

GOPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY, JEYPORE

GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764005

LESSON PLAN

Discipline: ELECTRICAL ENGINEERING

Semester: 4TH Semester

Name of the Teaching Faculty: HRUDAAYA KUMAR PANIGRAHI

Subject: ELECTRICAL MACHINE – II

No. of Classes per Week: 03

Semester From: Feb to April

No. of Weeks: 15 Weeks

Week	Class Day	Theory / Practical Topics
1st	1st	Construction of Salient Pole and Cylindrical Rotor Alternators
	2nd	EMF Equation and Armature Reaction
	3rd	Synchronous Impedance, OC and SC Tests
2nd	1st	Short Circuit Ratio and Regulation Methods
	2nd	Phasor Diagrams of Alternators
	3rd	Load Sharing between Alternators
3rd	1st	Synchronous Motor: Construction and Principle
	2nd	Phasor Diagram of Synchronous Motor
	3rd	Power-Angle Characteristics of Synchronous Motors
4th	1st	V and Inverted V Curves
	2nd	Hunting and Damping Mechanisms
	3rd	Starting Methods and Applications
5th	1st	Three-phase Induction Motors: Construction and Types
	2nd	Principle of Operation, Slip and Rotor EMF
	3rd	Torque-Slip Characteristics
6th	1st	Starting and Speed Control Methods
	2nd	Testing of Induction Motors
	3rd	Double Squirrel Cage and Deep Bar Rotors
7th	1st	Circle Diagram for Induction Motor
	2nd	Introduction to Single Phase Induction Motors
	3rd	Double Revolving Field Theory
8th	1st	Types of Single Phase Induction Motors
	2nd	Capacitor Start and Capacitor Run Motors
	3rd	Shaded Pole and Universal Motors
9th	1st	Linear Induction Motors
	2nd	Stepper Motors
	3rd	Servo Motors and Applications
10th	1st	Brushless DC Motors
	2nd	Construction and Working of Synchronous Generator Under Load
	3rd	Synchronization Methods
11th	1st	Numerical on Regulation and Load Sharing
	2nd	Numerical on Power Angle Characteristics
	3rd	Tutorial on Synchronous Machines
12th	1st	Tutorial on Induction Motors
	2nd	Case Studies of Synchronous Generator Installations
	3rd	Introduction to Faults and Protection of Machines
13th	1st	Cooling and Ventilation of Electrical Machines
	2nd	Bearings and Brush Arrangements in Large Machines
	3rd	Field Suppression Methods

14th	1st	Model Question Paper Solving and Viva Preparation
	2nd	Mock Test and Discussion
	3rd	Important Numerical Practice
15th	1st	Group Discussion and Industrial Applications
	2nd	Important Formula Revision and Exam Preparation
	3rd	Final Class Test / Feedback / Wrap-up

Learning Resources:

1. J. B. Gupta, *Theory & Performance of Electrical Machines*, S. K. Kataria & Sons.
2. Fitzgerald & Kingsley's *Electric Machinery*, Stephen D. Umans, McGraw Hill.
3. P. S. Bimbhra, *Electric Machinery*, Khanna Publishing House.
4. D. P. Kothari & I. J. Nagrath, *Electric Machines*, McGraw Hill.
5. M. G. Say, *Performance and Design of AC Machines*, CBS Publishers.