



GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::Nellore
Department of Electrical and Electronics Engineering

Course Outcomes

CAY : 2020-21	REG : R19		Year /Sem: II -I
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SNO	Course Outcome Statement	Taxonomy
SPECIFIC LEARNING OUTCOMES – Complex Variables & Transforms		
C211.1	Find the analytic functions using C-R equations, the image using conformal mapping and bi-linear transformation.	Apply
C211.2	Use Cauchy’s theorem, Cauchy’s integral formula and Cauchy’s residues theorem to evaluate complex integrations and expansion of complex functions using Taylor’s and Laurent’s series.	Apply
C211.3	Define Laplace and inverse Laplace transforms of various functions and solve ordinary differential equations using Laplace transform.	Apply
C211.4	Determine Fourier series of periodic functions in a given interval and Parseval’s formula- Complex form of Fourier series.	Apply
C211.5	Find the Fourier Transform of certain functions.	Understand
C211.6	Solve the difference equations using Z-Transforms.	Apply
SPECIFIC LEARNING OUTCOMES – Basic Electrical Circuits		
C212.1	Explain types of networks and Network Reduction Techniques	Understand
C212.2	Analyze Magnetic Circuits and Coupled circuits.	Analyse
C212.3	Analyze RLC circuits with AC Excitation	Analyse
C212.4	Apply theorems for finding the solutions of network problems	Analyse
C212.5	Analyse three phase balanced and unbalanced circuits and determine line voltages, line currents, phase voltages and phase currents	Analyse
C212.6	Analysis of electrical networks using graph theory and duality and dual networks	Analyse
SPECIFIC LEARNING OUTCOMES – Power System Architecture		
C213.1	Remember and understand the concepts of conventional and nonconventional power generating systems	Remember
C213.2	Apply the economic aspects to the power generating systems.	Apply
C213.3	Analyse the transmission lines and obtain the transmission line parameters and constants.	Analyse
C213.4	Design and Develop the schemes to improve the generation and	Create

	capability of transmission line to meet the day to day power requirements.	
C213.5	Design of Distribution Feeders, Voltage Drop and power loss in A.C. Distributors.	Create
C213.6	Explain different types of Substations, Various arrangements in Substations	Remember
SPECIFIC LEARNING OUTCOMES – DC Machines & Transformers		
C214.1	Able to Understand the concepts of magnetic circuits.	Understand
C214.2	Able to understand the construction, operation and armature windings of a DC generator	Understand
C214.3	Able to understand the operation of a DC motors.	Understand
C214.4	Able to analyze speed control of DC motors, testing methods and parallel operation of DC machines	Analyze
C214.5	Able to predetermine the efficiency and regulation of a transformer	Apply
C214.6	Analyse single phase and three phase transformers circuits.	Analyze
SPECIFIC LEARNING OUTCOMES – Semiconductor Devices and Circuits		
C215.1	Describe the Working of P-N junction diode and its applications	Understand
C215.2	Interpret the characteristics of special purpose diodes	Understand
C215.3	Explain different configurations of BJT and its biasing	Understand
C215.4	Analyse the transistor amplifier using hybrid parameters	Analyse
C215.5	Compare the low frequency BJT amplifier circuits	Analyse
C215.6	Classify the characteristics of FET's ,biasing and small signal modelling	Analyse
SPECIFIC LEARNING OUTCOMES – Digital Electronics and Logic Design		
C216.1	Apply basic laws and De Morgan's theorems to simplify Boolean expressions	Apply
C216.2	Compare K- Map and Q-M methods of minimizing logic functions	Analyze
C216.3	Design various Combinational logic circuits	Create
C216.4	Design synchronous sequential circuits using flip flops and construct digital systems using components such as registers and counters	Create
C216.5	Describe functional differences between different types of RAM & ROM	Understand
C216.6	Compare bipolar and MOS logic families	Analyze
SPECIFIC LEARNING OUTCOMES – DC Machines & Transformers Lab		
C217.1	Able to conduct and analyze load test on DC generators	Apply
C217.2	Able to understand and analyze magnetization characteristics of DC shunt Generator	Understand
C217.3	Able to understand and analyze speed control techniques of DC machines	Understand
C217.4	Able to understand and analyze efficiency of DC machines by	Understand

	direct method	
C217.5	Able to understand and analyze efficiency of DC machines by indirect method.	Understand
C217.6	Able to understand to predetermine efficiency and regulation of single phase Transformers	Understand
SPECIFIC LEARNING OUTCOMES – Semiconductor Devices and Circuits Lab		
C218.1	Working operation of various diodes and its applications	Understand
C218.2	Working operation of BJT configurations	Understand
C218.3	Construct and evaluate the performances of FET and UJT	Create
C218.4	Design Simple rectifier circuits	Create
C218.5	Design amplifier to prove Miller's and dual of Miller's theorem	Create
C218.6	Design BJT, FET Amplifiers for Voltage Amplification	Create
SPECIFIC LEARNING OUTCOMES – Basic Electrical Circuits Lab		
C219.1	Explain network elements and types of networks	Apply
C219.2	Apply theorems for finding the solutions of network problems	Apply
C219.3	Apply Maximum power transfer theorems for finding the solutions of DC & AC Networks	Apply
C219.4	Analyze RLC circuits and coupled circuits.	Analyse
C219.5	Understand 3 phase balanced and unbalanced, star and delta connected supply and load	Understand
C219.6	Measure reactive power in 3-phase circuit using different methods	Apply
SPECIFIC LEARNING OUTCOMES – Biology for engineers		
C2110.1	Explain Different types of cells and basics for classification of living Organisms.	Understand
C2110.2	Explain about biomolecules, their structure and function and their role in the living organisms and How biomolecules are useful in Industry	Understand
C2110.3	Briefly about human physiology	Understand
C2110.4	Explain about genetic material, DNA, genes and RNA how they replicate, pass and preserve vital information in living Organisms	Understand
C2110.5	Know about application of biological Principles in different technologies for the production of medicines	Understand
C2110.6	Understand Pharmaceutical molecules through transgenic microbes, plants and animals	Understand

Coordinator

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Department of Electrical and Electronics Engineering

Course Outcomes

CAY : 2020-21	SEM : I		Year : III
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SNO	Course Outcome Statement	Taxonomy
SPECIFIC LEARNING OUTCOMES – Electrical Measurements		
C311.1	Use watt meters, pf meters, and energy meters in a given circuit	Apply
C311.2	Calculate and Extend the range of ammeters and voltmeters	Analyse
C311.3	Measure active power, reactive power, power factor, and energy in both 1-phase and 3-phase circuits	Evaluate
C311.4	Determine the resistance values of various ranges, L and C values using appropriate bridges	Apply
C311.5	Analyse the different characteristic features of periodic, and a periodic signals using CRO	Analyse
C311.6	Use CTs and PTs for measurement of very large currents and high voltages	Apply
SPECIFIC LEARNING OUTCOMES – Linear & Digital IC Applications		
C312.1	Explain the basic building blocks of Linear Integrated Circuits and its Characteristics.	Understand
C312.2	Analyze the Linear, Non-Linear and specialized applications of Operational Amplifiers	Analyse
C312.3	Analyze the operation Of ADC, DAC ,Waveform Generators And their design.	Analyse
C312.4	Describe Digital Logic families and their applications.	Understand
C312.5	Analyze various Combinational And Sequential Circuit Designs.	Analyse
C312.6	Design various Combinational And Sequential Circuits .	apply
SPECIFIC LEARNING OUTCOMES – Electrical Power Transmission Systems		
C313.1	Compute the transmission line parameters	Apply
C313.2	Model a given transmission line	Create
C313.3	Estimate the performance of a given transmission line	Evaluate
C313.4	Analyse the effect of over voltages on transmission lines	Analyse
C313.5	Explain the construction, types and grading of underground cables and analyze cable performance	Understand
C313.6	Calculate sag /tension of transmission line and performance of line insulators	Apply
SPECIFIC LEARNING OUTCOMES – Power Electronics		
C314.1	Understand the basics of power electronic devices	Understand
C314.2	Express the construction and control of rectifiers	Apply
C314.3	Evaluate power electronics converters in power control application	Evaluate
C314.4	Express the design and control of inverters	Analyse
C314.5	Ability to model chopper circuits	Apply
C314.6	Ability to design AC voltage controller and cyclo converter	Evaluate

SPECIFIC LEARNING OUTCOMES – Electrical Machines – III		
C315.1	Understand the working principle of synchronous machines	Understand
C315.2	Predetermine the regulation of synchronous generator using different methods	Apply
C315.3	Determine how several alternators running in parallel share the load on the system	Apply
C315.4	Analyze the performance characteristics of synchronous motor	Analyse
C315.5	Make necessary calculations for power factor improvement using synchronous condenser	Evaluate
C315.6	Choose specific single phase motor and special motor for a given application	Analyse
SPECIFIC LEARNING OUTCOMES – Networks Signals and Systems		
C316.1	Apply the knowledge of basic circuit law and simplify the network using reduction techniques	Apply
C316.2	Understand the features of two port networks and to obtain their equivalent circuits	Apply
C316.3	Analyse the frequency response of electrical network using Laplace transform	Analyse
C316.4	Apply principles and concepts of graph theory in practical situations	Apply
C316.5	Apply concepts of Fourier series to simplify the electrical network	Apply
C316.6	Synthesize the network using network functions	Evaluate
SPECIFIC LEARNING OUTCOMES – Electrical Machines Laboratory – II Laboratory		
C317.1	Analyze characteristics of transformers with different loads.	Analyse
C317.2	Predetermine the efficiency of the transformer and fix the rating of transformers by identifying the equivalent circuit parameters.	Apply
C317.3	Determine the voltage regulation on testing alternators with the different load.	Apply
C317.4	Determine the efficiency with performance characteristics of slip ring induction motor by brake test.	Apply
C317.5	Predetermine the efficiency of the single phase and three phase squirrel cage induction Motor with the no load and blocked rotor test.	Apply
C317.6	Analyze the performance characteristics of Synchronous motors with different excitation.	Analyse
SPECIFIC LEARNING OUTCOMES – Electrical Measurements Laboratory		
C318.1	Calibrate various electrical measuring/recording instruments	Evaluate
C318.2	Determine ratio error and phase angle error of CT	Apply
C318.3	Accurately determine the values of inductance and capacitance using a.c bridges	Understand
C318.4	Accurately determine the values of very low resistances	Apply
C318.5	Analysis based on comparing true and actual value of potentiometer and power factor meter.	Analyse
C318.6	Measure reactive power in 3-phase circuit using single wattmeter	Evaluate
SPECIFIC LEARNING OUTCOMES – Audit course – Social Values & Ethics		
C319.1	Discuss the ethical values and social context of problems	Understand

C319.2	Outline the social responsibilities of an engineer, rights and qualities of moral Leadership.	Analyze
C319.3	Explain philosophy of Life and Individual qualities	Understand
C319.4	Discuss the core values that shape the ethical behavior of an engineer.	Understand
C319.5	Develop appropriate technologies and management patterns to create harmony in professional and personal life.	Create
C319.6	Outline environment conservation, enrichment and sustainability	Analyze

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Course Outcomes

CAY : 2020-21	SEM : I		Year : IV
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SNO	Course Outcome Statement	Taxonomy
SPECIFIC LEARNING OUTCOMES – Electrical Distribution Systems		
C411.1	Analyse the classification of distribution systems	Analyse
C411.2	Analyse the technical aspects and design considerations in DC and AC distribution systems and their comparison	Analyse
C411.3	Evaluate voltage drop and line loss calculations and voltage regulating equipment to improve the power factor and voltage profile.	Evaluate
C411.4	Analyse Technical issues of substations such as location, ratings and bus bar arrangements	Analyse
C411.5	Determine the causes of low power factor and methods to improve power factor	Apply
C411.6	Contrast principles in Distribution automation	Apply
SPECIFIC LEARNING OUTCOMES – Digital Signal Processing		
C412.1	Classify various types of discrete time signals and systems	UNDERSTAND
C412.2	Use discrete Fourier Transforms (DFT) to a processing system to give the desired output.	APPLY
C412.3	Determine FFT algorithms in rapid frequency-domain analysis.	APPLY
C412.4	Analyse IIR and FIR filters using different structures	Analyse
C412.5	Design digital filters to meet specific magnitude and phase requirements	Create
C412.6	Illustrate multirate DSP techniques for various applications of DSP by sampling rate conversion.	APPLY
SPECIFIC LEARNING OUTCOMES – Power System Operation and Control		
C413.1	Design an optimal operation setup of power system which minimizes operation costs and meet desired needs.	Create
C413.2	To allow students to illustrate about thermal and hydro power plants operation in meeting the load demand optimally.	Analyze
C413.3	Ability to discuss single area load frequency control and two area load frequency control.	Understand
C413.4	Apply the techniques to control power flows, frequency and voltage	Apply
C413.5	Differentiate pricing mechanism of electric energy and trading of power under deregulated environment.	Understand
C413.6	Assess the significance of power system restructuring and learn the Security Analysis, Contingency Analysis.	Evaluate

SPECIFIC LEARNING OUTCOMES – Utilization of Electrical Energy		
C414.1	Examine the laws of illumination and their application for various lighting schemes.	Apply
C414.2	Analyse the Principles and methods of electric heating and welding.	Analyse
C414.3	Describe the Systems of electric traction and study of traction equipment.	Understand
C414.4	Explain mechanics of Train movement and associated calculations.	Understand
C414.5	Ability to choose the better equipment with consideration of economic aspects.	Evaluate
C414.6	Evaluate the losses and efficiency of the electrical equipments used in various industries	Evaluate
SPECIFIC LEARNING OUTCOMES – Energy Auditing & Demand Side Management		
C415.1	Understand global energy scenario and energy auditing concepts	Understand
C415.2	Carry out energy audit in motor and power factor improvement techniques to convert it as energy efficient motors.	Apply
C415.3	Determine efficient lighting system with the lighting energy audit.	Apply
C415.4	Choose specific energy instruments for energy auditing.	Analyze
C415.5	Select the suitable techniques of demand side management for energy conservation awareness program.	Analyze
C415.6	Evaluate the techno economic feasibility of the energy conservation technique adopted.	Evaluate
SPECIFIC LEARNING OUTCOMES – Power Quality		
C416.1	Address power quality issues to ensure meeting of standards	Understand
C416.2	Apply the concepts of compensation for sags and swells using voltage regulating devices	Apply
C416.3	Assess harmonic distortion and its mitigation	Evaluate
C416.4	Evaluate All Parameters Of Electrical Circuits.	Evaluate
C416.5	Explain the power measurement data according to standards	Understand
C416.6	Evaluate the Power quality with the suitable tool for reliable electrical distribution system.	Evaluate
SPECIFIC LEARNING OUTCOMES – Digital Signal Processing Laboratory		
C417.1	Experiment concepts of DSP and its applications using MATLAB Software	Analyze
C417.2	Express about the basic signal generation	Understand
C417.3	Examine Fourier Transform Concepts	Apply
C417.4	Design FIR filters	Create
C417.5	Design IIR filters.	Create
C417.6	Demonstrate their abilities towards DSP processor based implementation of DSP systems.	Apply

SPECIFIC LEARNING OUTCOMES – Power Systems & Simulation Laboratory		
C418.1	Determination of sequence impedance and sub transient reactance of synchronous machine	Apply
C418.2	Conduct experiments to analyze LG, LL, LLG, LLLG faults	Analyse
C418.3	Estimate the parameters of three winding transformer equivalent circuit	Evaluate
C418.4	Develop MATLAB program for formation of Y and Z buses	Create
C418.5	Develop MATLAB programs for gauss-seidel and fast decoupled load flow studies.	Create
C418.6	Develop the SIMULINK model for single area load frequency control problem	Create

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