Department of Electrical Engineering

Course Outcomes (CO)
Syllabus Pattern:-2019

Class:-TE   Semester:- I

Sr. No	Subject	Course Outcomes (CO)
1	Industrial and Technology Management	CO1: Differentiate between different types of business organizations and discuss the fundamentals of economics and management. CO2: Explain the importance of technology management and quality management. CO3: Explain the importance of IPR and role of Human Resource Management. CO4: Understand the importance of Quality and its significance. CO5: Describe the characteristics of marketing & its types and overview of financial Management. CO6: Discuss the qualities of a good leader and road map to Entrepreneurship.
2	Power Electronics	CO1. Develop characteristics of different power electronic switching devices. CO2. Reproduce working principle of power electronic converters for different types of loads. CO3. Choose the appropriate converter for different applications.
3	Electrical Machines-II	CO1. Learn construction, working principle of three phase Synchronous Machines, Induction Motors, A.C. Series Motor and Special Purpose Motors. CO2. Understand characteristics of three phase Synchronous Machines, Induction Motors, A.C. Series Motor and Special Purpose Motors. CO3.Select the above machines in Power System, industrial, household & Military Engineering applications. CO4. Testing of machines to evaluate the performance through experimentation.
4	Electrical Installation, Design and Condition Based Maintenance	CO1: Classify different types of distribution supply system and determine economics of distribution system. compare and classify various substations, bus-bars and Earthing systems. CO2:Demonstrate the importance and necessity of maintenance. CO3:Analyse and test different condition monitoring methods. CO4:Carry out estimation and costing of internal wiring for residential and commercial installations. CO5:Apply electrical safety procedures.
5	Elective-I: Advanced Microcontroller and Embedded System	CO1:Explain architecture of PIC 18F458 microcontroller, its instructions and the addressing modes . CO2:Use Ports and timers for peripheral interfacing and delay generation. CO3:Interface special and generate events using CCP module. CO4:Effectively use interrupt structure in internal and External interrupt mode.

	Subject	Course Outcomes (CO)
		CO5:Effectively use ADC for parameter measurement and also understand LCD interfacing. CO6:Use Serial Communication and various serial communication protocols.
5	**OR** Elective-I: Digital Signal Processing	CO1. Analyse discrete time signals and systems. CO2. Construct frequency response of LTI system using Fourier Transform. CO3. Design and realize IIR and FIR filters. CO4. Apply concepts of DSP in applications of electrical engineering.
6	Seminar	CO1. Relate with the current technologies and innovations in Electrical engineering. CO2. Improve presentation and documentation skill CO3. Apply theoretical knowledge to actual industrial applications and research activity. CO4. Communicate effectively
7	Audit Course V	CO1. Explain and differentiate various types of energy storage for suitable applications CO2. Understand battery recycling techniques

Department of Electrical Engineering

Course Outcomes (CO)

Syllabus Pattern:-2019

Class:-TE   Semester:- II

Sr. No	Subject	Course Outcomes (CO)
1	Power System-II	CO1. Solve problems involving modelling, design and performance evaluation of HVDC and EHVAC power transmission lines. CO2. Calculate per unit values and develop Y bus for solution power flow equations in power transmission networks CO3. Calculate currents and voltages in a faulted power system under both symmetrical and asymmetrical faults, and relate fault currents to circuit breaker ratings.
2	Computer Aided Design of Electrical Machines	CO1: Summarize temperature rise, methods of cooling of transformer and consider IS 2026 in transformer design. . CO2: Design the overall dimensions of the transformer CO3: Analyze the performance parameters of transformer. CO4: Design overall dimensions of three phase Induction motor. CO5: Analyze the performance parameters of three phase Induction motor. .CO6: Implement and develop computer aided design of transformer and induction motor.
3	Control System Engineering	CO1. Construct mathematical model of Electrical and Mechanical system using differential equations and transfer function and develop analogy between Electrical and Mechanical systems. CO2. Determine time response of systems for a given input and perform analysis of first and second order systems using time domain specifications. CO3. Investigate closed loop stability of system in s-plane using Routh Hurwitz stability criteria and root locus. CO4. Analyze the systems in frequency domain and investigate stability using Nyquist plot and Bode plot. CO5. Design PID controller for a given plant to meet desired time domain specifications.
4	IoT and Its Applications in Electrical Engineering	CO1:Build circuits for signal acquisition and conditioning CO2:Experiment with sensors and actuators and choose the right sensor for application. CO3:Determine the performance of IoT based automated process. CO4:Design and develop IoT based applications

Sr. No	Subject	Course Outcomes (CO)
5	Electric Mobility	CO1:Analyze the concepts of Hybrid and Electric vehicles. CO2:Describe the different types of energy storage systems. CO3:Comprehend the knowledge of the battery charging and management systems. CO4:Classify the different mode of operation for hybrid vehicle. CO5:Apply the different Charging standards used for electric vehicles. CO6:Differentiate between Vehicle to home & Vehicle to grid concepts
6	Cybernetics Engineering	CO1. Define cybernetics in terms of control and how is it used in controlling technical, biological, and other processes. CO2. Understand various matrix operations. CO3. Describe different types of control system configurations and their applications. CO4.Carry out mathematical modeling and simulation of simple processes. CO5. Appreciate the essential requirements for computers and computer equipment that are intended to operate in dedicated applications and industrial environments. CO6. Know intelligent optimization techniques.
7	Elective-II Energy Management	CO1. Describe BEE Energy policies, Energy ACT. CO2. List and apply demand side management measures for managing utility systems. CO3. Explore and use simple data analytic tools. CO4:Use various energy measurement and audit instruments. CO5. Evaluate economic feasibility of energy conservation projects. CO6. Identify appropriate energy conservations methods for electric and thermal utilities.
8	Internship	CO1:Understand the working culture and environment of the Industry and get familiar with various departments and practices in the industry. CO2:Operate various meters, measuring instruments, tools used in industry efficiently and develop technical competence. CO3:Apply internship learning in other course completions and final year project management, i.e. topic finalization, project planning, hardware development, result interpretations, report writing, etc. CO4:Create a professional network and learn about ethical, safety measures, and legal practices. CO5:Appreciate the responsibility of a professional towards society and the environment. CO6:Identify career goals and personal aspirations.
9	Audit Course IV: Ethical Practices for Engineers	CO1:Understand for their professional responsibilities as Engineers. CO2:Recognize and think through ethically significant problem situations that are common in Engineering. CO3:Evaluate the existing ethical standards for Engineering Practice.
10	Audit Course VI: Project Management	CO1:Elaborate importance of project management and its process. CO2:Learn about the role of high performance teams and leadership in project management.