GOPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY JEYPORE

GOURAHARI VIHAR RANIPUT JEYPORE

Discipline: ELECTRICAL ENGINEERING
Semester: 2nd
Name of the Teaching Faculty: DEBASHIS SAHU
Subject: BASIC ELECTRICAL ENGINEERING
No. of days/per week class allotted: 04
Semester From: Feb To: April
No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
1ST	1ST	Introduction to Electrical Engineering, Importance and Applications
	2ND	Review of Electric Quantities – Voltage, Current, Power and Units
	3RD	Ohm's Law and Kirchhoff's Laws
	4TH	Simple DC Circuits
2ND	1ST	Mesh and Nodal Analysis in DC Circuits
	2ND	Superposition Theorem
	3RD	Thevenin's and Norton's Theorem
	4TH	Maximum Power Transfer Theorem
3RD	1ST	Capacitance and Capacitors in Series and Parallel
	2ND	Charging and Discharging of Capacitors
	3RD	Inductance and Magnetic Circuits
	4TH	Self and Mutual Inductance
4TH	1ST	Single Phase AC Fundamentals – Waveform, Cycle and Period
	2ND	RMS, Average and Peak Values, Form and Crest Factor
	3RD	Phasor Representation of AC Quantities
	4TH	Simple R, L and C Circuits with AC Source
5TH	1ST	Series RL, RC and RLC Circuits
	2ND	Impedance, Admittance and Power in AC Circuits
	3RD	Power Factor and its Significance
	4TH	Resonance in Series RLC Circuit
6TH	1ST	Three Phase Systems – Star and Delta Connections
	2ND	Line and Phase Voltages and Currents
	3RD	Power Measurement in Three Phase Circuits
	4TH	Balanced and Unbalanced Loads
7TH	1ST	Construction and Working of DC Machines
	2ND	Types of DC Generators and Motors
	3RD	Characteristics of DC Machines
	4TH	Applications of DC Machines
8TH	1ST	Construction and Working Principle of Transformer
	2ND	EMF Equation of Transformer
	3RD	Losses and Efficiency in Transformer
	4TH	Auto Transformer
9TH	1ST	Construction and Principle of Alternator
	2ND	Types and Applications of Alternators
	3RD	Synchronous Speed and EMF Equation
	4TH	Regulation and Efficiency
10TH	1ST	Induction Motors – Construction and Principle
	2ND	Types – Squirrel Cage and Slip Ring Induction Motors
	3RD	Slip and Torque-Speed Characteristics
	4TH	Applications of Induction Motors
11TH	1ST	Single Phase Induction Motors
	2ND	Universal Motor and Stepper Motor

	3RD	Introduction to Electrical Measuring Instruments
	4TH	Types of Instruments – PMMC, MI and Dynamometer Type
12TH	1ST	Energy Meter, Wattmeter and Multimeter
	2ND	Earthing and Grounding
	3RD	Safety Precautions in Electrical Systems
	4TH	Basics of Wiring and Wiring Systems
13TH	1ST	Types of Wiring – PVC Conduit and Batten Wiring
	2ND	Fuses, MCBs and ELCBs
	3RD	Calculation of Energy Consumption
	4TH	Introduction to Lighting Schemes
14TH	1ST	Review of Key Concepts in Basic Electrical Engineering
	2ND	Quiz / MCQ Revision Session
	3RD	Previous Year Question Discussion
	4TH	Assignment / Class Test Discussion
15TH	1ST	Doubt Clearing Session
	2ND	Practical Demonstration on Lab-based Topics
	3RD	Final Revision
	4TH	Final Class Test and Course Closure

Learning Resources:

1. V.K. Mehta & Rohit Mehta – Basic Electrical Engineering, S. Chand
2. D.P. Kothari & I.J. Nagrath – Basic Electrical Engineering, McGraw Hill
3. J.B. Gupta – Fundamentals of Electrical Engineering and Electronics, S.K. Katar