AY: 2018-19   **III Semester**

Course Code	Course Name	Course Outcomes	Taxonomy
PC301EE	ELECTRICAL CIRCUITS-I	**Understand** network analysis, techniques using mesh and nodeanalysis	Understand
		Evaluate steady state and transient behavior of network for AC excitations.	Evaluate
		Analyze electric circuits using network theorems	Analyze
		Understand the concept of coupled circuits and poly-phasecircuits	Understand
		Analyze the transient behaviour of electrical networks for various excitations	Analyze
		Discuss a.c and d.c. theorems, Elaborate steady state and transient analysis of single phase and 3-phase circuits	Create
PC302EE	ELECTROMAGNETIC FIELDS	**Understand** the vector calculus for electromagnetism.	Understand
		Apply the electric fields for simple configurations under staticconditions	Apply
		Analyze and apply the static magneticfields.	Analyze
		Analyze the Electrical Circuits with the concept of Network topology	Analyze
		Understand Maxwell's equation in different forms and differentmedia	Understand
		Understand the propagation of EMwave	Understand

PC303EE	DIGITAL ELECTRONICS LOGIC DESIGN	**Understand** and apply the Boolean algebra, including CMOS gates and arithmetic circuits.	Understand
		Apply combinational digital circuits for logic functions	Apply
		Use the concepts of Boolean Algebra for the analysis	Analyze
		Design various A/D and D/A converters	Create
		Design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays.	Create
		Design of sequential logic circuits	Create
BS301MT	MATHEMATICS-III	**Find** solutions of first order and second order partial differential equations.	Remember
		Apply Fourier series to find solutions of partial differential equations.	Apply
		Analyze a given function in the form of Fourier series	Analyze
		Solve functions of complex variables using Cauchy Reimann equations and Cauchy Integral Theorem	Apply
		Determine the analyticity of a complex functions and expand functions as Taylor and Laurent series.	Evaluate
		Evaluate real integrals using concept of residues, poles and residue theorem .	Evaluate
ES323ME	PRIME MOVERS AND PUMPS	**Understand** the fundamental aspects of fluid mechanics and thermal sciences	Understand
		Understand the basic types of hydraulic turbines, boilers, gas turbines and steam turbines their components, operation and their rated and off design performance characteristics	Understand
		Analyze the working principle of reciprocating pumps, centrifugal pumps, their performance over wide range of operations	Analyze
		Evaluate the efficiency, work done and power consumption of various types of Hydraulic turbines and pumps	Evaluate
		Evaluate the efficiency, heats input in boiler	Evaluate

		and work done of various types of steam turbines.	
		Evaluate the efficiency, heats input in Combustion Chamber and work done of various types of gas turbines.	Evaluate
MC916CE	ENVIRONMENT SCIENCES	**Synthesize** popular media reports/articles discussing environmental issues, and verbally discuss and defend their positions on scientific issues	Create
		List common and adverse human impacts on biotic communities, soil, water, and air quality and suggest sustainable strategies to mitigate these impacts	Remember
		Apply mathematical concepts, including statistical methods, to field and laboratory data to study scientific phenomena.	Apply
		Design and execute a scientific project.	Create
		Understand the importance of Environmental legislation policies.	Understand
		Categorize the types of environmental pollution and the various treatment technologies for the diminution of environmental pollutants and contaminants.	Analyse
ES361ME	MECHANICAL ENGINEERING LAB	**Understand** the working principles of Engines	Understand
		Determine the power developed and efficiencies of engines	Apply
		Determine the flash and fire points of a fuel.	Apply
		Determine the efficiencies of various pumps and turbines	Apply
		Understand the viscosity of various oils	Understand
		Understand valve timing and port timing diagrams	Understand
ES362 EC	ELECTRONIC ENGINEERING	**Calculate** ripple factor, efficiency and % regulation of rectifier circuits	Apply
		Draw Characteristics of different diodes	Create
		Draw single and multistage amplifier circuits	Create
		Analyze feedback amplifiers and BJT oscillator circuits	understand
		Understand negative and positive feedback circuits	understand
		Design single, multi-stage, wave shaping and power amplifier circuits	Evaluate

Coordinator   Head of the Department

Methodist College of Engineering and Technology
Department of Electrical and Electronics Engineering
Course Outcomes

V Semester

Course Code	Course Name	Course Outcomes	Taxonomy
PC502EE	ELECTICAL MACHINES-II	**Summarize** the construction, working principle and performance of Transformers, 1-phase and 3-phase Induction Motors	Understand
		Determine the construction, working principle, performance, starting and speed control of 1-phase and 3-phase Induction Motors.	Evaluate
		Identify the construction, working principle and performance of Transformers and Induction motors.	Apply
		Examine the rating, testing and applications of single phase, three phase transformers.	Analyze
		Adapt the knowledge of Rotating magnetic field theory, Double field revolving theory	Create
		Find the equivalent circuit diagram of transformer, three-phase induction motor and single-phase induction motor	Remember
PC503EE	FACTS DEVICES	**Outline** the concepts of FACTS devices , types of FACTS devices	Understand
		Compare between Shunt and series and Current and Voltage source controllers	Understand
		Develop the understanding of suitability of the controllers in power systems.	Apply

		Compare the reactive power compensation between static shunt and static series compensators	Analyze
		Survey the range of static shunt , static series and Combined compensators	Analyze
		Illustrate the application of FACTS devices	Understand
PC501EE	POWER SYSTEMS-II	Classify the transmission lines and discuss the performance of short, medium and long transmission lines.	Create
		Define the occurrence of corona, corona losses and the methods to minimize corona losses in the transmission. lines	create
		Choose per unit values and apply for the analysis of symmetrical fault calculations.	Apply
		Classify and measure the different types of faults occurring on overhead transmission lines and calculate fault currents.	Evaluate
		Elaborate the reasons for the voltage variations, and Improve the voltage at the receiving end side.	Create
		Explain the causes of over voltages, natural impedances of different junction of lines and Develop methods to reduce transients in transmission lines.	Apply
PC505EE	ELECTRICAL MEASUREMENTS & INSTRUMENTATION	Understand different types of measuring instruments of voltage, current, Power factor, power, energy and magnetic measurements.	Understand
		Understand different types of measuring instruments of their construction, operation and Characteristics	Understand
		Identify the instruments suitable for typical measurements	Understand
		Apply the knowledge about transducers and instrument transformers to use them effectively.	Apply
		Develop an understanding of construction and working of different AC and DC bridges and its applications	Evaluate

		Identify the instruments suitable for typical measurements	Understand
PC504EE	LINEAR CONTROL SYSTEMS	**Understand** the concept of the terms control systems, feedback, Mathematical modeling of Electrical and Mechanical systems.	Understand
		Explain the time domain and frequency response analysis of control systems.	Evaluate
		Apply the knowledge of various analytical techniques used to determine the stability of control systems.	Apply
		Understand the importance of design of compensators	Create
		Demonstrate controllability and observability of modern control systems.	Understand
		Understand and develop the state space representation of control systems.	Apply
PC505EE	DIGITAL SINGAL PROCESSING & APPLICATIONS	**Classify** discrete-time signals and discrete-time systems and determine the response of discrete-time system to a given input.	Understand
		Solve the frequency response of the discrete-time system by applying z-transform to the systems	Apply
		Determine the Discrete-Time Fourier Transform of discrete-time systems	Evaluate
		Find the Discrete Fourier Series coefficients of discrete-time signals and represent discrete-time systems in terms of Discrete Fourier Series coefficients	Remember
		Modify the method of evaluating the Discrete Fourier Transform of discrete-time signals by using Fast Fourier Transform, thereby reducing the computational efforts	Create
		Analyze the characteristics of digital Finite Impulse Response (FIR) filters and digital Finite Impulse Response (FIR) filters and design digital Finite Impulse Response (FIR) filters and digital Infinite Impulse Response (IIR) filters	Analyze

PC553EE	CIRCUITS & MEASUREMENTS LAB	**Examine** the KCL, KVL theorems for a given circuit theoretically and practically	Analyze
		Simplify the complicated circuits using Thevenin's, Norton's and Superposition theorems.	Analyze
		Formulate the current and voltage equations for two port networks.	Create
		Estimate the resistance, inductance and capacitance using various bridges.	Create
		Measure the energy, power and power factor of the given circuits using wattmeter, ammeter and voltmeter	Evaluate
		Make use of CRO for finding out the amplitude, frequency and phase of waveforms	Apply
PC552EE	POWER ELECTRONICS LAB	Classify and **design** different triggering circuits of SCR and MOSFET.	Create
		Analyze different commutation circuits of SCR	Analyze
		Understand and **make use of** controlled rectifiers to control the speed of DC motors	Apply
		Understand the **applications** of cycloconverters and AC voltage controllers	Apply
		Analyze and develop pulses for IGBT based inverters	Analyze
		Design and Simulate different circuits of power electronics using MATLAB software	Create
PC551 EE	ELECTRICAL MACHINES-I LAB	**Apply** and **Conclude** the principles of Electrical Machines through laboratory experimental work.	**Evaluate**
		Construct the circuit to perform experiments, measure, analyze the observed data & come to a conclusion.	**Apply**
		Organize reports based on performed experiments with effective demonstration of diagrams and characteristics /graph	**Apply**
		Demonstrate the starting & speed control of various DC motors	**Understand**
		Determine efficiency & voltage regulation of electrical machines by various test.	**Evaluate**
		Compare the performance characteristics of different electrical machines.	**Analyze**

Coordinator   Head of the Department

Methodist College of Engineering and Technology
Department of Electrical and Electronics Engineering

Course Code	Course Name	Course Outcomes	Taxonomy
PC403EE	ELECTRICAL MACHUNE DESIGN	**Demonstrate** the knowledge of basic conducting, insulating and magnetic materials required for design of rotating electrical machines and Transformers	Understand
		Distinguish the differences in different manufacturing practices of dc and ac machines.	Analyze
		Identify and assess the general overall design parameters of the machines and transformers based on rating name plates.	Apply
		Identify suitable alternatives based on key requirements spelt out in the query.	Apply
		Knowledge about the various types of electrical machines design for ac & dc machines to choose for their applications.	Apply
		Determine the use of computer in CAD / iterative design of electrical machines for optimum performance.	Evaluate
PC401EE	POWER SYSTEM OPERATION AND CONTROL	**Solve** load flow by appropriate modeling of the given power system and formulation of Ybus.	Apply
		Evaluate generation mix for economic operation with and without transmission losses.	Evaluate
		Explain load frequency control and estimate the frequency deviation through modeling.	Understand
		Analyse and describe different types of power system stability and establish SSSL.	Analyse

		Identify various methods of voltage control and study the reactive power compensation.	Apply
		Design the railway steel bridges and bridge bearings.	Create
PE402EE	ELECTRIC DRIVES AND STATIC CONTROL	List different loads and **Illustrate** four quadrant operations ,steady state and transient analysis and to control/modify speed torque characteristics of different DC drives	Understand
		Classify single quadrant, two quadrant, four quadrant operations braking and starting methods of DC drives and Speed control methods of AC and DC drives	Understand
		Make use of static control for DC drives and closed loop operation of DC motors and solve problems on it and understand special motors like BLDC and SRM drives and their applications	Apply
		Make use of Static control for AC drives like Induction and Synchronous motor drives and Construction of different types of Scherbius and Kramer drives for speed and torque control of drives.	Apply
		Analyze different topologies to Power electronic drives (PWM,VFI,CSI) and to Modify Power electronic circuits according to real time applications	Analyze
		Determine the control parameters (with the help of numerical) for DC and AC drives by using Mathematical equations	Evaluate
PC406EE	POWER QUALITY	**Formulate** the network matrices using Graph Theory and Model the power system components.	Apply
		Apply Load flow analysis to an Electrical Power Network and interpret the results of the analysis	Apply
		Analyse different types of Faults in Power System.	Analyse
		Compare Symmetrical and Unsymmetrical Faults in power system.	Analyse
		Identify Steady state and transient state stability analysis in power system.	Understand
		Apply Load flow analysis to an Electrical Power Network and interpret the results of the analysis	Apply
EE431	ELECTRICAL SIMULATION	**Compose (Write)** MATLAB code using some basic commands.	Create
		Develop MATLAB code for analyzing power system network by obtaining line parameters, Z, Y matrices, and	Apply

	LAB	Economics of power systems	
		Simulate the concepts of Electrical Circuits, to **design** a led, lag, led and lag compensator and obtain the characteristics by Control Systems and interpret data.	Create
		Demonstrate (Determine) the knowledge of programming environment, compiling, debugging, linking and executing variety of programs in MATLAB.	Evaluate
		Demonstrate ability to **develop** Simulink models for various electrical systems.	Apply
		Validate simulated results from programs/Simulink **models** with theoretical calculations.	Apply
EE432	MPMC LAB	**Adapt** the knowledge of Architecture of 8086 and 8051, writing assembly language programming for different applications	Create
		Explain types of microcontrollers and their applications	Understand
		Develop programs to run on 8086 microprocessor based systems	Apply
		Define the techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors	Remember
		Interpret the difference between Microprocessors and Microcontrollers	Evaluate
		Simplify and design systems using memory chips and peripheral chips for 16-bit 8086 microprocessors	Create
EE433	POWER SYSTEMS LAB	**Interpret** positive, negative and zero sequence Impedance of Transformer and Alternator	Understand
		Analyze the performance of transmission lines	Analyze
		Determine the dielectric strength of oil and the efficiency of string insulators	Evaluate
		Explain Voltage and current relay settings	Understand
		Measure the capacitance of three core cable	Evaluate
		Understand the operation Differential protection of transformer	Understand
EE434	PROJECT SEMINARS	**Demonstrate** the ability to synthesize and apply the knowledge and skills acquired in the academic program to real-world problems	Understand
		Evaluate different solutions based on economic and technical feasibility for the needs of society	Evaluate
		Effectively **communicate the selected technology topics** to	Create

		excel in the career chosen.	
		Demonstrate effective written and oral communication skills	Understand
		Explore the industry practices	Evaluate
		Enhance practical and professional skills.	Evaluate

Coordinator   Head of the Department