

Government Polytechnic, Mandi Adampur

Name of Faculty: Sh. Ravinder Kumar

Discipline: Electronics

Semester: 3

Subject: Electrical Machines

Lesson Plan Duration: 18 Week

Week	Theory		Practical
	Lecture Day	Topic	
Week 1	Day 1	Unit 1: Three Phase Supply. Advantage of three-phase system over single-phase system.	day 1
	Day 2	Star Delta connections	
	Day 3	Relation between phase and line voltage and current in a three phase system	
Week 2	Day 4	Power and power factor in three-phase system and their measurements by one, two and three wattmeter methods.	day 2
	Day 5	Test Unit 1	
	Day 6	Unit 2: Transformers : Principle of operation and constructional details of single phase transformer	
Week 3	Day 7	Voltage Regulation of a transformer (No Derivation)	day 3
	Day 8	Efficiency, condition for maximum efficiency and all day efficiency	
	Day 9	CTs and PTs (Current transformer and potential transformer)	
Week 4	Day 10	CVT (Constant Voltage Transformer)	day 4
	Day 11	Test Unit 2	
	Day 12	Unit 3: Introduction to Rotating Electrical Machines	
Week 5	Day 13	E.M.F induced in a coil rotating in a magnetic field.	day 5
	Day 14	Definition of motor and generator	
	Day 15	Basic principle of a generator and a motor	
Week 6	Day 16	concept of Torque angle	day 6
	Day 17	Basic Electromagnetic laws (Faraday's laws of Electromagnetic Induction)	
	Day 18	Test Unit 3	
Week 7	Day 19	Unit 4: DC Machines	day 7
	Day 20	Principle of working of d.c motors and d.c generator,	
	Day 21	their constructional details	

Week 8	Day 22	Function of the commutator for motoring and generating action	day 8
	Day 23	Factors determining the speed of a DC motor	
	Day 24	Different types of excitation	
Week 9	Day 25	Different types of excitation	day 9
	Day 26	Characteristics of different types of DC machines	
	Day 27	Starting of DC motors and starters	
Week 10	Day 28	Application of DC machines	day 10
	Day 29	Revision and problem discussion	
	Day 30	Test Unit 4	
Week 11	Day 31	Unit 5:A.C. Motors	day 11
	Day 32	Introduction	
	Day 33	Revolving magnetic field produced by poly phase supply	
Week 12	Day 34	Revision and problem discussion	day 12
	Day 35	Brief introduction about three phase induction motors	
	Day 36	its principle of operation	
Week 13	Day 37	Principle and working of Synchronous Machines	day 13
	Day 38	Principle and working of Synchronous Machines	
	Day 39	Application of Synchronous Machines	
Week 14	Day 40	Test Unit 5	day 14
	Day 41	Unit 6: Single Phase Fractional Kilowatt Motors	
	Day 42	Introduction	
Week 15	Day 43	Principle of operation of single phase motors	day 15
	Day 44	Revision & problem discussion	
	Day 45	Types of single phase induction motors.	
Week 16	Day 46	and their constructional details	day 16
	Day 47	Single phase synchronous motors	
	Day 48	reluctance motor (hysteresis motor)	
Week 17	Day 49	Introduction to Commutator type single-phase motors	day 17
	Day 50	Introduction to Commutator type single-phase motors	
	Day 51	Introduction to servo- motors and stepper motors	
Week 18	Day 52	Introduction to servo- motors and stepper motors	day 18
	Day 53	Concept of micro-motors.	
	Day 54	Test Unit 6	

Practical
Topic
To measure power and power factors in 3 Phase load by two wattmeter method
File Check
To determine the efficiency of a single phase transformer from the data obtained through open circuit and short circuit test
File Check
To measure power and power factor of a single phase induction motor.
File Check
Revision

File Check
To run a synchronous motor with a.c supply and to measure speed
File Check
To make connections of starting and running winding of a single phase capacitor
File Check
Revision
Study construction of a stepper and servomotor and to
File Check
Revision