current and possible future role of renewable energy sources

Course code	C404
Subject code	OML751
Subject name	Testing of Materials
COURSE OUTCOMES	
CO1	Understand the various testing standards and materials
CO2	To understand the various destructive testing methods of materials and its industrial applications
CO3	To understand the various non-destructive testing methods of materials and its industrial applications
CO4	Identify suitable testing technique to inspect industrial component
CO5	Ability to use the different technique and know its applications and limitations

Course code	C405
Subject code	GE8071
Subject name	Disaster Management
COURSE OUTCOMES	
CO1	Ability to get an exposure to disasters, their significance and types
CO2	Understand the preliminary approaches of Disaster Risk Reduction
CO3	Understand the relationship between vulnerability, disasters, disaster prevention and risk reduction
CO4	Ability to analyse the awareness of institutional processes in the country
CO5	Understand the Disaster damage assessment and management

Course code	C406
Subject code	GE8077
Subject name	Total Quality Management
COURSE OUTCOMES	
CO1	Define the need and dimensions of quality in Engineering practice
CO2	Explain the TQM principles such as leadership, quality plan, customer focus, employee involvement and six sigma concepts
CO3	Discuss the benchmarking process and various stages of FMEA
CO4	Describe various tools and techniques of TQM such as QFD, Taguchi quality loss function and TPM
CO5	Illustrate the need of ISO 9000, QS 9000, ISO 14000 quality system elements, documentation and quality audit

Course code	C407
Subject code	EE8711
Subject name	Power System Simulation Laboratory
COURSE OUTCOMES	
CO1	Ability to understand power system planning and operational studies
CO2	Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks
CO3	Ability to analyse the power flow using GS and NR method
CO4	Ability to find Symmetric and Unsymmetrical fault
CO5	Ability to understand the economic dispatch

Course code	C408
Subject code	EE8712
Subject name	Renewable Energy Systems Laboratory
COURSE OUTCOMES	
CO1	Ability to understand and analyse Renewable energy systems
CO2	Ability to train the students in Renewable Energy Sources and technologies
CO3	Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy
CO4	Ability to recognize current and possible future role of Renewable energy sources
CO5	Ability to understand basics of Intelligent Controllers

Course code	C409
Subject code	MG8591
Subject name	Principles of Management
COURSE OUTCOMES	
CO1	Explain the managerial roles in local and global organization, environmental factors & Strategies for International business.
CO2	Ability to understand basics of planning process, tools and techniques
CO3	Illustrate the different organization structure to recognize the human resources planning and management
CO4	Demonstrate the creativity, innovation and leadership styles through the principles of effective communication and organization culture
CO5	Explain the process of control authority, budget preparation, productivity measurement and planning operations in management

Course code	C410
Subject code	EI8073
Subject name	Biomedical Instrumentation
COURSE OUTCOMES	
CO1	Ability to understand the philosophy of the heart, lung, blood circulation and respiration system
CO2	Ability to provide latest ideas on devices of non- electrical devices
CO3	Ability to gain knowledge on various sensing and measurement devices of electrical origin
CO4	Ability to bring out the important and modern methods of imaging techniques and their analysis
CO5	Ability to explain the medical assistance/techniques, robotic and therapeutic equipments

Course code	C411
Subject code	EE8811
Subject name	Project Work
COURSE OUTCOMES	
CO1	Capable to apply the fundamental knowledge of Electrical and Electronics Engineering in developing novel products/solutions and thereby contributing to society
CO2	Intellectual capability and innovating thinking of the students are ignited
CO3	Determine and capable to adapt in a group so that they can communicate among themselves thereby sharpen their leadership skills to do their project work
CO4	Students become capable of designing and developing system prototypes independently by utilizing latest software's and equipment's
CO5	Explore the possibility of publishing papers in peer reviewed journals/conference proceedings