

**DEPARTMENT OF EEE
COURSE OUTCOME**

SEMESTER	THEORY /PRACTICAL	COURSE CODE	COURSE NAME	COURSE OUTCOME
I	THEORY	HS8151	COMMUNICATIVE ENGLISH	<ul style="list-style-type: none"> • Read articles of a general kind in magazines and newspapers. • Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English. • Comprehend conversations and short talks delivered in English • Write short essays of a general kind and personal letters and emails in English.
	THEORY	MA8151	ENGINEERING MATHEMATICS - I	<ul style="list-style-type: none"> • Use both the limit definition and rules of differentiation to differentiate functions. • Apply differentiation to solve maxima and minima problems. • Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus. • Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables. • Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts. • Determine convergence/divergence of improper integrals and evaluate convergent improper integrals. • Apply various techniques in solving differential equations.
	THEORY	PH8151	ENGINEERING PHYSICS	<ul style="list-style-type: none"> • The students will gain knowledge on the basics of properties of matter and its applications, • The Students Will Acquire Knowledge On The Concepts Of Waves And Optical Devices And Their Applications in fibre optics, • The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers, • The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes, and • The students will understand the basics of crystals, their structures and different crystal growth techniques.
	THEORY	CY8151	ENGINEERING CHEMISTRY	<ul style="list-style-type: none"> • The knowledge gained on engineering materials, fuels,

				energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.
	THEORY	GE8151	PROBLEM SOLVING AND PYTHON PROGRAMMING	<ul style="list-style-type: none"> • Develop algorithmic solutions to simple computational problems • Read, write, execute by hand simple Python programs. • Structure simple Python programs for solving problems. • Decompose a Python program into functions. • Represent compound data using Python lists, tuples, dictionaries. • Read and write data from/to files in Python Programs
	THEORY	GE8152	ENGINEERING GRAPHICS	<ul style="list-style-type: none"> • Familiarize with the fundamentals and standards of Engineering graphics • Perform freehand sketching of basic geometrical constructions and multiple views of objects. • Project orthographic projections of lines and plane surfaces. • Draw projections and solids and development of surfaces. • Visualize and to project isometric and perspective sections of simple solids.
	PRACTICAL	GE8161	PROBLEM SOLVING AND PHYTHON PROGRAMMING LABORATORY	<ul style="list-style-type: none"> • Write, test, and debug simple Python programs. • Implement Python programs with conditionals and loops. • Develop Python programs step-wise by defining functions and calling them. • Use Python lists, tuples, dictionaries for representing compound data. • Read and write data from/to files in Python.
	PRACTICAL	BS8161	PHYSICS AND CHEMISTRY LABORATORY	<ul style="list-style-type: none"> • Apply principles of elasticity, optics and thermal properties for engineering applications.
				<ul style="list-style-type: none"> • The students will be outfitted with hands-on knowledge in the quantitative chemical analysis of water quality related parameters.

II	THEORY	HS8251	TECHNICAL ENGLISH	<ul style="list-style-type: none"> • Read technical texts and write area- specific texts effortlessly. • Listen and comprehend lectures and talks in their area of Specialization successfully. • Speak appropriately and effectively in varied formal and informal contexts. • Write reports and winning job applications.
	THEORY	MA8251	ENGINEERING MATHEMATICS - II	<ul style="list-style-type: none"> • Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices. • Gradient, divergence and curl of a vector point function and related identities. • Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification. • Analytic functions, conformal mapping and complex integration. • Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.
	THEORY	PH8253	PHYSICS FOR ELECTRONICS ENGINEERING	<ul style="list-style-type: none"> • Gain knowledge on classical and quantum electron theories, and energy band structures, • Acquire knowledge on basics of semiconductor physics and its applications in various devices, • Get knowledge on magnetic and dielectric properties of materials, <ul style="list-style-type: none"> • Have the necessary understanding on the functioning of optical materials for optoelectronics, • Understand the basics of quantum structures and their applications spintronics and carbon electronics.

	THEORY	BE8252	BASIC CIVIL AND MECHANICAL ENGINEERING	<ul style="list-style-type: none"> • Appreciate the Civil and Mechanical Engineering components of Projects. • Explain the usage of construction material and proper selection of construction materials. • Measure distances and area by surveying • Identify the components used in power plant cycle. • Demonstrate working principles of petrol and diesel engine. • Elaborate the components of refrigeration and Air conditioning cycle
	THEORY	EE8251	CIRCUIT THEORY	<ul style="list-style-type: none"> • Ability to analyse electrical circuits • Ability to apply circuit theorems • Ability to analyse transients
	THEORY	GE8291	ENVIRONMENTAL SCIENCE AND ENGINEERING	<ul style="list-style-type: none"> • 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. • Public awareness of environmental is at infant stage. • Ignorance and incomplete knowledge has lead to misconceptions • Development and improvement in std. of living has lead to serious environmental disasters
	PRACTICAL	GE8261	ENGINEERING PRACTICES LABORATORY	<ul style="list-style-type: none"> • Fabricate carpentry components and pipe connections including plumbing works. • Use welding equipments to join the structures. • Carry out the basic machining operations • Make the models using sheet metal works • Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings • Carry out basic home electrical works and appliances • Measure the electrical quantities • Elaborate on the components, gates, soldering practices • Elaborate on the components, gates, soldering practices.

	PRACTICAL	EE8261	ELECTRIC CIRCUITS LABORATORY	<ul style="list-style-type: none"> • Understand and apply circuit theorems and concepts in engineering applications. • Simulate electric circuits.
III	THEORY	MA8353	TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	<ul style="list-style-type: none"> • Differential equations would provide them the ability to formulate and solve some of the physical problems of engineering. • Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems. • Understand how to solve the given standard partial differential equations. • Solve differential equations using Fourier series analysis which plays a vital role in engineering applications. • Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
	THEORY	EE8351	DIGITAL LOGIC CIRCUITS	<ul style="list-style-type: none"> • Ability to design combinational and sequential Circuits. • Ability to simulate using software package. • Ability to study various number systems and simplify the logical expressions using Boolean functions • Ability to design various synchronous and asynchronous circuits. • Ability to introduce asynchronous sequential circuits and PLDs • Ability to introduce digital simulation for development of application oriented logic circuits.
	THEORY	EE8391	ELECTROMAGNETIC THEORY	<ul style="list-style-type: none"> • Ability to understand the basic mathematical concepts related to electromagnetic vector fields. • Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications. • Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications. • Ability to understand the different methods of emf generation and Maxwell's equations • Ability to understand the basic concepts electromagnetic waves and characterizing parameters

				<ul style="list-style-type: none"> • Ability to understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems
	THEORY	EE8301	ELECTRICAL MACHINES – I	<ul style="list-style-type: none"> • Ability to analyze the magnetic-circuits. • Ability to acquire the knowledge in constructional details of transformers. • Ability to understand the concepts of electromechanical energy conversion. • Ability to acquire the knowledge in working principles of DC Generator. • Ability to acquire the knowledge in working principles of DC Motor • Ability to acquire the knowledge in various losses taking place in D.C. Machines
	THEORY	EC8353	ELECTRON DEVICES AND CIRCUITS	<ul style="list-style-type: none"> • Explain the structure and working operation of basic electronic devices. • Able to identify and differentiate both active and passive elements • Analyze the characteristics of different electronic devices such as diodes and transistors • Choose and adapt the required components to construct an amplifier circuit. • Employ the acquired knowledge in design and analysis of oscillators
III	THEORY	ME8792	POWER PLANT ENGINEERING	<ul style="list-style-type: none"> • Explain the layout, construction and working of the components inside a thermal power plant. • Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants. • Explain the layout, construction and working of the components inside nuclear power plants. • Explain the layout, construction and working of the components inside Renewable energy power plants. • 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
	PRACTICAL	EC8311	ELECTRONICS LABORATORY	<ul style="list-style-type: none"> • Ability and analyse electronic circuits to understand.

	PRACTICAL	EE8311	ELECTRICAL MACHINES LABORATORY-I	<ul style="list-style-type: none"> • Ability to understand and analyze DC Generator • Ability to understand and analyze DC Motor • Ability to understand and analyse Transformers.
IV	THEORY	MA8491	NUMERICAL METHODS	<ul style="list-style-type: none"> • Understand the basic concepts and techniques of solving algebraic and transcendental equations. • Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations. • Apply the numerical techniques of differentiation and integration for engineering problems. • Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations. • Solve the partial and ordinary differential equations with initial and boundary • Conditions by using certain techniques with engineering applications
	THEORY	EE8401	ELECTRICAL MACHINES – II	<ul style="list-style-type: none"> • Ability to understand the construction and working principle of Synchronous Generator • Ability to understand MMF curves and armature windings. • Ability to acquire knowledge on Synchronous motor. • Ability to understand the construction and working principle of Three phase Induction Motor • Ability to understand the construction and working principle of Special Machines • Ability to predetermine the performance characteristics of Synchronous Machines.
	THEORY	EE8402	TRANSMISSION AND DISTRIBUTION	<ul style="list-style-type: none"> • To understand the importance and the functioning of transmission line parameters. • To understand the concepts of Lines and Insulators. • To acquire knowledge on the performance of Transmission lines. • To understand the importance of distribution of the electric power in power system. • To acquire knowledge on Underground Cabilities • To become familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components.

THEORY	EE8403	MEASUREMENTS AND INSTRUMENTATION	<ul style="list-style-type: none"> • To acquire knowledge on Basic functional elements of instrumentation • To understand the concepts of Fundamentals of electrical and electronic instruments • Ability to compare between various measurement techniques • To acquire knowledge on Various storage and display devices • To understand the concepts Various transducers and the data acquisition systems • Ability to model and analyze electrical and electronic Instruments and understand the operational features of display Devices and Data Acquisition System.
THEORY	EE8451	LINEAR INTEGRATED CIRCUITS AND APPLICATIONS	<ul style="list-style-type: none"> • Ability to acquire knowledge in IC fabrication procedure • Ability to analyze the characteristics of Op-Amp • To understand the importance of Signal analysis using Op-amp based circuits. • Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits. • To understand and acquire knowledge on the Applications of Op-amp • Ability to understand and analyse, linear integrated circuits their Fabrication and Application.
THEORY	IC8451	CONTROL SYSTEMS	<ul style="list-style-type: none"> • Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals. • Ability to do time domain and frequency domain analysis of various models of linear system. • Ability to interpret characteristics of the system to develop mathematical model. • Ability to design appropriate compensator for the given specifications. • Ability to come out with solution for complex control problem. • Ability to understand use of PID controller in closed loop system.

IV	PRACTICAL	EE8411	ELECTRICAL MACHINES LABORATORY - II	<ul style="list-style-type: none"> • Ability to understand and analyze EMF and MMF methods • Ability to analyze the characteristics of V and Inverted V curves • Ability to understand the importance of Synchronous machines • Ability to understand the importance of Induction Machines • Ability to acquire knowledge on separation of losses
	PRACTICAL	EE8461	LINEAR AND DIGITAL INTEGRATED CIRCUITS LAB	<ul style="list-style-type: none"> • Ability to understand and implement Boolean Functions. • Ability to understand the importance of code conversion • Ability to Design and implement 4-bit shift registers • Ability to acquire knowledge on Application of Op-Amp • Ability to Design and implement counters using specific counter IC.
	PRACTICAL	EE8412	TECHNICAL SEMINAR	<ul style="list-style-type: none"> • Ability to review, prepare and present technological developments • Ability to face the placement interviews
V	THEORY	EE8501	POWER SYSTEM ANALYSIS	<ul style="list-style-type: none"> • Ability to model the power system under steady state operating condition • Ability to understand and apply iterative techniques for power flow analysis • Ability to model and carry out short circuit studies on power system • Ability to model and analyze stability problems in power system • Ability to acquire knowledge on Fault analysis. • Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.
	THEORY	EE8551	MICROPROCESSORS AND MICROCONTROLLERS	<ul style="list-style-type: none"> • Ability to acquire knowledge on Fault analysis. • Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.

	THEORY	EE8552	POWER ELECTRONICS	<ul style="list-style-type: none"> • Ability to acquire knowledge on Fault analysis. • Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.
	THEORY	EE8591	DIGITAL SIGNAL PROCESSING	<ul style="list-style-type: none"> • Ability to understand the importance of Fourier transform, digital filters and DS Processors. • Ability to acquire knowledge on Signals and systems & their mathematical representation. • Ability to understand and analyze the discrete time systems. • Ability to analyze the transformation techniques & their computation. • Ability to understand the types of filters and their design for digital implementation. • Ability to acquire knowledge on programmability digital signal processor & quantization effects.
	THEORY	CS8392	OBJECT ORIENTED PROGRAMMING	<ul style="list-style-type: none"> • Develop Java programs using OOP principles • Develop Java programs with the concepts inheritance and interfaces • Build Java applications using exceptions and I/O streams • Develop Java applications with threads and generics classes • Develop interactive Java programs using swings
	THEORY	OC551	AIR POLLUTION & CONTROLS	<ul style="list-style-type: none"> • Ability to comprehend and appreciate the significance and role of this course in the present contemporary world • Apply analog and digital communication techniques. • Use data and pulse communication techniques.
V	PRACTICAL	EE8511	CONTROL AND INSTRUMENTATION LABORATORY	<ul style="list-style-type: none"> • Ability to understand control theory and apply them to electrical engineering problems. • Ability to analyze the various types of converters. • Ability to design compensators • Ability to understand the basic concepts of bridge networks. • Ability to the basics of signal conditioning circuits. • Ability to study the simulation packages.

	PRACTICAL	HS8581	PROFESSIONAL COMMUNICATION	<ul style="list-style-type: none"> • Make effective presentations • Participate confidently in Group Discussions. • Attend job interviews and be successful in them. • Develop adequate Soft Skills required for the workplace
	PRACTICAL	CS8383	OBJECT ORIENTED PROGRAMMING LABORATORY	<ul style="list-style-type: none"> • Develop and implement Java programs for simple applications that make use of classes, packages and interfaces. • Develop and implement Java programs with arraylist, exception handling and multithreading . • Design applications using file processing, generic programming and event handling.
VI	THEORY	EE8601	SOLID STATE DRIVES	<ul style="list-style-type: none"> • Ability to understand and suggest a converter for solid state drive. • Ability to select suitability drive for the given application. • Ability to study about the steady state operation and transient dynamics of a motor load system. • Ability to analyze the operation of the converter/chopper fed dcdrive. • Ability to analyze the operation and performance of AC motordrives. • Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.
	THEORY	EE8602	PROTECTION AND SWITCHGEAR	<ul style="list-style-type: none"> • Ability to understand and analyze Electromagnetic and Static Relays. • Ability to suggest suitability circuit breaker. • Ability to find the causes of abnormal operating conditions of the apparatus and system. • Ability to analyze the characteristics and functions of relays and protection schemes. • Ability to study about the apparatus protection, static and numerical relays. • Ability to acquire knowledge on functioning of circuit breaker.

	THEORY	EE8691	EMBEDDED SYSTEMS	<ul style="list-style-type: none"> • Ability to understand and analyze Embedded systems. • Ability to suggest an embedded system for a given application. • Ability to operate various Embedded Development Strategies • Ability to study about the bus Communication in processors. • Ability to acquire knowledge on various processor scheduling algorithms. • Ability to understand basics of Real time operating system.
	THEORY	EE8004	MODERN POWER CONVERTERS	<ul style="list-style-type: none"> • Ability to suggest converters for AC-DC conversion and SMPS
	THEORY	EE8006	POWER QUALITY	<ul style="list-style-type: none"> • Ability to understand various sources, causes and effects of power quality issues, electrical systems and their measures and mitigation. • Ability to analyze the causes & Mitigation techniques of various PQ events. • Ability to study about the various Active & Passive power filters. • Ability to understand the concepts about Voltage and current distortions, harmonics. • Ability to analyze and design the passive filters. • Ability to acquire knowledge on compensation techniques. • Ability to acquire knowledge on DVR.

	PRACTICAL	EE8661	POWER ELECTRONICS AND DRIVES LABORATORY	<ul style="list-style-type: none"> • Ability to practice and understand converter and inverter circuits and apply software for engineering problems. • Ability to experiment about switching characteristics various switches. • Ability to analyze about AC to DC converter circuits. • Ability to analyze about DC to AC circuits. • Ability to acquire knowledge on AC to AC converters • Ability to acquire knowledge on simulation software.
	PRACTICAL	EE8681	MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	<ul style="list-style-type: none"> • Ability to understand and apply computing platform and software for engineering problems. • Ability to programming logics for code conversion. • Ability to acquire knowledge on A/D and D/A. • Ability to understand basics of serial communication. • Ability to understand and impart knowledge in DC and AC motor interfacing. • Ability to understand basics of software simulators.
VI	PRACTICAL	EE8611	MINI PROJECT	<ul style="list-style-type: none"> • 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.
	THEORY	EE8701	HIGH VOLTAGE ENGINEERING	<ul style="list-style-type: none"> • Ability to understand Transients in power system. • Ability to understand Generation and measurement of high voltage. • Ability to understand High voltage testing. • Ability to understand various types of over voltages in power system. • Ability to measure over voltages. • Ability to test power apparatus and insulation coordination
	THEORY	EE8702	POWER SYSTEM OPERATION AND CONTROL	<ul style="list-style-type: none"> • Ability to understand the day-to-day operation of electric power system. • Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand. • Ability to understand the significance of power system operation and control. • Ability to acquire knowledge on real power-frequency

VII				<p>interaction.</p> <ul style="list-style-type: none"> • Ability to understand the reactive power-voltage interaction. • Ability to design SCADA and its application for real time operation.
	THEORY	EE8703	RENEWABLE ENERGY SYSTEMS	<ul style="list-style-type: none"> • Ability to create awareness about renewable Energy Sources and technologies. • Ability to get adequate inputs on a variety of issues in harnessing renewable Energy. • Ability to recognize current and possible future role of renewable energy sources. • Ability to explain the various renewable energy resources and technologies and their applications. • Ability to understand basics about biomass energy. • Ability to acquire knowledge about solar energy.
	THEORY	OCS752	INTRODUCTION OF C PROGRAM	<ul style="list-style-type: none"> • Problems • Ability to study about the concepts of windows programming models. • Ability to study the concepts of Menu basics, menu magic and classic controls. • Ability to study the concept of Document/View Architecture with single & multiple document interface. • Ability to study about the integrated development programming event driven programming.
	THEORY	GE8071	DISASTER MANAGEMENT	<ul style="list-style-type: none"> • Differentiate the types of disasters, causes and their impact on environment and society • Assess vulnerability and various methods of risk reduction measures as well as mitigation • Draw the hazard and vulnerability profile of India, Scenarios in the Indian context, Disaster damage assessment and management.

	THEORY	EE8010	POWER SYSTEMS TRANSIENTS	<ul style="list-style-type: none"> • Ability to understand and analyze switching and lightning transients. <ul style="list-style-type: none"> • Ability to acquire knowledge on generation of switching transients and their control. • Ability to analyze the mechanism of lightning strokes. • Ability to understand the importance of propagation, reflection and refraction of travelling waves. • Ability to find the voltage transients caused by faults. • Ability to understand the concept of circuit breaker action, load rejection on integrated power system.
	PRACTICAL	EE8711	POWER SYSTEM SIMULATION LABORATORY	<ul style="list-style-type: none"> • Ability to understand power system planning and operational studies. • Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks. • Ability to analyze the power flow using GS and NR method • Ability to find Symmetric and Unsymmetrical fault • Ability to understand the economic dispatch. • Ability to analyze the electromagnetic transients.
	PRACTICAL	EE8712	RENEWABLE ENERGY SYSTEMS LABORATORY	<ul style="list-style-type: none"> • Ability to train the students in Renewable Energy Sources and technologies. • Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy. • Ability to simulate the various Renewable energy sources. • Ability to recognize current and possible future role of Renewable energy sources. • Ability to understand basics of Intelligent Controllers
	THEORY	EE8015	ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION	<ul style="list-style-type: none"> • To understand the main aspects of generation, utilization and conservation. • To identify an appropriate method of heating for any particular industrial application. <ul style="list-style-type: none"> • To evaluate domestic wiring connection and debug any faults occurred. • To construct an electric connection for any domestic appliance like refrigerator as well as to design a battery charging circuit for a specific household application.

VIII				<ul style="list-style-type: none"> • To realize the appropriate type of electric supply system as well as to evaluate the performance of a traction unit. • To understand the main aspects of Traction.
	THEORY	EE8016	ENERGY MANAGEMENT AND AUDITING	<ul style="list-style-type: none"> • To understand the importance of Energy management on various electrical equipment Ability to understand the basics of Energy audit process. • Ability to understand the basics of energy management by cogeneration • Ability to acquire knowledge on Energy management in lighting systems • Ability to impact concepts behind economic analysis and Load management. • Ability and metering. • Ability to acquire knowledge on HVAC.
	PRACTICAL	EE8811	PROJECT WORK	<ul style="list-style-type: none"> • On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

2017 REGULATION

www.pad