

CONSOLIDATED LIST OF COURSE OUTCOMES

Department of Electrical & Electronics Engineering

Sl. No	Course Code & Course Name	Course Outcome Number	Course Outcome
1	MA101Calculus	C101.1	To provide some basic tools which are useful in modelling and analysing physical phenomena.
		C101.2	To analyse the physical phenomena involving continuous change of variables.
		C101.3	To evaluate differential and integral calculus of functions of one or more variables and of vector functions.
		C101.4	To evaluate the areas and volumes using integrals
		C101.5	To analyse the application of vector valued functions
		C101.6	To provide basic training in plotting and visualizing graphs of functions and intuitively understanding their properties
2	PH100Engineering Chemistry	C102.1	Understand various spectroscopic techniques like UV-Visible, IR, NMR and its applications.
		C102.2	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
		C102.3	Basic knowledge of Thermal analytical techniques and conductivity measurements. Basic knowledge of chromatographic techniques.
		C102.4	Have a scope in the area of material science. Have knowledge of synthesizing nano materials and their application in industry, carbon nano tube technology in every industry now a days.
		C102.5	Have knowledge of chemical properties of fuels. Know the properties of lubricants.
		C102.6	Study various types of water treatment methods to develop skills for treating wastewater.
3	BE110Engineering Graphics	C103.1	Draw the projection of points and lines located in different quadrants
		C103.2	Prepare multiview orthographic projections of objects by visualizing them in different positions
		C103.3	Draw sectional views and develop surfaces of a given object
		C103.4	Prepare pictorial drawings using the principles of isometric and perspective projections to visualise objects in 3 dimensions.
		C103.5	Convert 3D views to orthographic views and vice versa
		C103.6	Obtain multiview projections and solid models of objects using CAD tools
4	BE101-03Introduction to Electrical Engineering	C104.1	Students will be able to acquire fundamental knowledge of Electrical circuits and can solve circuit related problems.
		C104.2	Students will be able to recall and state ideas about magnetic circuits

		C104.3	Students will be able to explain the fundamentals of AC circuits.
		C104.4	Students will be able to analyse three phase systems.
		C104.5	Students will be able to compare and contrast various types of resonance circuits
		C104.6	Students will be able to identify and differentiate between various methods of Power measurement
5	BE103Introduction to Sustainable Engineering	C105.1	The students should have knowledge about the concept and importance of sustainability
		C105.2	The students should be able to understand different types of pollution and waste generation, their causes, effects and control
		C105.3	The students should be able to understand environmental management standards and environmental impact assessment
		C105.4	The students should be able to understand the concepts of bio mimicking, green engineering, green building, sustainable habitat, sustainable urbanization
		C105.5	Students should have a knowledge of various types of conventional and non-conventional energy sources
		C105.6	Students should be able to understand the role of engineering and technology in sustainable development
6	ME100Basics of Mechanical Engineering	C106.1	Acquire knowledge on fundamental concepts of thermodynamics and laws of thermodynamics.
		C106.2	Use energy conservation devices from the knowledge of the energy conversion device.
		C106.3	Select and use an appropriate refrigeration and air conditioning systems
		C106.4	Develop and implement basic ideas of the different parts, working of automobile and fundamentals of aerodynamics
		C106.5	Preparation and ability to engage in independent and life-long learning in the context of knowledge on engineering materials.
		C106.6	Select and use the different manufacturing methods
7	CY110Engineering Chemistry Lab	C107.1	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses
		C107.2	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs
		C107.3	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
		C107.4	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis
		C107.5	Learn to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments

		C107.6	Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economic and environmental problems and why it is an integral part of curriculum
8	ME110Mechanical Workshop	C108.1	Knowledge achieved to explain the various manufacturing process in the basic mechanical engineering workshop sections- smithy, carpentry, assembling, welding etc.
		C108.2	Identify the various hand tools used in the basic mechanical engineering workshop sections-smithy, carpentry, assembling, welding etc.
		C108.3	Able to choose different measuring devises according to the work.
		C108.4	Ability to name and summarize the operations of various machine tools like lathe, milling, drilling and shaping machines.
		C108.5	Knowledge achieved to disassemble and assemble the machines like IC engines.
		C108.6	Skill achieved to construct models by using basic mechanical workshop sections like welding, moulding, smithy, carpentry etc.
9	CE110Electrical Workshop	C109.1	Students will be able to recognize supply arrangements and their limitations, standard voltages and their tolerances, safety aspects of electrical systems and importance of protective measures in wiring systems.
		C109.2	Students will identify the types of wires, cables and other accessories used in wiring.
		C109.3	Students should be able to wire up and predict estimate of simple lighting circuits for domestic buildings and distinguish between light and power circuits
		C109.4	Students will be able to measure electrical circuit parameters like current, voltage and power in a circuit.
		C109.5	Students will be able to explain the usage of Multimeters and LCR Q meters
		C109.6	Creating awareness of energy conservation in electrical systems.
10	MA102Differential Equations	C110.1	Graduates will be able acquire basic knowledge of homogeneous differential equations and methods of solving them.
		C110.2	Graduates will be able acquire basic knowledge of non-homogeneous differential equations and methods of solving them.
		C110.3	Graduates will be able to apply Fourier series for analysing periodic functions in terms of their frequency components.
		C110.4	Graduates will be able form and solve using partial differential equations
		C110.5	Graduates will be able to Identify, analyse and subsequently solve the distribution of heat problems whose behaviour can be described by differential equations.
		C110.6	Graduates will be able to Identify, analyse and subsequently solve the waves whose behaviour can be described by differential equations.
11	PH100Engineering Physics	C111.1	To develop an ability to understand the concepts of waves and harmonic oscillations and apply its knowledge in mechanical and electrical systems

		C111.2	Ability to differentiate between interference, diffraction and Polarization in various optical phenomenon
		C111.3	Distinguish between different types of superconductors and study their applications
		C111.4	To study the concepts of quantum mechanics and statistical mechanics
		C111.5	Using the knowledge of acoustics in designing acoustically important Buildings.
		C111.6	To apply the concepts of laser technology in various devices
12	BE100Engineering Mechanics	C112.1	Solve problems dealing with forces and determine the resultant. Also Identify the forces acting on a body and draw the free body diagram
		C112.2	Solve problems on forces acting on a body in space. Also determine the support reactions of beams subjected to concentrated loads and uniformly distributed loads
		C112.3	Determine the centroid and moment of inertia of composite areas.
		C112.4	Analyse the concept of friction to solve problems of bodies placed on rough surfaces and solve problems on support reactions of beams using principle of virtual work.
		C112.5	Use Newton's second law to solve problems on bodies in motion and apply the concept of instantaneous centre to bodies having combined translation and rotation.
		C112.6	Knowledge on types of Vibration and solve problem using the concept of Simple Harmonic Motion
13	BE102Design & Engineering	C113.1	Graduates will be able to classify and experiment different stages in design with their significance
		C113.2	Aware of the product oriented and user-oriented aspects that make the design a success.
		C113.3	The students will be able to identify & initiate different creative designs.
		C113.4	Enable the students to analyse the prototype models needed for development of project
		C113.5	Graduates will be able to Select the design requirements for designing various products.
		C113.6	The students can evaluate the product based on intellectual property rights
14	CE 100Basics of Civil Engineering	C114.1	The students will be able to illustrate the fundamental aspects of Civil engineering
		C114.2	The students will be able to plan and set out a building
		C114.3	Students will be able to explain the concepts of surveying for making horizontal and vertical measurements.
		C114.4	They will able to illustrate the uses of various building materials and explain the method of construction of different components of a building.
		C114.5	Students will be able to illustrate the uses of various building elements.
		C114.6	Students will be able to discuss about various services in a building.
15	EC 100Basics of Electronics Engineering	C115.1	To understand and identify passive components
		C115.2	Student can identify active components and can design, setup simple circuits using diodes
		C115.3	To understand the basics of BJT and detailed study of its characteristics

		C115.4	To understand and detailed study of JFET&MOSFET
		C115.5	To understand the working of rectifier
		C115.6	Voltage and currents can be measured and monitored using electronic measuring instruments
16	PH110Engineering Physics Lab	C116.1	Develop analytical/experimental skills and impart prerequisite hands-on experience for engineering laboratories
		C116.2	Understand the need for precise measurement practices for data recording
		C116.3	Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations
		C116.4	Analyse the techniques and skills associated with modern scientific tools such as lasers and fibre optics
		C116.5	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results
		C116.6	To apply the concepts of laser technology in various devices
17	CE110Civil Workshop	C117.1	Student should be able to set out a building using tape
		C117.2	Student should be able to set out a building using cross staff
		C117.3	Student should be able to determine area and mass moment of inertia of
		C117.4	to construct one and a half and two brick walls using English bond
		C117.5	Student should be able to calculate the area and volume of various features o f a building
		C117.6	Student should be able to determine the compressive strength of brick and cement mortar cubes using compression testing machine
18	EC110Electrical Workshop	C118.1	Graduates will be able to recognize the appropriate methods to solve electronics and communication problems.
		C118.2	Graduates will be able to acquire basic training and skills to solve basic electronics problems.
		C118.3	Graduates will be able to apply the equations and formulas to solve related practical value problems.
		C118.4	Graduates will be able to calculate the problems in Diodes, biasing of transistor, amplifiers, oscillators and regulator circuits.
		C118.5	Graduates will be able to evaluate communication systems like RADAR, GPS, Entertainment Electronics
		C118.6	Graduates will be able to measure current voltage values using equipment and to analyse a waveform
19	MA201 Linear Algebra & Complex	C201.1	Graduates will be able to identify the analytic functions and harmonic functions.
		C201.2	Graduates will be able to understand the conformal mappings and to find regions that are mapped under certain Transformations
		C201.3	Graduates will be able to evaluate the complex integrals

		C201.4	Graduates will be able to evaluate the complex integrals as an applications of residue theorems
		C201.5	Graduates will be able to understand the concept of vector space, to solve the system of linear equations .
		C201.6	Graduates will be able to and to evaluate the Eigen value, Eigen vectors of a matrix and diagonalize a matrix.
20	EE201 Circuits and Networks	C202.1	Students will be able to write equations and solve any DC and AC circuits using Network Theorems
		C202.2	Students will be able to use graph theory in solving networks
		C202.3	Students will be able to understand the concept of transient response
		C202.4	Students will be able to explain the transient response of any circuit using Laplace Transform
		C202.5	Students will be able to analyse the performance of two port networks using network parameters
		C202.6	Students will be able to combine networks using Foster & Cauer Form
21	EE203 Analog Electronic Circuits	C203.1	Compare various positional number systems and binary codes
		C203.2	Apply Boolean algebra in logic circuit design
		C203.3	Design combinational and sequential circuits
		C203.4	Design and implement digital systems using basic programmable blocks
		C203.5	Formulate various digital systems using HDL
		C203.6	Designing of Finite state Machine
22	EE205 DC Machines and Transformers	C204.1	Understand electrical principle, laws, and working of DC machines.
		C204.2	Identify dc generator types, and appreciate their performance
		C204.3	Describe the principle of operation of dc motor and select appropriate motor types for different applications and analyse the performance of different types of dc motors
		C204.4	Describe the principle of operation of single-phase transformers
		C204.5	Analyse the performance of single-phase transformers.
		C204.6	Familiarize with the principle of operation and performance of three phase transformers.
23	EE207 Computer Programming	C205.1	Students will be able to analyse a problem, find appropriate programming language construct should be used and implement C program.
		C205.2	Students gain sufficient awareness about latest software tools.
		C205.3	Students are able to develop programs in C for common problems of reasonable complexity.
		C205.4	Students are able to implement algorithms studied in the course Computer Programming.
		C205.5	Students are able to learn the implementation of control structures, Iterations and recursive functions.
		C205.6	Students are able to implement operations on different types of files.

24	HS 200 Business Economics	C206.1	To familiarize the prospective engineers with elementary Principles of Economics and Business Economics.
		C206.2	To acquaint the students with tools and techniques that are useful in their profession in Business Decision Making which will enhance their employability
		C206.3	To apply business analysis to the “firm” under different market conditions
		C206.4	To apply economic models to examine current economic scenario and evaluate policy options for addressing economic issues
		C206.5	To gain understanding of some Macroeconomic concepts to improve their ability to understand the business climate
		C206.6	To prepare and analyse various business tools like balance sheet, cost benefit analysis and rate of returns at an elementary level
25	EE231 Electronic Circuits Lab	C207.1	To understand VI Characteristics of rectifier and Zener diodes
		C207.2	To Understand RC integrating and differentiating circuits
		C207.3	To Understand Characteristics of BJT in CE configuration and evaluation of parameters
		C207.4	Able to design Feedback amplifiers (current series, voltage series) - gain and frequency response
		C207.5	Able to design Low frequency oscillators –RC phase shift, Wien bridge,
		C207.6	Able to design Multivibrators -A stable, Monostable and Bistable
26	EE233 Programming Lab	C208.1	Students will be able to analyse a problem, find appropriate programming language construct should be used and implement C program.
		C208.2	Students gain sufficient awareness about latest software tools.
		C208.3	Students are able to develop programs in C for common problems of reasonable complexity.
		C208.4	Students are able to implement algorithms studied in the course Computer Programming.
		C208.5	Students are able to learn the implementation of control structures, Iterations and recursive functions.
		C208.6	Students are able to implement operations on different types of files.
27	MA202 Probability Distributions, Transforms and Numerical Methods	C209.1	Graduates will have a concept of discrete probability density functions
		C209.2	Graduates will have a concept of continuous probability density functions
		C209.3	Graduates will get an idea about the Laplace transforms and will be able to apply them in their engineering branches
		C209.4	Graduates will get an idea about the Fourier transforms and will be able to apply them in their engineering branches
		C209.5	Graduates will have a concept of numerical methods for iteration and interpolation and their applications in solving Engineering problems
		C209.6	Graduates will have a concept of numerical methods to solve system of linear equations and numerical integration, and their applications in solving Engineering problems
28		C210.1	Identify alternator types, and appreciate their performance

	EE202 Synchronous and Induction Machines	C210.2	Determine the voltage regulation and analyse the performance of alternators
		C210.3	Describe the principle of operation of synchronous motor and different applications.
		C210.4	Describe the principal operation of 3 phase induction motor and select appropriate motor types for different application
		C210.5	Analyse the performance of 3-phase induction motors
		C210.6	Familiarize with principle of operation and application of 1 -phase induction motors.
29	EE204 Digital Electronics and Logic Design	C211.1	Familiar with various number systems and Boolean algebra
		C211.2	design and analyse any digital logic gate circuits and Flip flop-based systems.
		C211.3	Familiar with combinational circuits
		C211.4	gain the capability of implementing various counters
		C211.5	describe the operation of ADC and DAC circuits
		C211.6	acquire basic knowledge on VHDL
30	EE206 Material Science	C212.1	Describe the characteristics of conducting and semiconducting materials
		C212.2	Classify magnetic materials and describe different laws related to them
		C212.3	Classify and describe different insulators and to explain the behaviour of dielectrics in static and alternating fields
		C212.4	Describe the mechanisms of breakdown in solids, liquids and gases
		C212.5	Classify and describe Solar energy materials and superconducting materials
		C212.6	Gain knowledge in the modern techniques for material studies
31	EE208 Measurements and Instrumentation	C213.1	To demonstrate an understanding of the fundamentals of (feedback) control systems.
		C213.2	To determine the time domain responses of first and second-order systems to step and sinusoidal (and to some extent, ramp) inputs.
		C213.3	To understand the basic knowledge necessary for system stability
		C213.4	To apply root-locus technique to analyse and design control systems.
		C213.5	To provide knowledge in the frequency response analysis of linear time invariant systems
		C213.6	To apply polar plot technique to analyse and design control systems.
32	HS210/HS200Life Skills/Business Economics	C214.1	Define and identify different life skills required in personal and professional life
		C214.2	Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.

		C214.3	Explain the basic mechanics of effective communication and demonstrate these through presentations
		C214.4	Take part in group discussions
		C214.5	Use appropriate thinking and problem-solving techniques to solve new problems
		C214.6	Understand the basics of teamwork and leadership
33	EE232 Electrical Machines Lab I	C215.1	To Analyse the characteristics of different dc generators
		C215.2	To understand the performance of DC motors
		C215.3	To Separate the losses in dc motors
		C215.4	To Analyse the performance of different types of dc motors
		C215.5	To Determine the performance characteristics of single-phase transformers
		C215.6	To Compare the performance of transformers in different modes of operations and connections
34	EE234 Circuits and Measurements Lab	C216.1	Analyse voltage current relations of RLC circuits
		C216.2	Verify DC network theorems by setting up various electric circuits
		C216.3	CO 3 Measure power in a single and three phase circuits by various methods
		C216.4	Calibrate various meters used in electrical systems
		C216.5	Determine magnetic characteristics of different electrical devices
		C216.6	CO 6 Analyse the characteristics of various types of transducer systems
		C216.7	Determine electrical parameters using various bridges
		C216.8	Analyse the performance of various electronic devices for an instrumentation
35	EE301 Power Generation, Transmission and Protection	C301.1	systems and, to develop the team management and documentation capabilities.
		C301.2	Students will be able to learn about various transmission line constants (Resistance, Inductance and capacitance).
		C301.3	Students will be able to do the performance analysis of transmission lines. Students will be able to perform the mechanical designing of overhead lines and underground cables.
		C301.4	Students will be able to write about the HVDC transmission and FACTS controllers
		C301.5	Students will be able to list various circuit breakers and relays used in power system
		C301.6	Students will be able to summarize the protection schemes for generator, transformer, motor, feeder and transmission lines
36	EE303 Linear Control Systems	C302.1	To demonstrate an understanding of the fundamentals of (feedback) control systems.
		C302.2	To determine the time domain responses of first and second-order systems to step and sinusoidal (and to some extent, ramp) inputs.
		C302.3	To understand the basic knowledge necessary for system stability
		C302.4	To apply root-locus technique to analyse and design control systems.

		C302.5	To provide knowledge in the frequency response analysis of linear time invariant systems
		C302.6	To apply polar plot technique to analyse and design control systems.
37	EE305 Power Electronics	C303.1	Choose appropriate power semiconductor device in converter circuits and develop their triggering circuits
		C303.2	Analyse various types of power electronic converters and apply different switching techniques
		C303.3	Select appropriate power converter for specific applications
		C303.4	Analyse various types of inverters and their mode of conduction
		C303.5	To get an overview of voltage control in inverters
		C303.6	Interpret and use datasheets of power semiconductor devices for design.
38	EE307 Signals and Systems	C304.1	Represent various signals and systems
		C304.2	Analyse the continuous time system with Laplace transform
		C304.3	Represent and analyse signals using Fourier representation
		C304.4	Analyse the discrete time system using ZT
		C304.5	Analyse the DT systems with DFS
		C304.6	Acquire basic knowledge in nonlinear systems
39	EE309 Microprocessor and Embedded Systems	C305.1	To give an understanding on the Microprocessor 8085 and programming
		C305.2	To program 8085 microprocessors
		C305.3	To impart an insight into the architecture of 8051 microcontroller
		C305.4	To develop sound understanding about programming and interfacing of 8051 microcontroller.
		C305.5	To give an understanding on the embedded system
		C305.6	To design an embedded system for different applications
40	EE367 New and Renewable energy sources	C306.1	Identify and classify the types of renewable and non-renewable energy systems
		C306.2	Illustrate the basic principles of solar thermal systems
		C306.3	Elucidate the working of solar electric systems
		C306.4	Understand tidal energy and its limitations
		C306.5	Identify Winds energy as alternate form of energy and to know how it can be tapped
		C306.6	Illustrate the basic principles of biogas mechanism and working of small hydro power plants
41	EE341 Design Project	C307.1	The students will be able to think innovatively on the development of components, products in the engineering field
		C307.2	The students will be able to think innovatively on the development of components, processes or technologies in the engineering field
		C307.3	The students will be able to analyse the problem requirements and arrive workable design solutions

		C307.4	The students will be able to understand the engineering aspects of design with reference to simple products to assess its impact on the society, health, environment and safety
		C307.5	The students will be able to understand the engineering aspects of process or technologies with reference to simple products to assess its impact on the society, health, environment and
		C307.6	The students will be able to develop design that add value to products and solve technical problems
42	EE331 Digital Circuits and Embedded Systems Lab	C308.1	Design, setup and analyse various digital circuits.
		C308.2	Students will be able to program and explain 8085 microprocessors for different applications
		C308.3	Students will be able to program and use advanced microprocessors
		C308.4	Students will be able to program and interface 8051 microcontrollers
		C308.5	Students will be able to combine different system for a practical application
		C308.6	students will be aware of LED and LCD display interfacing
43	EE333 Electrical Machines Lab II	C309.1	To study the various calculation of regulations method used in AC alternator
		C309.2	To understand the Active and reactive power control in grid connected alternator
		C309.3	To study the performance characteristics and speed control technique employed induction motor.
		C309.4	To study the performance characteristics of various types of AC machine
		C309.5	To study the Performance characteristics of induction generator
		C309.6	To study the equivalent circuit of synchronous motor and induction motor
44	EE302 Electromagnetics	C310.1	Analyse fields and potentials due to static charges
		C310.2	Explain the physical meaning of the differential equations for electrostatic and magnetic fields
		C310.3	Understand how materials are affected by electric and magnetic fields
		C310.4	Understand the relation between fields under time varying situations
		C310.5	Understand principles of propagation of uniform plane waves
		C310.6	Outline electromagnetic interference and compatibility
45	EE304 Advanced Control Theory	C311.1	To design compensators using frequency domain specifications.
		C311.2	To design compensators using time domain specifications.
		C311.3	To analyse linear using state space analysis.
		C311.4	To design controllers and observers.
		C311.5	To analyse nonlinear system using state space analysis.
		C311.6	To analyse the stability of discrete system and nonlinear system.
46	EE306 Power System Analysis	C312.1	Graduates will be able to explain the model circuits of power system components and per unit systems.

		C312.2	Graduates will be able to perform analysis of power systems subject to symmetrical and unsymmetrical faults.
		C312.3	Graduates will be capable of defining, explaining, establishing and solving equations for power flows based on nodal admittance and impedance matrix.
		C312.4	Graduates can explain the concepts of automatic generation control, load frequency control and automatic voltage control.
		C312.5	Graduates can outline the principles of economic load dispatch and unit commitment.
		C312.6	Graduates will be able to analyse the power system stability criterion.
47	EE308 Electric Drives	C313.1	Graduate will be able to select the drives as per requirement.
		C313.2	Graduate will be able to understand the basics of AC drives and design
		C313.3	Graduate will be able to understand the various control technique employed in AC drive
		C313.4	Graduate will be able to understand the basics of DC drives and design
		C313.5	Graduate will be able to understand the various control technique employed in DC drive
		C313.6	Graduate will gain knowledge in application and basic transformation theory synchronous motor drives
48	HS300 Principles of Management	C314.1	To recall and identify the relevance of management concepts
		C314.2	To describe, discuss and relate management techniques adopted within an organization
		C314.3	To apply management techniques for meeting current and future management challenges faced by the organization
		C314.4	To compare the management theories and models critically and to inspect and question its validity in the real world
		C314.5	To assess and modify different theories of management so as to relate it to current management challenges
		C314.6	To apply principles of management in order to execute the role as a manager
49	EE372 Biomedical Instrumentation	C315.1	Students will be able to Compare different types bio electric potentials
		C315.2	Students will be able to Familiarize different types of biopotential electrodes and working of ECG machine
		C315.3	Students will be able to Understand different methods of measurement of blood pressure and heart beat
		C315.4	Students will be able to Describe different pacemakers, EMG, EEG and respiratory parameter measurement
		C315.5	Students will be able to Understand different types of ventilators-Ray machine and Ultrasonic imaging systems
		C315.6	Students will be able to Understand different instruments for clinical laboratory, electrical safety and method of accident prevention
50	EE332 Systems and Control Lab	C316.1	Students will be able to Develop mathematical models for servomotors and other electrical systems
		C316.2	Students will be able to Performance analysis of different process control systems
		C316.3	Students will be able to Performance analysis of different types of controllers
		C316.4	Students will be familiar with MATLAB and SIMULINK to design and analyse simple systems and compensator

		C316.5	Students will be able to Analyse the performance characteristics and response of temperature/ Flow/ Level control systems.
		C316.6	Students will be able to Realize various types of synchro and its transmitter and receiver analysis.
51	EE334 Power Electronics & Drives Lab	C317.1	Graduates will be able to identify and explain different circuits and corresponding waveforms in power electronic circuits
		C317.2	provide experience on design and analysis of power electronic circuits used for power electronic applications.
		C317.3	Graduates will be able to select a firing circuit based on the application
		C317.4	Graduates will be able to recognize various power semiconductor devices that are used in power electronic applications
		C317.5	Graduates will learn to assess basic concepts used to model different power electronic circuits.
		C317.6	Graduates can recall the basic concepts which can be applied in advanced power electronic circuits
52	EE352 Comprehensive Exam	C318.1	The students will be confident in discussing the fundamental aspects of any engineering problem/situation and give answers in dealing with them
		C318.2	Students will be able to analyse the system and can find solutions to various fundamental issues.
53	EE401 Electronic Communication	C401.1	Understand the need of modulation in transferring a signal through either wireless or wired communication systems
		C401.2	Be able to apply analog modulation techniques and receiver fundamentals in analog communication.
		C401.3	Be to apply baseband digital encoding & decoding techniques in the storage / transmission of digital signal through wired channel and understand the performance of communication systems in the presence of noise and interference
		C401.4	Understand the fundamentals of Television and Radar Engineering.
		C401.5	Understand the Concept of satellite communication and fibre
		C401.6	Understanding the fundamentals of Cellular Telephone Concepts and modern transmission devices such as Zig-Bee, GPS, Wi-Fi, Wi-Max
54	EE403 Distributed Generation and Smart Grids	C402.1	Explain the concepts of distributed generation, smart grids and microgrids
		C402.2	Outline different distributed energy resources and control of microgrid
		C402.3	Illustrate the coordinated operation of smart grid and the use of smart meters
		C402.4	Acquire knowledge on energy storage devices in smart grid
		C402.5	Analyse the performance of smart grid and smart substation
		C402.6	Explain power quality aspects with smart grid
55	EE405 Electrical System Design	C403.1	Students will be able to explain about the standards of BIS and scope and safety aspects
		C403.2	Impart knowledge in the design of low voltage and medium voltage electrical installations.
		C403.3	Basic knowledge of design of distribution transformer substations, their installations and earthing design for transformer substations

		C403.4	Students will have knowledge about the Pre-commissioning tests of cables, transformers and short circuit calculations
		C403.5	Familiarise lighting calculations and external lighting.
		C403.6	Students will have awareness about the energy conservation technologies and PV systems
56	EE407 Digital Signal Processing	C404.1	To provide an understanding of the fundamental concepts and applications of DSP
		C404.2	To introduce and implement the efficient computation techniques involved in DSP
		C404.3	To study the design techniques for digital FIR filters
		C404.4	To study the design techniques for digital IIR filters
		C404.5	To know about the computer architecture for digital signal processors
		C404.6	To give an understanding of multi-rate signal processing and its applications
57	EE409 Electrical Machine Design	C405.1	Understand the basic principle of machine design, magnetic circuit calculation and magnetic leakage calculation
		C405.2	Study the design of various types of transformers
		C405.3	Design the dc machine and its various parts of the machine
		C405.4	Ability to design the synchronous machine dimension and field winding
		C405.5	Study the stator and rotor design of three phase induction motor and slip ring motor
		C405.6	Introduction of computer aided design and finite element method
58	EE465 Power Quality	C406.1	students will be able to identify the power quality problems
		C406.2	Students will be able to understand various sources of power quality problems
		C406.3	Students will be able to analyse the problems relating to power quality
		C406.4	Students will be able to list various Power quality Monitoring considerations
		C406.5	Students will be able to understand various Harmonic elimination techniques
		C406.6	Students will be able to know Power Quality Management in Smart Grid:
59	EE451 Seminar	C407.1	Present seminar in the latest field of electrical and electronics engineering
		C407.2	Communicate effectively, the subjects learned in the form of seminar presentation
		C407.3	Communicate effectively, the modern trends in the field of electrical and electronics engineering
		C407.4	Apply the fundamentals of mathematics, science and engineering knowledge to identify, formulate, design and investigate complex engineering problems of electrical and electronics engineering and allied applications.
		C407.5	Apply appropriate techniques and modern engineering hardware and software tools in electrical and electronics engineering and allied applications

		C407.6	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues with societal and environmental context, applying ethical principles in the field of electrical and electronics engineering and allied applications
60	EE431 Power System Lab	C408.1	Analyse the faults of power system networks on any dedicated software platform to solve a symmetrical and unsymmetrical fault and to verify by manual calculation.
		C408.2	Determine critical clearing angle by applying equal area criterion for any power system network and verify the same using any dedicated software
		C408.3	Determine the change in speed, frequency and steady state error corresponding to a load disturbance in a single area power system, with and without supplementary control using any software
		C408.4	testing the pickup, drop out and plot the time current characteristics of the relay.
		C408.5	measurement of the dielectric strength of the given sample of Transformer oil.
61	EE402 Special Electric Machines	C409.1	Understand the basic principle, construction and operation of Ac and Dc servo motor and its application
		C409.2	Study the basic principle, different type, its characteristics and application
		C409.3	Study the single phase special electrical machine, its characteristics and its applications
		C409.4	Study the operation of reluctance motors, characteristics and its application
		C409.5	Study the operation of permanent magnet motors, characteristics and its application
		C409.6	Study the operation of linear motors, characteristics and its application
62	EE404 Industrial Instrumentation & Automation	C410.1	Students will be able to select instruments and transducers for various physical variables.
		C410.2	Students will get an insight on data acquisition, processing and monitoring system
		C410.3	Students can design various signal conditioning systems for transducers.
		C410.4	Students will be able to analyse dynamic responses of various systems
		C410.5	Students will get the concepts of virtual instrumentation
		C410.6	Students will be familiarized with the programming realization of PLC
63	EE474 Energy Management and Auditing	C411.1	Explain the principles of energy audit, its planning, peak demand control methods and types of loads and optimal scheduling.
		C411.2	Illustrate the energy management opportunities in various electrical systems
		C411.3	Exemplify the energy management opportunities in various thermal systems
		C411.4	Demonstrate the energy management opportunities in various HVAC and WHR systems
		C411.5	Elucidate the various types of energy audits and cogeneration systems
		C411.6	Utilize the various economic analysis methods for energy management
64	IE 488 Total Quality Management	C412.1	To recall and identify the relevance of management concepts
		C412.2	To describe, discuss and relate management techniques adopted within an organization

		C412.3	To apply management techniques for meeting current and future management challenges faced by the organization
		C412.4	To compare the management theories and models critically and to inspect and question its validity in the real world
		C412.5	To assess and modify different theories of management so as to relate it to current management challenges
		C412.6	To apply principles of management in order to execute the role as a manager
65	EE492 Project	C413.1	To give a platform for the students to apply the theoretical knowledge they gained during the course and conduct analysis and create working models.
		C413.2	To enable the students to use different design platforms for design and analysis of project.
		C413.3	To give a chance to improve communication skills and enable the students to express the theoretical knowledge to defend
		C413.4	To impart theoretical knowledge about wind tunnels and experimental fluid mechanics.
		C413.5	To give the students a feel of working in a team environment and contribute to the success of the project.
		C413.6	To enrich and develop the industrial working environment to students