

ANNA UNIVERSITY CHENNAI
KATHIR COLLEGE OF ENGINEERING, COIMBATORE
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
R2013 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: Identify, 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	HS6151
Subject name	Technical English - I
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	MA6151
Subject name	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	PH6151
Subject name	Engineering Physics - I
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	CY6151
Subject name	Engineering Chemistry - I
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.
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Course code	C105
Subject code	GE6151
Subject name	Computer Programming
COURSE OUTCOMES	
CO1	Comprehend the basic knowledge of computer systems, generations and classification of computer
CO2	Describe the concepts of software's, Internet basics and internet applications
CO3	Investigate the types of software's and office packages
CO4	Define the basic concept of C programming
CO5	Aware with functions and pointers in C programming

Course code	C106
Subject code	GE6152
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	GE6161
Subject name	Computer Practices Laboratory
COURSE OUTCOMES	
CO1	Work in MS office
CO2	Write a basic C Program
CO3	Develop a C program using functions, structures.
CO4	Understand problem solving techniques and flow charts
CO5	Knowledge on presentation and visualization tools

Course code	C108
Subject code	GE6162
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	C109
Subject code	GE6163
Subject name	Physics and Chemistry Laboratory - I
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	C110
Subject code	HS6251
Subject name	Technical English - II
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	C111
Subject code	MA6251
Subject name	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	C112
Subject code	PH6251
Subject name	Engineering Physics - II
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	C113
Subject code	CY6251
Subject name	Engineering Chemistry - II
COURSE OUTCOMES	
CO1	Understand the principles of electrochemical reaction and their application.
CO2	Knowledge on corrosion of materials and methods of prevention of materials
CO3	Knowledge in the field of fuels, calorific value calculations and manufacture of solid, liquid and gaseous fuels.
CO4	Understand the concept of phase rules and its applications on alloys.
CO5	Knowledge in the concept of analytical technique

Course code	C114
Subject code	GE6251
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	C115
Subject code	EE6201
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	C116
Subject code	GE6262
Subject name	Physics and Chemistry Laboratory - II
COURSE OUTCOMES	
CO1	Ability to gain skill for handling laser and fiber optics.
CO2	Ability to find thickness and breadth resistance of different solid materials
CO3	Ability to find compressibility for different fluids
CO4	Ability to acquire skills in water analysis
CO5	Ability to acquaint knowledge in handling conductivity meter, potentiometer and viscometer and determining the concentration of solutions

Course code	C117
Subject code	GE6263
Subject name	Computer Programming Laboratory
COURSE OUTCOMES	
CO1	Understand the basic commands of Unix operating system
CO2	Understand to work with an editor on Unix
CO3	Design of Implement Unix shell scripts
CO4	Develop the C programming on Unix OS
CO5	Learn the simple shell programming code for the conditional statements and loops

Course code	C118
Subject code	EE6211
Subject name	Electric Circuits Laboratory
COURSE OUTCOMES	
CO1	Analyze circuit systems using Ohm's law, Kirchhoff's law, Mesh and nodal analysis
CO2	Apply network theorems to solve AC and 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 the frequency response of series and parallel resonance circuits

III - SEMESTER	
Course code	C201
Subject code	MA6351
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	EE6301
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	EE6302
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	GE6351
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	C205
Subject code	EC6202
Subject name	ElectronicDevices 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	EE6303
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 andApplication

Course code	C207
Subject code	EC6361
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
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Course code	C208
Subject code	EE6311
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

IV - SEMESTER	
Course code	C209
Subject code	MA6459
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	EE6401
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
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Course code	C211
Subject code	CS6456
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	C212
Subject code	EE6402
Subject name	Transmission and Distribution
COURSE OUTCOMES	
CO1	Understand the importance of power system structure
CO2	Acquire knowledge on the functioning of transmission line parameters
CO3	Acquire knowledge on the performance of Transmission lines
CO4	Acquire knowledge on Insulators and 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	C213
Subject code	EE6403
Subject name	Discrete Time Systems and 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	C214
Subject code	EE6404
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	C215
Subject code	CS6461
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

Course code	C216
Subject code	EE6411
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

V - SEMESTER

Course code	C301
Subject code	EE6501
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	EE6502
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	ME6701
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
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Course code	C304
Subject code	EE6503
Subject name	Power Electronics
COURSE OUTCOMES	
CO1	Understand basic operation of various power semiconductor devices and passive components
CO2	Examine and understand the operation, characteristics and performance parameters of controlled rectifiers
CO3	Investigate and design DC-DC switching regulators
CO4	Study the different modulation techniques of pulse width modulated inverters
CO5	Understand various configurations of AC voltage controller

Course code	C305
Subject code	EE6504
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 working principle of single phase Induction Motor and Special Machines

Course code	C306
Subject code	IC6501
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 the open loop and closed-loop frequency responses of systems

CO4	Ability to design appropriate compensator for the given specifications
CO5	Ability to come out with study the effect of statefeedback

Course code	C307
Subject code	EE6511
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	C308
Subject code	GE6563
Subject name	Communication Skills - Laboratory Based
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	C309
Subject code	EE6512
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

VI - SEMESTER	
Course code	C310
Subject code	EC6651
Subject name	Communication Engineering
COURSE OUTCOMES	
CO1	Ability to understand the different methods of analog communication and their significance
CO2	Analyse the digital communication methods for high bit rate transmission
CO3	Ability to understand the concepts of source and line coding techniques for enhancing rating of transmission of minimizing the errors in transmission
CO4	Ability to understand MAC used in communication systems for enhancing the number of users
CO5	Ability to acquire knowledge on various media for digital communication

Course code	C311
Subject code	EE6601
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	C312
Subject code	EE6602
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
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Course code	C313
Subject code	EE6603
Subject name	Power System Operation and Control
COURSE OUTCOMES	
CO1	Ability to understand the day-to-day operation of electric power system operation and control
CO2	Ability to analyse the power-frequency dynamics and to design power-frequency controller
CO3	Ability to understand the reactive power-voltage interaction and the control actions
CO4	Ability to acquire knowledge on economic operation of power system
CO5	Ability to design SCADA and its application for real time operation

Course code	C314
Subject code	EE6604
Subject name	Design of Electrical Machines
COURSE OUTCOMES	
CO1	Ability to investigate the electrical engineering materials and thermal ratings of electrical machines
CO2	Ability to evaluate the performance and design of a dc machine
CO3	Learnt a thorough design base of the mechanical and electrical aspects of transformers
CO4	Ability to Integrate the design of induction machines
CO5	Ability to design stator and rotor of synchronous machines and able to design field systems for turbo alternator

Course code	C315
Subject code	EE6002
Subject name	Power System Transients
COURSE OUTCOMES	
CO1	Understand basics of transients
CO2	Understand the generation of switching transients and their control using circuit - theoretical concept
CO3	Ability to acquire knowledge mechanism of lightning strokes and the production of lightning surges
CO4	Ability to understand the propagation, reflection and refraction of travelling waves
CO5	Understand and analyse power system operation, stability, control and

	protection
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Course code	C316
Subject code	EE6611
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	C317
Subject code	EE6612
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	C318
Subject code	EE6613
Subject name	Presentation Skills and 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

VII - SEMESTER

Course code	C401
Subject code	EE6701
Subject name	High Voltage Engineering
COURSE OUTCOMES	
CO1	Ability to understand the various types of over voltages in power system and protection methods
CO2	Ability to understand the dielectric breakdown mechanisms
CO3	Ability to understand High voltage testing
CO4	Ability to understand high voltage and current measurements using instruments
CO5	Ability to test power apparatus and insulation coordination

Course code	C402
Subject code	EE6702
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	C403
Subject code	EE6703
Subject name	Special Electrical Machines
COURSE OUTCOMES	
CO1	Ability to acquire the knowledge on construction and operation of synchronous reluctance motors
CO2	Ability to know the construction, principle of operation, stepper motors
CO3	Ability to acquire the knowledge on construction and operation of switched reluctance motors
CO4	Ability to acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors
CO5	Ability to understand operation of permanent magnet synchronous motors

Course code	C404
Subject code	MG6851
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	C405
Subject code	EI6704
Subject name	Biomedical Instrumentation
COURSE OUTCOMES	
CO1	Ability to understand the fundamentals of Biomedical Engineering
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	C406
Subject code	EE6008
Subject name	Microcontroller Based System Design
COURSE OUTCOMES	
CO1	Understand the architecture of PIC microcontroller
CO2	Ability to gain knowledge on use of interrupts and timers
CO3	Explain the process of peripheral devices for data communication and transfer
CO4	Understand the basics of functional blocks of ARM processor
CO5	Understand the architecture of ARM processors

Course code	C407
Subject code	EE6711
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	EE6712
Subject name	Comprehension
COURSE OUTCOMES	
CO1	Evaluate and understand any given problem related to electrical circuits and Measurements and instrumentation
CO2	Assess and obtain comprehension knowledge in AC & DC electrical machines
CO3	Analyse and get comprehension knowledge in digital logic circuits and linear integrated circuits
CO4	Evaluate and procure comprehension knowledge in electron devices and power electronics
CO5	Analyse and get comprehension knowledge in electrical power systems

VIII - SEMESTER

Course code	C409
Subject code	EE6801
Subject name	Electric Energy Generation, Utilization and Conservation
COURSE OUTCOMES	
CO1	Understanding the basics of electrical power generation by Conventional and Nonconventional methods and investigate the effect of distributed generation on power system operation
CO2	Assess the economics of power generation and energy auditing
CO3	Classify and design energy efficient illumination schemes suiting for various applications
CO4	Know the various schemes of industrial electric heating and welding
CO5	Understand the merits and control mechanism of electric traction

Course code	C410
Subject code	EE6009
Subject name	Power Electronics for Renewable Energy Systems
COURSE OUTCOMES	
CO1	Ability to understand impacts of renewable energy generation
CO2	Knowledge about the stand alone and grid connected renewable energy systems
CO3	Ability to design different power converters for renewable energy systems
CO4	Ability to analyse and comprehend the various operating modes of wind electrical generators and solar energy systems
CO5	Analyse maximum power point tracking algorithms

Course code	C411
Subject code	GE6757
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	C412
Subject code	EE6811
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