II YEAR III SEM

COURSE OUTCOME

MA8353 - Transforms and Partial Differential Equations-

At the end of the course, learners will be able to

CO	Statement
CO1	Find the Fourier series and Fourier Integral representation of a function in arbitrary interval.
CO2	Formulate and solve partial differential equations and difference equations.
CO3	Find Fourier series solutions for one dimensional wave, one-dimensional and two-dimensional heat equations.
CO4	Learn the properties Fourier, Z transform and determine the Fourier transform of functions and Z transform of sequences.
CO5	Find the half range sine and cosine series and approximate values of Fourier Coefficients by numerical integration.

EE8351- Digital Logic Circuits

At the end of the course, learners will be able to

CO	Statement
CO1	Compare various number systems and distinguish between number systems and coding systems.

CO2	Determine the logical expressions and design logic circuit using boolean functions.
CO3	Analyze and design combinational and sequential Circuits. Write the coding for development of application oriented logic circuits.
CO4	Enumerate memory devices, Apply PLA, PLD, PLC and PROM for logic function implementation.
CO5	Evaluate the performance of various synchronous and asynchronous circuits and also identify the hazards in the digital circuit.

EE8391 - Electromagnetic Theory

At the end of the course, learners will be able to:

CO	Statement
CO1	Understand the vector calculus in different co-ordinate systems and the spatial variations of the physical quantities dealt in electromagnetic field theory as functions of space and time.
CO2	Explain fundamental laws governing electromagnetic fields and to evaluate the physical concepts of electromagnetic parameters in different media using the fundamental laws

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CO3	Evaluate the electromagnetic force exerted on charged particles, working principle of various types of electromagnetic energy conversion devices.
CO4	Generalize the concepts of electromagnetic theory and its applications in various fields. Distinguish between the physical and mathematical concepts of circuit theory and field theory.
CO5	Describe the concepts of propagation of the electromagnetic wave in different media with reflection and refraction phenomenon.

EE8301- Electrical Machines - I

At the end of the course, learners will be able to:

CO	Statement
CO1	Analyze the magnetic circuits and various magnetic materials.
CO2	Acquire knowledge in constructional details and working of single phase and three phase transformers and Investigate the performance of the transformer by conducting various non-loading tests.
CO3	Experiment the working principle, speed control and starting methods of DC Motor.
CO4	Interpret the concepts of electromechanical energy conversion and derive expressions for generated voltage and torque developed in all Electrical Machines.

| CO5 | Summarize the working principle, types of DC generators, and determination of their characteristics. |

EC8353- Electron Devices and Circuits

At the end of the course, learners will be able to:

CO	Statement
CO1	Know the basic structure and its applications of various electronic devices.
CO2	Choose and adapt a device in circuit construction for particular application based on its characteristics.
CO3	Express the biasing methods of devices by familiarizing its working and applications of transistors and FETS
CO4	Explore the characteristics and frequency response of amplifiers
CO5	Learn and use the positive and negative feedback systems with amplifiers. Employ their acquired knowledge on design and analysis of oscillators

ME8792 Power Plant Engineering

At the end of the course, learners will be able to:

CO	Statement
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. Extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.

EE8311 -Electrical Machines Laboratory – I

At the end of the course, learners will be able to:

CO	Statement
CO1	Identify different types and parts of DC Machines and Transformers. Interpret the parts and working of DC starters and three phase transformer connections.
CO2	Comment on the performance characteristics of self excited DC generators.
CO3	Examine the performance and speed control of DC Motors and Transformers under different loading conditions.
CO4	Calculate the parameters required to predetermine the performance of DC machines and Transformers by conducting non-loading tests.

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CO5	Predict the performance characteristics of DC Machines and Transformers by conducting non-loading tests.

EC8311 - Electronics Laboratory

At the end of the course, learners will be able to:

CO	Statement
CO1	Analyse the operation of electronic components based on its characteristics for various configurations. Choose and adapt a device in circuit construction for particular application based on its characteristics.
CO2	Examine the applications of diodes and FET devices
CO3	Examine the design and response of transistors and FET devices.
CO4	Design and Experiment various oscillators
CO5	Demonstrate the generation of waveforms

II YEAR IV SEM

COURSE OUTCOME

MA8491 Numerical Methods

At the end of the course, learners will be able to

CO	Statement

CO1	Apply the fundamental concepts of numerical techniques in solving algebraic and transcendental equations using fixed-point iteration method and Newton-Raphson method and system of simultaneous equations using direct and indirect methods.
CO2	Finding Eigen values and Eigen vector of a matrix using Power method and Jacobi's method for symmetric matrices. Using Finite difference approach by explicit and implicit scheme to compute initial value problem and boundary value problems such as Laplace equation, Poisson equation, hyperbolic equation, parabolic equation.
CO3	Using Lagrange's Method, Newton's divided difference method, Newton's forward and backward Formula, Cubic spline for fitting a polynomial and to find Derivative of the polynomial.
CO4	Evaluate line integral using Trapezoidal, Romberg's and Simpson's one-third rule and surface integral using Trapezoidal and Simpson's one-third rule.
CO5	Solve first ordinary differential equation using Taylor's, Euler's, Modified Euler's, Fourth order Runge-kutta methods, Milne's and Adam-Bash forth method.

EE8401 Electrical Machines - II

At the end of the course, learners will be able to

CO	Statement

CO1	Acquire knowledge in constructional details and working of synchronous generators , synchronous motors, Induction motors and special machines.
CO2	Estimate the regulation of synchronous machines and induction machines. Categorize the need of starters in Synchronous Motor, single & three phase Induction Motor.
CO3	Choose a particular machine in the required application by knowing the performance characteristics, starting and speed control techniques.
CO4	Apply different methods of speed control techniques for induction motor with its necessary braking methods.
CO5	Analyse the performance characteristics of Synchronous Machines & induction machines by conducting various tests methods.

EE8402 Transmission and Distribution .

At the end of the course, learners will be able to

CO	Statement

CO1	Understand the importance and functions of transmission line parameters, underground cable, grounding system and components used in substation.
CO2	Acquire knowledge about different types of conductor arrangement, transmission line parameters, power flow in transmission lines, insulators, effects on transmission lines and types of distribution system.
CO3	Apply the concepts to calculate the transmission line parameters in single and three phase systems, voltage levels of transmission and distribution lines and single/ three core cable parameters.
CO4	Analyse the performance of transmission lines and underground cables. Design the overhead lines and grounding system and distinguish the function of different components used in transmission and distribution levels of the power system.
CO5	Evaluate the transmission and distribution line parameters, voltage distribution across insulators and string efficiency.

EE8403 Measurements and Instrumentation

At the end of the course, learners will be able to

CO	Statement

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CO1	Integrate the Basic functional elements of instrumentation to measure electrical parameters.
CO2	Extend the concepts of basic elements of instrumentation to illustrate the working and functions of electrical and electronic instruments. Explain the data acquisition systems.
CO3	Interprete the usage of comparative methods to measure the basic electrical quantities like resistance, inductance and capacitance.
CO4	Distinguish Various storage and display devices.
CO5	Choose the transducers for particular measurement.

EE8451 Linear Integrated Circuits and Applications

At the end of the course, learners will be able to

CO	Statement
CO1	Acquire knowledge in IC fabrication procedure.
CO2	Analyze the characteristics and basic applications of Op-Amp.
CO3	Design and acquire knowledge on the Applications of Op-amp. Understand and realize the linear integrated circuits to fabricate, design and implement in various applications.

CO4	Identify the applications of special ICs like Timers, PLL.
CO5	Extrapolate the features and applications of regulator circuits.

IC8451 Control Systems

At the end of the course, learners will be able to

CO	Statement
CO1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
CO2	Ability to do time domain and frequency domain analysis of various models of linear system.
CO3	Ability to interpret characteristics of the system to develop mathematical model.
CO4	Ability to design appropriate compensator for the given specifications.
CO5	Ability to understand use of PID controller in closed loop system and come out with solution for complex control problem.

EE8411 Electrical Machines Laboratory – II

At the end of the course, learners will be able to

CO	Statement

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CO1	Analyze the voltage regulation of three phase alternator for different loading condition in different methods and compare the results
CO2	Analyze the voltage regulation three phase salient pole synchronous machine in different loading condition and estimate its negative and zero sequence components
CO3	Analyze the characteristic of three phase synchronous machine at different load condition for different excitation
CO4	Analyze performance characteristics of single phase and three phase induction motor at different load condition and estimate its equivalent circuit parameters.
CO5	Explain the Construction and Working Of A.C motor Starters

EE8461 Linear and Digital Integrated Circuits Laboratory

At the end of the course, learners will be able to

CO	Statement `
CO1	Understand the importance of boolean postulates and implement the boolean functions in combinational logic circuits and sequential logic circuits
CO2	Analyse the combinational logic circuits like adder, subtractor, code converters, parity generator and checker, encoder and decoder and multiplexer and demultiplexer and to design the circuits
CO3	Implement the sequential logic circuits like counters and shift registers using FF's

CO4	Design the op amp circuits for various application like inverting, non inverting, adder, comparator , differentiator and integrator
CO5	Design and verify the various application of 555 timer. Verify the performance of voltage regulators and special ICs

EE8412 -   Technical Seminar

At the end of the course, learners will be able to

CO	Statement
CO1	Present seminar in the recent advancement in electrical and electronics engineering discipline.
CO2	Review and prepare the State-of-art technologies in the present technological developments.
CO3	Organize the presentation using the concepts of ordering and determining the central, main and supporting ideas.
CO4	Present any topic in any recent advancement with good communicative skill infront of peers and faculty members.
CO5	Perform well in placement recruitment drive with good technical skills and communication skills. Handle questions after the presentation with confidence

III YEAR V SEM

COURSE OUTCOME

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EE8501 Power System Analysis

At the end of the course, learners will be able to

CO	Statement
CO1	Understand the power scenario and model various power system components that are adequate for the basic system studies of load flow and short-circuit.
CO2	Demonstrate the input data required for load flow calculation and select and identify the most appropriate algorithm.
CO3	Analyse a power system network under symmetrical fault conditions and interpret the results .
CO4	Use the method of symmetrical components for analyzing unbalanced three-phase systems and interpret the results
CO5	Calculate the fault current and perform the analysis for single line-to-ground, line-to-line, and double line-to-ground faults.
CO6	Classify the stability and demonstrate different numerical integration methods for factors influencing stability

EE8551 Microprocessors and Microcontrollers

At the end of the course, learners will be able to

CO	Statement
CO1	Demonstrate the detail structure of 8085 processor and 8051 microcontroller.
CO2	Classify the different types of machine cycle and interrupt signals of 8085 &8051 MC.

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CO3	Illustrate how the different peripherals are interfaced with processor and microcontroller.
CO4	Discuss the various instruction sets and addressing modes of 8085 and 8051.
CO5	Evaluate their practical knowledge by writing the simple assembly language program using various instruction of 8085 and 8051.
CO6	Design a simple application development using the programming of 8085 &8051.

EE8552 Power Electronics

At the end of the course, learners will be able to

CO	Statement
CO1	Select appropriate power semiconductor devices and design a power converter for an application
CO2	Analyze the working of various types of 1 phase converters such as rectifier, inverter, chopper and cycloconverter
CO3	Analyse the working of various types of 3 Phase converters such as rectifiers ,inverter,chopper and cycloconverter
CO4	Design the driver and control circuit required for various converters.
CO5	Categorize different modulation techniques and firing schemes for various converters in power electronics.
CO6	Review the performance of advanced converters such as dual ,resonant and matrix converter

EE8591 Digital Signal Processing

At the end of the course, learners will be able to

CO	Statement
CO1	Ability to understand the importance of signal and systems in time and frequency domain.
CO2	To acquire knowledge in Signals and systems & their mathematical representation.
CO3	Analyze the Characteristics and properties of Linear Time Invariant (LTI) system in Time domain, Fourier domain and Z-domain.
CO4	Ability to analyze the frequency transformation techniques & their computation.
CO5	Ability to understand the types of filters and their design for digital implementation.
CO6	Ability to acquire knowledge on programmability digital signal processor & quantization effects.

CS8392 Object Oriented Programming

At the end of the course, learners will be able to

CO	Statement
CO1	Acquire the knowledge of OOP & Java fundamentals
CO2	Apply inheritance, interfaces and Generic Program for program development

CO3	Build java applications using exception handling and MultiThreading
CO4	Ability to identify corresponding I/O Functions.
CO5	Develop interactive Java programs using swings
CO6	Design and Build simple Graphical User Interface

OPEN ELECTIVE I

OAT551 AUTOMOTIVE SYSTEMS

At the end of the course, learners will be able to

CO	Statement
CO1	Identify different components in an automobile
CO2	Differentiate different types of frames and steering systems used in an automobile
CO3	Use different types of transmission systems for their respective application
CO4	Understand brakes and their characteristics
CO5	Modify or add components for respective alternative fuels
CO6	Disassemble and assemble a four stroke engine

OAN551 SENSORS AND TRANSDUCERS

At the end of the course, learners will be able to

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CO	Statement
CO1	To be Expertise in various calibration techniques and signal types for sensors.
CO2	To Understand the characteristics of various transducers
CO3	To Study the basic principles of various smart sensors
CO4	To Implement the DAQ systems with different sensors for real time applications
CO5	Develop the knowledge of some of the semiconductor & IC sensor
CO6	Apply the various sensors in the Automotive and Mechatronics applications

OMD551 Basics of Biomedical Instrumentation

At the end of the course, learners will be able to

CO	Statement
CO1	Diagnose the biopotentials
CO2	Elaborate the usage of electrodes in capturing the biosignals
CO3	Explain the signal conditioning circuits for biomedical applications
CO4	Devise the recording problems associated with capturing the biosignals
CO5	Demonstrate various methods of measurement of non electrical parameters related to human body
CO6	Summarize the non invasive measurements in biomedical Instrumentation.

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EE8511   Control and Instrumentation Laboratory

At the end of the course, learners will be able to

CO	Statement
CO1	Apply control theory to electrical engineering problem
CO2	compare the dynamics of various transducers and sensors
CO3	Design different types of compensators and converters
CO4	choose a particular bridge network for a required application
CO5	measure power and energy in electrical circuits.
CO6	interpret simulation

HS8581   Professional Communication

At the end of the course, learners will be able to

CO	Statement
CO1	Make effective presentations
CO2	Participate confidently in Group Discussion
CO3	Facilitate their ability to work collaboratively with others
CO4	Attend job interviews and be successful in them
CO5	Develop adequate soft skills required for the workplace
CO6	Equip the soft skills that strengthen the prospects of success in competitive examinations

CS8383 Object Oriented Programming Laboratory

At the end of the course, learners will be able to

CO	Statement
CO1	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
CO2	Develop and implement Java programs with arraylist, exception handling and multithreading .
CO3	Design applications using file processing, generic programming and event handling.
CO4	Implement abstract data types for linear data structures
CO5	To build software development skills using java programming for real-world applications.
CO6	Students will be able to practice acquired knowledge within the chosen area of application for project development

III YEAR VI SEM

EE8601 Solid State Drives

At the end of the course, learners will be able to

CO	Statement
CO1	Enhance the knowledge to select suitable drive
CO2	Acquire the knowledge of steady state and dynamic characteristics of drives

CO3	Study and analyze the operation of the converter/chopper fed dc drive, both qualitatively and quantitatively
CO4	Select suitable Electrical Drive and apply appropriate control method for the application
CO5	Design and Analyze different control techniques involved in both AC and DC Drive
CO6	Analyze current and speed controllers for a closed loop solid state DC motor drive.

EE8602 Protection and Switchgear

At the end of the course, learners will be able to

CO	Statement
CO1	Summarize the need for protection of Power System from the various faults occurring in Power System Equipments
CO2	Acquire the knowledge of construction and working principle of Electromagnetic Relays,Static Relays and Numerical Relays
CO3	Illustrate how the torque equation and characteristic curves are obtained for various types of relays
CO4	Formulate the Suitable application of Protective relaying scheme for the Protection of power system equipments
CO5	Analyze various arc interruption theory and to explain about dc and ac circuit breaking
CO6	Evaluate the construction and operation of different types of circuit breakers

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EE8691 EMBEDDED SYSTEM .

At the end of the course, learners will be able to

CO	Statement
CO1	Memorizing the basic concept of embedded processor ,I/O ports and Buses, Embedded Product Development Lifecycle, RTOS.
CO2	Analyze the various communication protocols for different applications.
CO3	Validating the various Processor and memory devices for a suitable embedded system
CO4	Apply the processor scheduling algorithms in embedded systems application.
CO5	Summarize the various Modeling techniques, Issues in Hardware-Software Co-design, shared memory and inter process communication.
CO6	Design and develop embedded system for various applications.

PROFESSIONAL ELECTIVE I

EE8002 Design of Electrical Apparatus

At the end of the course, learners will be able to

CO	Statement
CO1	Realize basics of design considerations of rotating and static electrical machines.
CO2	Design magnetic circuits of transformers, DC machines and AC machines.

CO3	Design cooling systems of transformers, DC machines and AC machines
CO4	Design windings of transformer and induction machines.
CO5	Design Field windings and armature windings of DC machines and Synchronous machines
CO6	Design of transformers, DC machines and AC machines with computer simulation.

Professional Elective II   (EE8005- Special Electrical Machines)

At the end of the course, learners will be able to

CO	Statement
CO1	Study the construction and Principle of operation of different Special Electrical Machines
CO2	Derive the EMF and Torque equation of the different Special Electrical Machines
CO3	Acquire the knowledge in analysis of different Special Electrical Machines
CO4	Discuss the performance of Characteristics of different Special Electrical Machines
CO5	Examine the behaviour of Converters and Controllers for different Special Electrical machines
CO6	Apply different Special Electrical machines in suitable applicative fields .

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EE8661   Power Electronics and Drives Laboratory.

At the end of the course, learners will be able to

CO	Statement
CO1	Ability to experiment about switching characteristics of various switches.
CO2	Ability to practice and understand converter and inverter circuits and apply software for engineering problems.
CO3	Ability to evaluate performance characteristics of DC chopper circuits, AC voltage controller circuits, Switched mode power converter circuits and analyzes their operation under different loading conditions.
CO4	Prepare professional quality textual and graphical presentations of laboratory data and computational results, incorporating accepted data analysis and synthesis methods, mathematical software and word-processing tools.
CO5	Primarily via team-based laboratory activities, students will demonstrate the ability to interact effectively on a social and interpersonal level with fellow students, and will demonstrate the ability to divide up and share task responsibilities to complete assignments.
CO6	Practice different types of wiring and devices connections keeping in mind technical, economical, safety issues.

EE8681   Microprocessor and Microcontroller Laboratory

At the end of the course, learners will be able to

CO	Statement
CO1	Apply computing platform and software for engineering problems
CO2	Write the programming logics for code conversion
CO3	Acquire knowledge on A/D . D/A, DC and AC motor interfacing with microcontroller as well as microprocessor.
CO4	Review basics of serial communication programming
CO5	Develop the programming Basics of embedded processors using software simulators
CO6	Able to develop mini projects with processor & controllers

EE8611 Mini Project

At the end of the course, learners will be able to

CO	Statement
CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilising a systems approach.
CO4	Conduct an engineering project.

CO5	Communicate with engineers and the community at large in written and oral forms.
CO6	Demonstrate the knowledge, skills and attitudes of a professional engineer.

IV YEAR VII SEM

EE8701 High Voltage Engineering

At the end of the course, learners will be able to

CO	Statement
CO1	Acquire the knowledge about causes and protection against over voltages in power system
CO2	Ability to acquire Nature of Breakdown mechanism in solid, liquid and gaseous dielectrics
CO3	Test high voltage electrical Equipment with various testing devices.
CO4	Ability to analyse the Generation of high currents in laboratories

CO5	Ability to Measure over voltages and over currents
CO6	Ability to Test power apparatus and insulation coordination.

EE8702   POWER SYSTEM OPERATION AND CONTROL

At the end of the course, learners will be able to

CO	Statement
CO1	Ability to understand the significance of power system operation and control
CO2	Ability to analyze the control actions to be implemented on the system to meet system load variation
CO3	Ability to acquire knowledge on real power-frequency interaction
CO4	Ability to understand the reactive power-voltage interaction and different methods of voltage control against varying system load
CO5	Ability to analyze unit commitment (UC) problem and economic operation of power system
CO6	Ability to design SCADA and its application for real time operation.

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CO1	Create awareness about renewable Energy Sources and technologies.
CO2	Get adequate inputs on variety of issues in harnessing renewable Energy.
CO3	Recognize current and possible future role of renewable energy sources.
CO4	Explain the various renewable energy resources and technologies and their Applications
CO5	To make the basics about Biomass energy clear and impart adequate knowledge
CO6	To impart knowledge on basics of Solar energy

EE8703 Renewable Energy Systems:

At the end of the course, learners will be able to:

Open Elective II

OCS752 Introduction to C Programming

At the end of the course, learners will be able to

CO	Statement
CO1	Understand the structure and formats of C Language.
CO2	Learned the depth of Arrays in C.
CO3	Build C programs using Strings.

CO4	Implement the concept of pointers
CO5	Developed C applications using functions.
CO6	Implement C programs using structures.

Professional Elective III

GE8071   Disaster Management

At the end of the course, learners will be able to

CO	Statement
CO1	Differentiate the types of disasters, causes and their impact on environment and society
CO2	Assess vulnerability and various methods of risk reduction measures as well as mitigation
CO3	Understand the Relationship between Disaster and Development
CO4	Draw the hazard and vulnerability profile of India, Scenarios in the Indian context
CO5	Disaster damage assessment and management
CO6	Create new methods or technology for risk detection and reduction

Professional Elective III

GE8074 Human Rights

At the end of the course, learners will be able to

CO	Statement
CO1	Demonstrate awareness about Universal Declaration of Human Rights and
CO2	Understand the historical growth of the idea of human rights
CO3	Demonstrate awareness about UN Laws and Monitoring agencies
CO4	understand the constitutional provisions and constitutional guarantees
CO5	Evaluate the role of government , media ngos and educational institutions
CO6	Analyse and evaluate the concepts human rights of disadvantageous sections in the society

Professional Elective III

MA8391 Probability and Statistics

At the end of the course, learners will be able to

CO	Statement
CO1	Understand basic probability axioms; calculate conditional probabilities and use Bayes theorem.
CO2	Understand the concepts of random variables and distributions.
CO3	Compute the marginal and conditional distributions of bivariate random variables and derive the probability density function of transformations of random variables.
CO4	Calculate the covariance, correlation and regression lines for jointly distributed random variables and use Central Limit Theorem to approximate a sampling distribution.
CO5	Apply the statistics for testing the significance of the given large and small sample databy using t- test, F- test and Chi-square test.

CO6	Understand how the analysis of variance procedures can be used to determine if means of more than two populations are equal
CO7	Understand the fundamentals of quality control and the methods used to control systems and processes.

Professional Elective IV

EE8010 Power System Transients

At the end of the course, learners will be able to

CO	Statement
CO1	Ability to describe the analyze switching and lightning transients.
CO2	Ability to acquire knowledge on generation of switching transients and their control
CO3	Ability to analyze the mechanism of lighting strokes.
CO4	Ability to interpret the importance of propagation, reflection and refraction of travelling waves.
CO5	Ability to find the voltage transients caused by faults and concept of circuit breaker action, load rejection on integrated power system.
CO6	Ability to determine the solution of transients caused by concept of flow chart.

Professional Elective IV

GE 8077   Total Quality Management

At the end of the course, learners will be able

CO	Statement

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CO1	To gain basic knowledge in TQM relevant to both Manufacturing and Service Industry.
CO2	To Implement basic principles of TQM in Manufacturing and Service Industry.
CO3	To apply Tools and Techniques of Quality Management to Manufacturing and Service Industry.
CO4	To explore the concept of Quality Function, improvements and performance measures.
CO5	To gain knowledge on various ISO standards
CO6	To incorporate basic knowledge in Quality Management System.

EE8711 Power System Simulation Laboratory

At the end of the course, learners will be able to

CO	Statement
CO1	Acquire knowledge to calculate the parameters and to model the transmission line
CO2	Investigate the various load flow analysis for calculating the transmission line losses
CO3	Analyse various fault in the system and to label the fault current
CO4	Analyse theTransient and Small Signal Stability in power system network
CO5	Investigate the generation strategy and economic dispatch in power system
CO6	Analyze the load frequency dynamics of the power system.

EE 8712 Renewable Energy Systems Laboratory

At the end of the course, learners will be able to

CO	Statement
CO1	Understand and analyze Renewable energy systems.
CO2	Train the students in Renewable Energy Sources and technologies.
CO3	Provide adequate inputs on a variety of issues in harnessing Renewable Energy
CO4	Simulate the various Renewable energy sources
CO5	Recognize current and possible future role of Renewable energy sources
CO6	Understand basics of Intelligent Controllers.

IV Year (Even Sem)

Professional Elective V   GE8076 - Professional ethics

At the end of the course, learners will be able to

CO	Statement
CO1	To acquire the basic knowledge of human values, moral ethics, industrial standards, code of ethics and role of professional ethics in the engineering field.
CO2	To have an awareness of professional rights and responsibilities of an engineer and to have an understanding for safety and risk benefit analysis.
CO3	To imbibe the various ethical theories developed and apply them for a professional and societal advancement.
CO4	To imbibe adequate knowledge about the culture and the value system adopted by MNC's, local business houses and to create an ethical based work environment.

CO5	To understand and solve the employees conflict and grievences in an amicable and ethical way.
CO6	Formulate and provide solutions to overcome ethical issues for win-win outcome.

Professional Elective VI

EI8073- Biomedical Instrumentation

At the end of the course, learners will be able to

CO	Statement
CO1	To understand the basic medical terminology, relevant for biomedical instrumentation.
CO2	To understand the different diagnostic measurement methods for identification of human biopotentials and their necessary instrumentation.
CO3	To understand and measure the electrical and non electrical parameters of biomedical system
CO4	To understand different imaging techniques and life assisting techniques
CO5	To Understand the position of biomedical instrumentation in modern hospital care
CO6	To Analyse different diagnostic measurement methods for different humane variables and their necessary instrumentation

EE8811 Project Work

At the end of the course, learners will be able to

CO	Statement
CO1	Find a solution for a specific problem.
CO2	Develop a real time solution or a prototype for the problem identified.
CO3	Analyse the designed model.
CO4	Summarize the literature reviews relevant to the problem identified.
CO5	Apply the software which can give all pros and cons for the specific problem and get solutions.
CO6	Test the model designed and compare the results with the Software solution.
CO7	Prepare a paper to publish in conference or journal by summarizing both software and hardware results.

EE8016 - Energy Management & Audit

At the end of the course, learners will be able to

CO	Statement
CO1	Acquire knowledge about suitable energy monitoring system to analyse and optimize energy consumption in an organisation
CO2	Analyse about various energy related aspect of electrical system

CO3	Develop concepts behind economic analysis and load management
CO4	Develop skill in energy management of various electrical equipment and metering
CO5	Analyse the importance of lighting systems and cogeneration
CO6	Acquire knowledge in energy audit methods learn to identify the areas deserving tight control to save energy expenditure