

Lesson Plan

Name of the Faculty :Loveleena
Discipline Instrumentation and control
Semester 3rd
Subject Electrical Machines
 Lesson Plan Duration : 15 weeks(from Sept 2022 to Jan 2023)
 Work Load (lecture/practical)per week (in hours) : Lectures- 03, Practical- 02

Week	Theory		Practical week	Practicals
	Lecture Day	Topic (including assignment/test)		Topic
1st	1st	Brief introduction about subject and syllabus	1st	To measure power and power factors in 3 Phase load by two wattmeter method
	2nd	Three Phase Supply Advantages of 3 phase system over single phase system		
	3rd	Star delta connections		
2nd	4th	revised previous topics	2	To determine the efficiency of a single phase transformer from the data obtained through open circuit and short circuit test
	5th	Relation between phase voltage and line voltage, phase current and line current in a 3 phase system		
	6th	Power and power factor(p.f.) in 3 phase system and their measurements, importance of p.f. (simple problems)		
3rd	7th	feedback from students	3	To measure power and power factor of a single phase induction motor.
	8th	revision		
	9th	Principle and construction of single phase transformer		
4th	10th	voltage regulation and its significance of transformer	4	To run a synchronous motor with a.c supply and to measure speed to verify the relation $N=120 f/P$
	11th	Losses in transformer		
	12th	Efficiency, condition for maximum efficiency and all day efficiency		
5th	13th	CT's (Current Transformers)	5	practicals revisions
	14th	PT's(Potential Transformers)		viva voice of previous practicals
	15th	CVT(Constant Voltage Transformer)		
6th	16th	Revision	6	To make connections of starting and running winding of a single phase capacitor motor and to run it with the help a DOL starter and to measure its speed
	17th	Introduction to Rotating Electrical Machines		
	18th	EMF induced in a coil rotating in a magnetic field		
7th	19th	Basic principle of a generator and a motor	7	To connect a dc shunt motor with supply through 3 - phase starter and to run the motor at different speed with the help of a field regulator
	20th	Torque due to alignment of two magnetic fields and the concept of Torque angle		
	21st	Basic Electromagnetic laws (Faraday's laws of Electromagnetic Induction)		
8th	22nd	feedback from students	8	Study construction of a stepper and servomotor and to write their complete specifications.
	23rd	Principle of working of d.c motors and d.c generator, their constructional details		
	24th	Function of the commutator for motoring and generating action		
9th	25th	Factors determining the speed of a DC motor	9	practicals revisions
	26th	Different types of excitation		viva voice of previous practicals
	27th	Characteristics of Different types of DC machines		
10th	28th	Starting of DC motors and starters	10	practicals revisions
	29th	Application of DC machines		viva voice of previous practicals
	30th	revision		
11th	31st	Class Test	11	All files are checked
	32nd	Introduction to AC Motors		
	33rd	Revolving magnetic field produced by poly phase supply		All files are checked
12th	34th	Brief introduction about three phase induction motors, its principle of operation	12	viva voice of previous practicals
	35th	principle and working of Synchronous machines		viva voice of previous practicals
	36th	Application of Synchronous machines		
13th	37th	Revision	13	viva voice of previous practicals
	38th	introduction Single Phase Fractional Kilowatt Motors		viva voice of previous practicals
	39th	principle of operation of single phase motors		
14th	40th	types of single phase induction motors and their constructional details	14	viva voice of previous practicals
	41st	single phase Synchronous motors – reluctance motor (hysteresis motor)		viva voice of previous practicals
	42nd	introduction to commutator type single-phase motors		
15th	43rd	introduction to servo- motors and stepper motors	15	viva voice of previous practicals
	44th	Concept of micro-motors.		viva voice of previous practicals
	45th	Copy checking		viva voice of previous practicals