B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE OUTCOMES

Course Code / Course Name: MA8353 & Transforms and Partial Differential Equations

CO No.	Course Outcomes (COs)
C201.1	Explain the solutions given by the standard partial differential equations
C201.2	Apply Parseval's identity in Fourier series analysis which plays a vital role in engineering applications.
C201.3	Apply the physical significance of Fourier series techniques in solving one- and two-dimensional heat flow problems and one-dimensional wave equations.
C201.4	Solve some of the physical problems of engineering by mathematical principles on transforms and partial differential equations.
C201.5	Make use of the effective mathematical tools for the solutions of partial differential equations by Z transform techniques for discrete time systems.

Course Code / Course Name: EE8351 & Digital Logic Circuits

CO No.	Course Outcomes (COs)
C202.1	Outline the number systems and digital logic families.
C202.2	Solve combinational logic circuits problems.
C202.3	Solve problems on synchronous sequential logic circuits.
C202.4	Solve problems on asynchronous sequential circuits and PLDs
C202.5	Develop a VHDL programs for combinational and sequential logic circuits.

Course Code / Course Name: EE8391 & Electromagnetic Theory

CO No.	Course Outcomes (COs)
C203.1	Summarize the concepts of electromagnetic vector fields and various transformation techniques
C203.2	Interpret the concepts of electrostatics, electrical potential, energy density and their applications.
C203.3	Make use of the concepts of magneto statics magnetic flux density, scalar and vector potential.
C203.4	Explain the concepts of Faraday's law, induced EMF and Maxwell's equations.
C203.5	Outline the concepts of electromagnetic waves and Pointing vector.

Course Code / Course Name: EE8301 & Electrical Machines - I

CO No.	Course Outcomes (COs)
C204.1	Make use of the concept of magnetic-circuit and the types of magnetic materials.
C204.2	Interpret the construction, working principle and the method of testing the transformers.
C204.3	Outline the working principles of electrical machines using the concepts of electromechanical energy conversion principle.
C204.4	Explain the working principle of dc machine as a generator and its characteristics.
C204.5	Summarize the working principles of DC motor types, characteristics, braking and testing.

Course Code / Course Name: EC8353 & Electron Devices and Circuits

CO No.	Course Outcomes (COs)
C205.1	Explain the basic structure, operation, characteristics and applications of PN Junction Devices.
C205.2	Explain the operation and applications of transistors of BJT, FET, UJT and Thyristors.
C205.3	Apply a small signal model analysis for BJT and MOSFET.
C205.4	Explain the Single tuned amplifiers, Neutralization techniques and other multistage amplifiers.
C205.5	Outline the concepts of feedback amplifiers, oscillators and their applications.

Course Code / Course Name: ME8792 & Power Plant Engineering

CO No.	Course Outcomes (COs)
C206.1	Outline the construction and working of the components inside a thermal power plant.
C206.2	Explain the concepts of diesel, gas turbine, and combined cycle power plant
C206.3	Infer the operations of nuclear power plant and the safety measures adopted in nuclear power plant
C206.4	Differentiate the various types of renewable energy systems. Summarize the working of hydro electric power plant.
C206.5	Compare the site selection criteria for different power plants, distinguish the various pollutions control technologies.

Course Code / Course Name: EC8311 & Electronics Laboratory

CO No.	Course Outcomes (COs)
C207.1	Determine the Characteristics of Semiconductor devices
C207.2	Design and testing the Amplifier, RC and LC phase shift oscillators
C207.3	Develop the differential amplifiers using FET
C207.4	Infer the frequency and phase measurements using CRO
C207.5	Construct the Half Wave, Full Wave and Passive Filter Circuit

Course Code / Course Name: EE8311 & Electrical Machines Laboratory-I

CO No.	Course Outcomes (COs)
C208.1	Solve the calculation of the critical speed and critical resistance of the DC shunt generator and also experiment with load characteristics of DC compound Generator.
C208.2	Experiment with the load test on types of DC motors.
C208.3	Demonstrate the efficiency of DC shunt motor using Swinburne test and also the speed control of DC shunt motor.
C208.4	Examine the efficiency and regulation of a single and three phase transformer and draw its equivalent circuit.
C208.5	Identify various losses like hysteresis, eddy current and also outline the types of starters and three phase transformer connections.

Course Code / Course Name: MA8491 & Numerical Methods

CO No.	Course Outcomes (COs)
C209.1	Apply the basic concepts and techniques to algebraic and transcendental equations.
C209.2	Identify the numerical techniques of interpolation in differentiation and integration for engineering problems.
C209.3	Apply the numerical techniques of differentiation and integration for engineering problems.
C209.4	Apply the knowledge of various methods for solving first and second order ordinary differential equations.
C209.5	Apply the initial and boundary value problem techniques in real life engineering problems

Course Code / Course Name: EE8401 & Electrical Machines - II

CO No.	Course Outcomes (COs)
C210.1	Illustrate the construction and working principle of synchronous generators
C210.2	Explain the performance of synchronous motor
C210.3	Solve equivalent circuit parameter of three phase Induction Motor
C210.4	Interpret the starting and speed control of three phase induction motor.
C210.5	Illustrate the construction and working principle of single-phase induction motors and special machines.

Course Code / Course Name: EE8402 & Transmission and Distribution

CO No.	Course Outcomes (COs)
C211.1	Solve the line parameters of the transmission line.
C211.2	Apply the concept on the performance calculation of transmission lines.
C211.3	Apply the concept for the mechanical design of the transmission line.
C211.4	Explain the construction and types of underground cables.
C211.5	Interpret the importance of distribution of the electric power in power system.

Course Code / Course Name: EE8403 & Measurements and Instrumentation

CO No.	Course Outcomes (COs)
C212.1	Interpret the basic functional elements of instruments and various types of errors present in measurement
C212.2	Explain the structural element of various electrical & electronics Instrument
C212.3	Compare a suitable measuring instrument used for measuring different electrical quantities
C212.4	Illustrate the operating principles of various storage & display devices
C212.5	Explain the operational features of transducer & Data Acquisition system

Course Code / Course Name: EE8451 & Linear Integrated Circuits and Applications

CO No.	Course Outcomes (COs)
C213.1	Outline the process in IC fabrication procedure
C213.2	Explain a linear and nonlinear applications of OP – AMPS
C213.3	Classify the various types of op-amps with its application
C213.4	Explain the functional blocks and the applications of special ICs like timers, PLL circuits.
C213.5	Infer the needs of Instrumentation amplifier and voltage regulators.

Course Code / Course Name: IC8451 & Control Systems

CO No.	Course Outcomes (COs)
C214.1	Develop the transfer function models of electrical & mechanical systems
C214.2	Solve the time response of various linear systems
C214.3	Apply the concepts of frequency response for the open & closed loop systems
C214.4	Construct appropriate compensator for the given specification
C214.5	Make use of state variable representation for the solution of state & output equation

Course Code / Course Name: EE8411 & Electrical Machines Laboratory – II

CO No.	Course Outcomes (COs)
C215.1	Understand the regulation of three phase alternator by various methods like EMF, MMF, ZPF and ASA method.
C215.2	Infer the regulation of three phase salient pole alternator by slip test and measuring its negative and zero sequence impedance.
C215.3	Interpret the fundamental characteristics of synchronous motor by relating parameters like field current, armature current
C215.4	Explain the performance characteristics of three phase induction motor
C215.5	Demonstrate the performance characteristics of single phase induction motor and operation of various types of starters

Course Code / Course Name: EE8461 & Linear and Digital Integrated Circuits Laboratory

CO No.	Course Outcomes (COs)
C216.1	Design and implementation of Boolean Functions.
C216.2	Identify and design the code conversion, Parity generator& Encoders and Decoders.
C216.3	Experiment with performance of, counters, multiplexer, comparator 4-bit shift registers& flip flops
C216.4	Construct the basics of linear and non-linear integrated circuits.
C216.5	Design and implement of frequency characteristics 566 IC, Voltage Regulator using IC LM317.

Course Code / Course Name: EE8412 & Technical Seminar

CO No.	Course Outcomes (COs)
C217.1	Plan to motivation for any topic of interest and develop a thought process for technical presentation.
C217.2	Organize a detailed literature survey and build a document with respect to technical publications.
C217.3	Explain about presentation and improve soft skills.
C217.4	Identify the present technological developments
C217.5	Experiment with proof-of-concept for related data.

Course Code / Course Name: EE8501 & Power System Analysis

CO No.	Course Outcomes (COs)
C301.1	Model the power system under steady state operating condition
C301.2	Apply iterative techniques to calculate the steady state power flow
C301.3	Make use of Thevenin's theorem & Bus impedance matrix to calculate symmetrical fault current
C301.4	Acquire state of the power system for the various unsymmetrical fault
C301.5	Identify the stability of the power system using numerical methods

Course Code / Course Name: EE8551 & Microprocessors and Microcontrollers

CO No.	Course Outcomes (COs)
C302.1	Illustrate the architecture and functionalities of 8085 Microprocessor.
C302.2	Explain the Assembly language program in real time applications using 8085 Microprocessor.
C302.3	Explain the architecture and functionalities of 8051 microcontroller.
C302.4	Outline the external peripherals interfacing with the 8085 microprocessor and 8051 microcontroller.
C302.5	Develop an assembly language programming with 8051 Microcontroller.

Course Code / Course Name: EE8552 & Power Electronics

CO No.	Course Outcomes (COs)
C303.1	Explain the various power semiconductor devices and their switching characteristics
C303.2	Choose different types of AC-DC converters for Real time applications
C303.3	Illustrate the basic topologies, operation & switching of DC-DC converters
C303.4	Infer the different modulation technique & harmonic reduction methods for Inverters
C303.5	Illustrate the working of AC-AC converters & their applications

Course Code /Course Name: EE8591 & Digital Signal Processing

CO No.	Course Outcomes (COs)
C304.1	Explain the various signal and system and their mathematically representation.
C304.2	Make use of Z-Transform and its properties in discrete time system.
C304.3	Develop Various Transformation Techniques & their Computation
C304.4	Design of IIR & FIR filters and Windowing Techniques
C304.5	Explain the DSP processor of TMS320C50 architecture ,addressing modes and Commercial DS Processors

Course Code /Course Name: CS8392 & Object Oriented Programming

CO No.	Course Outcomes (COs)
C305.1	Develop simple java programs using OOP Principles
C305.2	Construct Java programs with the concepts of inheritance and interfaces
C305.3	Build Java applications using exceptions and I/O streams
C305.4	Utilize threads and generics classes in Java applications development
C305.5	Make use of AWT and Swing components for interactive GUI applications.

Course Code /Course Name: OMD551 & Basics of Biomedical Instrumentation

CO No.	Course Outcomes (COs)
C306.1	Explain the different bio potential & its propagation
C306.2	Explain the different electrode placement for various physiological recording.
C306.3	Infer the bio amplifier for various physiological recording.
C306.4	Interpret various technique of non-electrical phycological measurements
C306.5	Illustrate the various types of biochemical measurements

Course Code /Course Name: EE8511 & Control and Instrumentation Laboratory

CO No.	Course Outcomes (COs)
C307.1	Identify the control theory and apply them to electrical engineering problems.
C307.2	Experiment with the various types of converters.
C307.3	Develop different compensators.
C307.4	Make use of the basic concepts of bridge networks and also signal conditioning circuits.
C307.5	Utilize the simulation packages in MATLAB.

Course Code /Course Name: HS8581 & Professional Communication

CO No.	Course Outcomes (COs)
C308.1	Illustrate the hard skill and soft skill in employability and career skills.
C308.2	Explain the technical presentation.
C308.3	Show the performance in Interview and group discussions
C308.4	Build professional etiquette
C308.5	Compare the networking proficiency and social protocol.

Course Code /Course Name: CS8383 & Object Oriented Programming Laboratory

CO No.	Course Outcomes (COs)
C309.1	Develop Java programs for simple applications using classes, packages and interfaces.
C309.2	Make use of String and Array List for problem solving.
C309.3	Apply the concept of Exception handling and multithreading in Java Program.
C309.4	Develop applications using file processing, generic programming.
C309.5	Utilize AWT, Swing and Event Handling concepts for developing Graphical User Interface application.

Course Code /Course Name: EE8601& Solid State Drives

CO No.	Course Outcomes (COs)
C310.1	Explain steady state operation and transient dynamics of a motor load system
C310.2	Illustrate the Operation of the Converter / Chopper Fed DC Drive.
C310.3	Interpret the Operation and Performance of Induction Motor Drives.
C310.4	Understand the operation and performance of Synchronous Motor Drives.
C310.5	Construct the Current and Speed Controllers for a Closed Loop Solid State DC Motor Drive.

Course Code /Course Name: EE8602 & Protection and Switchgear

CO No.	Course Outcomes (COs)
C311.1	Explain the different protection schemes in power system
C311.2	Infer the various types of electromagnetic relays
C311.3	Interpret the protection scheme for various faults in the motor, generator, transformer, bus bar and transmission lines
C311.4	Explain the operation of various static & numerical relays
C311.5	Illustrate the concepts and principle of circuit breaker

Course Code /Course Name: EE8691 & Embedded Systems

CO No.	Course Outcomes (COs)
C312.1	Outline the building Blocks of an Embedded System
C312.2	Summarize the bus Communication in processors, Input/output interfacing.
C312.3	Explain the Various Embedded Development Strategies
C312.4	Illustrate Various processor scheduling algorithms in embedded Systems
C312.5	Apply the various Embedded Systems for real time scenario's

Course Code /Course Name: EE8002 & Design of Electrical Apparatus

CO No.	Course Outcomes (COs)
C313.1	Outline the basics of design considerations for field and armature.
C313.2	Manipulate the design of single and three phase transformers.
C313.3	Solve the output equations of DC machines.
C313.4	Model the stator and rotor dimensions of induction motors.
C313.5	Make use of computer aided software for designing stator and rotor of synchronous machine.

Course Code /Course Name: EE8005 & Special Electrical Machines

CO No.	Course Outcomes (COs)
C314.1	Explain the construction, operation and control methods of stepper motors
C314.2	Illustrate the operation of various power controllers required for switched reluctance motors
C314.3	Infer the expressions for magnetic circuit analysis, emf, torque equations of permanent magnet brushless DC motors
C314.4	Illustrate the construction, operation, performance characteristics, torque equation of permanent magnet synchronous motors
C314.5	Interpret the construction, working principles of various special electrical machines.

Course Code /Course Name: EE8661 & Power Electronics and Drives Laboratory

CO No.	Course Outcomes (COs)
C315.1	Examine the characteristics of MOSFET, IGBT, SCR, TRIAC and analyze its switching behaviors.
C315.2	Illustrate the operation and performance parameters of DC – AC, DC – DC circuits.
C315.3	Interpret the performance of AC – DC, AC – AC converter circuits.
C315.4	Explain the working of MOSFET based switched mode power converter and PMBLDC motor operation.
C315.5	Simulate the PE circuits for different converters in MATLAB.

Course Code /Course Name: EE8681 & Microprocessors and Microcontrollers Laboratory

CO No.	Course Outcomes (COs)
C316.1	Outline the programme using instruction set using 8085.
C316.2	Experiment with the different Interfacing Programs like I/O port, traffic light controller, A/D, D/A with 8085 processor.
C316.3	Interpret the difference between simulator and Emulator
C316.4	Demonstrate the basic instructions with Programming I/O Port and timer of 8051 Micro controller.
C316.5	Develop the application hardware using embedded processors.

Course Code /Course Name: EE8611 & Mini Project

CO No.	Course Outcomes (COs)
C317.1	Identify a topic in advanced areas of Electrical and Electronics Engineering
C317.2	Examine literature survey to identify the gaps, objectives & scope of the work
C317.3	Plan and implement innovative ideas for social benefit
C317.4	Develop a prototypes/models, experimental set-up and software systems necessary to meet the objectives
C317.5	Analyze the results to draw valid conclusions and Prepare a report as per recommended format also defend the work

Course Code /Course Name: EE8701 & High Voltage Engineering

CO No.	Course Outcomes (COs)
C401.1	Identify the source, effects and protection methods of over voltages in power system
C401.2	Choose the breakdown mechanism for different dielectrics
C401.3	Interpret the different methods of overvoltage generation
C401.4	Outline the various overvoltage measurement methods
C401.5	Apply the concepts of high voltage testing principles to power apparatus

Course Code /Course Name: EE8702 & Power System Operation and Control

CO No.	Course Outcomes (COs)
C402.1	Outline the system Characteristics, System Operation and System Control
C402.2	Make use of power-frequency dynamics to design power-frequency controller
C402.3	Utilize the reactive power compensation techniques in order to maintain the voltage profile against varying system loads
C402.4	Apply power system control techniques to achieve the economic operation of power system
C402.5	Summarize the concepts of SCADA and its application for real time operation and control of power systems

Course Code /Course Name: EE8703 & Renewable Energy Systems

CO No.	Course Outcomes (COs)
C403.1	Infer the importance of renewable energy sources and consequences of fossil fuel usage.
C403.2	Classify different types of wind power plants.
C403.3	Articulate applying solar energy in a useful way.
C403.4	Summarize the concepts of biomass energy in economic aspects.
C403.5	Discover the knowledge in capturing and applying other forms of energy sources like tidal, wave, fuel cell etc.

Course Code /Course Name: OCS752 & Introduction to C Programming

CO No.	Course Outcomes (COs)
C404.1	Develop simple applications in C using basic constructs.
C404.2	Make use of arrays for solving problems.
C404.3	Make use of strings and pointers for solving problems.
C404.4	Apply functions in C for a given application.
C404.5	Develop applications in C using structures.

Course Code /Course Name: GE8072 & Foundation Skills in Integrated Product Development

CO No.	Course Outcomes (COs)
C405.1	Outline the basic concept of product development methodologies.
C405.2	Explain about the requirements for new product development
C405.3	Apply the product management plan on the new product and development methodology.
C405.4	Explain about sustenance and End of Life realistic constraints
C405.5	Interpret the business dynamics considering the current trends.

Course Code /Course Name: GE8077 & Total Quality Management

CO No.	Course Outcomes (COs)
C406.1	Outline the framework of total quality management techniques emphasizing the importance of quality and control.
C406.2	Understand the TQM principles with reference to qualities of leadership, involvement and team work for continuous process improvement.
C406.3	Understand and apply the conventional and new management tool procedures for total quality management.
C406.4	Explain the various tools of performance measures for the implementation of quality management.
C406.5	Understand the need for quality regulatory system and its documentation procedure.

Course Code /Course Name: EE8711 & Power System Simulation Laboratory

CO No.	Course Outcomes (COs)
C407.1	Develop the coding to analyze the performance of transmission line in electrical power system and to formulate bus impedance, admittance matrix for the given power network.
C407.2	Solve the load flow problems using Newton Raphson and Gauss seidel methods for the power system and interpret the results
C407.3	Model the simulation of the power system under symmetrical and unsymmetrical fault conditions and analyze the transient stability of the power system
C407.4	Construct the coding for economic dispatch and load frequency dynamic problems for the given power system
C407.5	Build the simulation model to determine the occurrence of electromagnetic transients in power system and interpret the results

Course Code /Course Name: EE8712 & Renewable Energy Systems Laboratory

CO No.	Course Outcomes (COs)
C408.1	Apply a simulation study on Solar PV Energy System and experimental study on VI characteristics, efficiency of Solar PV System.
C408.2	Experimental study on Shadowing effect & diode based solution in Solar PV Energy System.
C408.3	Apply a simulation study on Wind Energy Generator.
C408.4	Performance assessment study of micro Wind Energy Generator.
C408.5	Apply a simulation and performance assessment study on Hybrid (Solar-Wind) Power System, Intelligent Controllers and Fuel cell.

Course Code /Course Name: MG8591 & Principles of Management

CO No.	Course Outcomes (COs)
C409.1	Illustrate the basic managerial functions in an organization.
C409.2	Build the planning process for an organization.
C409.3	Identify the process of organization structure and HR management.
C409.4	Summarize the individual and group behavior, motivation and leadership theories.
C409.5	Develop various controlling techniques to maintain standards in organizations.

Course Code /Course Name: EE8019 & Smart Grid

CO No.	Course Outcomes (COs)
C410.1	Relate the conventional & present Smart Grid with the basic concepts of Smart Grid.
C410.2	Explain the various Smart Grid technologies for electric vehicles.
C410.3	Outline the various smart meters and advanced metering infrastructure.
C410.4	Illustrate power quality issues in Smart Grid, and quality monitoring in power grid integrated with renewable energy sources.
C410.5	Develop LAN, WAN and Cloud Computing for Smart Grid applications.

Course Code /Course Name: EE8811 & Project Work

CO No.	Course Outcomes (COs)
C411.1	Identify a topic in advanced areas of Electrical and Electronics Engineering
C411.2	Examine literature survey to identify the gaps, objectives & scope of the work
C411.3	Plan and implement innovative ideas for social benefit
C411.4	Develop a prototypes/models, experimental set-up and software systems necessary to meet the objectives
C411.5	Analyze the results to draw valid conclusions and Prepare a report as per recommended format also defend the work