



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

**Course Outcomes**

**AY: 2019-20**

**IV Semester**

<b>Course Code</b>	<b>Course Name</b>	<b>Course Outcomes</b>	<b>Taxonomy</b>
PC231EE	Electrical Machines-I	Understand the concepts of magnetic circuits.	Understand
		Understand electrical principle, laws, and working of DC machines.	Understand
		Identify the parts of DC machines understand its operation	Apply
		Analyze the construction and characteristics and application of various types of DC generators.	Analyze
		Analyze the construction and characteristics and application of various types of DC motors and testing of motors.	Analyze
		Understand electrical principle, laws, and working of 1 – phase transformer and losses and also conduct various tests on the transformer	Understand
PC232EE	Digital Electronics and Logic Design	Explain number system, codes, Boolean algebra, basic gates and different logic families	Understand
		Apply Boolean laws and K-Map methods to reduce the logic functions and Binary arithmetic	Apply
		Apply and develop combinational digital circuits to realize functions	Apply
		Design and analyze sequential logic circuits using Flip-Flops like registers ,counters	Create
		Design various A/D and D/A converters	Create
PC233EE	Power Electronics	Explain the characteristics and performance of various power electronic devices.	Understand

		Classify firing circuits of SCR and commutation circuits of SCR	Understand
		Analyze single and three phase controlled rectifier circuits.	Analyze
		Analyze the performance of AC voltage controllers & choppers circuits	Analyze
		Analyze the performance of single phase inverter circuits.	Analyze
		Explain the operation of three phase voltage source inverters.	Understand
MC111PO	Indian Constitution	To understand the conditions prior to evolution of Indian Constitution	Understand
		To Understand the structure of Governance in Post Independent India and powers and limitations of the executive	Understand
		To relate the importance of Fundamental rights and associated duties as enshrined in the constitution	Understand
		Develop understanding the relationship between central and state governments in terms of duties and responsibilities	Apply
		To summarize the role of statutory bodies like Election Commission , NHRC , NCW	Understand
		To understand the role of constitutions of different countries and the contributions of leaders	Understand
ES212ME	Elements of Mechanical Engineering	Understand the thermodynamics concepts to design thermal systems.	Understand
		Understand the working principles of hydraulic turbines and pumps	Understand
		Analyze the different modes of heat transfer	Analyze
		Analyze and understand the working of machines like lathe, milling, grinding, drilling machines	Understand
		Evaluate the velocity ratio of gear drives, belt drives to design the gears and belt drives.	Evaluate
		Analyze the belt transmission system after evaluating its parameters like length of belt,	Analyze

		power transmission ratio of tensions.	
BS207MT	Mathematics-III	Find the Bayes theorem Expectation, mean, variance and standard deviation.	Remember
		Solve Binomial, Poisson distributions and skewness and kurtics.	Apply
		Solve Normal, Uniform and Exponential distributions.	Apply
		Examine the correlation coefficient and rank correlation for the given data	Analyse
		Determine straight line equation, parabola equation and exponential equation.	Evaluate
		Evaluate t-distribution F-distribution and chi-square distributions.	Evaluate
HS202CM	Finance and Accounting	Understand the basic concepts of financial accounting classify preparation of various books of accounts	Understand
		Analyze & interpret financial statements.	Analyze
		Interpret knowledge about the functioning & working of various financial institutions.	Understand
		Apply traditional & modern techniques of capital budgeting in long term investments, to test whether to invest in a particular project or not.	Apply
		Analyze the liquidity, solvency & profitability of financial statements.	Analyze
		Evaluate the financial performance of the business unit.	Evaluate
HS201EG	Effective Technical Communication in English	Define the fundamentals of Technical Communication and relate the knowledge to differentiate between general and technical writing.	Remember
		Demonstrate the ability to choose the right mode of Written Communication in Official Correspondence	Understand
		Classify various types of Reports to competently use them based on the requisite	Analyse

		Determine the importance of using and writing different kinds of Manuals along with their Classification.	Evaluate
		Make use of various kinds of visual aids and develop the skill to use them appropriately in their presentations	Apply
		Compile both Oral and Visual Presentation Skills to be able to adapt to the changing scenario of the present day	Create
PC261EE	Electrical Machines 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
PC262EE	Digital Electronics and Logic Design Lab	Demonstrate working of logic gates and logic families	Understand
		Examine and realization of combinational logic circuits and use of PLC's	Analyze
		Examine the process of A/D and D/A conversion	Analyze
		Interpret sample and hold circuit , multiplxer	Understand
		Analyze the working of sequential circuits	Analyze
		Design the code converters, coders, and flip flops using Multisim	Create



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**VI Semester**

<b>Course Code</b>	<b>Course Name</b>	<b>Course Outcomes</b>	<b>Taxonomy</b>
PC601EE	Electrical Machines-III	Construct the Synchronous machines, characteristics and applications of synchronous generator	Understand
		Identify different methods used to evaluate voltage regulation and efficiency of synchronous generator.	Apply
		Compare Various methods of determination of Voltage regulation of Alternator	Evaluate
		Elaborate working principle and importance of synchronous motors.	Create
		Analyze the effect of Three phase short circuit on Alternator and Construct the permanent magnet synchronous motor.	Analyze
		Design the brushless motor, switched reluctance motor and analyze the performances characteristics.	Create
PC602EE	Microprocessor and Microcontrollers	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 a program 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 system using memory chips and peripheral chips for 16-bit 8086 microprocessor.	Create

PC603EE	Switchgear and Protection	To outline the need for protection in a power system and related equipment.	Understand
		To classify relays based on construction , operation , application etc., and choose their usage in power systems	Evaluate
		To appreciate the constructional features of Solid State relays , their contrast with electromechanical relays	Analyze
		To explain the need for protection of key equipment in a power system and to identify suitable schemes of protection and to recommend suitable components .	Evaluate
		To distinguish the various types of switchgear used in a power system and to appreciate their application.	Analyze
		To explain the causes for over voltages and would justify the use of equipment protection.	Evaluate
PC604EE	Renewable Energy Technologies	Explain renewable energy sources & systems.	Understand
		Apply engineering techniques to build solar, wind, tidal, geothermal, biofuel, fuel cell, Hydrogen and sterling engine.	Apply
		Analyze and evaluate the implication of renewable energy. Concepts in solving numerical problems pertaining to solar radiation geometry and wind energy systems.	Analyze
		Demonstrate self -learning capability to design & establish renewable energy systems.	Create
		Conduct experiments to assess the performance of solar PV, solar thermal and biodiesel systems	Analyze
		Acquire the knowledge of various components, principle of operation and present scenario of different conventional and non conventional sources.	Understand
PE602EE	Electrical Distribution	Understand the concept of different factors used in design of distribution systems	Understand

	System	Analyze load characteristics, rate structure & types of Distribution Transformers	Analyze
		Analyze and Solve Sub-Transmission lines and Various substation Bus schemes with multiple feeders.	Analyze
		Analyze the design considerations of Distribution systems	Analyze
		Solve voltage drop , power loss calculations & justify placement of capacitor in distribution system	Apply
		Design the optimal locations and ratings of shunt capacitors and Formulate Distribution automation like SCADA	Create
OE601EE	Disaster Management	Define Disaster, Hazard, Vulnerability, Resilience, Risks and explain Natural and Manmade disasters	Remember
		Classify the environmental causes ,Impacts including, social, cultural, economic, legal and organizational aspects influencing vulnerabilities and capacities to face disasters	Understand
		Classify disasters and destructions due to cyclones floods and droughts	Understand
		Explain Disaster cycle, its analysis, Phases, Culture of safety,prevention, mitigation and preparedness community based DRR	Understand
		Describe Factors affecting Vulnerabilities, differential impacts, impact of development projects, Climate Change and Relevance of indigenous knowledge, appropriate technology and local resources.	Understand
		Experience on conducting independent DM study including data search, analysis and presentation of disaster case study and component of disaster relief.	Apply
PC651EE	Electrical Machines Lab-II	Verify the theory and working of electrical machines through laboratory experimental work.	Understand
		Make circuit diagram connections to perform experiments, measure, analyze the observed data to come to a conclusion.	Evaluate
		Organize reports based on performed experiments with effective demonstration of	Analyze

		diagrams and characteristics/graphs.	
		Determine the different parameters of a three-phase alternator and its regulation	Understand
		Determine the different parameters of a three-phase synchronous motor as well as its 'V' and 'inverted V' curves	Analyze
		Compare the performance characteristics of different electrical machines.	Create
PC652EE	Digital Signal Processing Lab	Compute and write MATLAB code to generate basic waves	Apply
		Compute and write MATLAB code to apply sampling theorem, to obtain convolution and compute DFT and FFT	Apply
		Compute and write MATLAB code to design FIR and IIR filters	Create
		Compute and write MATLAB code to obtain convolution of sequences	Apply
		Compute and write MATLAB code to perform basic operations on basic waves	Apply
		Compute and write MATLAB code to obtain Impulse response	Apply
PC653EE	Control Systems Lab	Understand Performance of P, PI and PID Controllers.	Understand
		Develop PLC programs for certain applications.	Apply
		Make use of the knowledge of Data acquisition system and Industrial process control in real world.	Apply
		Develop transfer function of various control system plants practically by conducting the experiments.	Apply
		Design and Simulate the Programming and control system concepts using MATLAB.	Create
		Design of lag and lead compensation by using Networks.	Create

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**VIII Semester**

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PC801EE	Utilization of Electrical Energy	List and Compare the various Heating and Welding methods and equipment related	Understand
		Explain Schematic utilization, switches and connection diagram for Motor Control	Understand
		Apply illumination concepts and laws for efficient and economic lightning in industries, streets and offices	Apply
		Analyze systems of electric traction, traction motors and parameters	Analyze
		Illustrate batteries maintenance and construction and rating of batteries	Understand
		Analyze the utilization of electric energy for various applications	Analyze
PE824EE	High Voltage DC Transmission	Explain the concept of HVDC along with applications, different kinds, planning and modern trends.	Understand
		Analyze the properties of converter circuits and analyze Bridge Converter circuits with and without overlap for HVDC application including inverter operation.	Analyze
		Demonstrate knowledge in the control aspects of HVDC systems	Understand
		Explain the different types of faults and protection aspects of HVDC Systems	Understand
		Explain the Conceptual knowledge in applications of MTDC systems and their control.	Evaluate
Analyze firing angle and Protection of HVDC System	Analyze		

PE 843 EE	Special Electrical Machines	Demonstrate the performance and control of stepper motors	Understand
		Identify the characteristics and applications of stepper motor.	Apply
		Explain the theory of operation and control of switched reluctance motor	Evaluate
		Define the operation and characteristics of permanent magnet dc motor	Remember
		Distinguish between brush dc motor and brush less dc motor	Analyze
		Elaborate the theory of travelling magnetic field and applications of linear motors	Create
PE834EE	Power Quality	Define power quality , and gain knowledge on Power Quality data collection, data analysis, database structure, Creating data base and processing data	Remember
		Analyze power quality issues. Voltage sag calculations in Non-radial systems, and Meshed systems. Analyze Magnitude of voltage with faults, phase angle jump and unbalanced sag	Analyze
		Choose a Suitable device for Power Quality Measurement and evaluate harmonic levels for distribution systems	Create
		Apply Suitable Mitigation technique for power quality issues	Apply
		Demonstrate the effect of ASD systems on Power quality and the effect of voltage sags on operation of various electrical machines	Understand
		Explain the importance of power quality monitoring.	Evaluate
PC851EE	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 of Differential protection of transformer	Understand

PW961EE	Project Work-II	Rephrase the basic concepts of electrical engineering and discover the implementation	Analyse
		Develop the design and analysis of a particular problem in project	Apply
		Formulate the programming and interpret the project	Create
		Develop the hardware	Create
		Perceive the practical knowledge within the chosen area of technology for project development	Evaluate
		Evaluate different solutions based on economic and technical feasibility	Create

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