

GOVERNMENT POLYTECHNIC, MANESAR

LESSON PLAN

NAME OF THE FACULTY : - Ms. MANJU (Lecturer)
DISCIPLINE : - ECE
SEMESTER : - 3rd
SUBJECT : - ELECTRICAL MACHINE
LESSON PLAN DURATION : - 15 weeks (from January 2018 to April 2018)

WORK LOAD (LECTURE/PRACTICAL) PER WEEK (IN HOURS):- LECTURE-03, PRACTIACL-06

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC (Including assignment/test)	PRACTICAL DAY	TOPIC
1 st	1 st	Three Phase Supply Introduction	1 st Group-1	Demonstrate various instruments use Ammeter, Voltmeter, Wattmeter, p.f meter etc for their identification and connecting procedure in a circuit.
	2 nd	Advantage of three-phase system over single-phase system.		
	3 rd	Relation between phase and line voltage and current in a three phase system	2 nd Group-2	Demonstrate various instruments use Ammeter, Voltmeter, Wattmeter, p.f meter etc for their identification and connecting procedure in a circuit.
2 nd	4 th	Power and power factor in three-phase system and their measurements by one, two and three wattmeter methods.	3 rd Group-1	To measure power and power factors in 3 Phase load by two wattmeter method
	5 th	Transformer Introduction		
	6 th	Principle of operation and constructional details of single phase transformer	4 th Group-2	To measure power and power factors in 3 Phase load by two wattmeter Method
3 rd	7 th	Voltage Regulation of a transformer	5 th Group-1	To determine the efficiency of a single phase transformer from the data obtained through open circuit and short circuit test
	8 th	Losses in a transformer		
	9 th	Efficiency, condition for maximum efficiency and all day efficiency	6 th Group-2	To determine the efficiency of a single phase transformer from the data obtained through open circuit and short circuit test

4 th	10 th	CTs and PTs (Current transformer and potential transformer)	7 th Group-1	To measure power and power factor of a single phase induction motor.
	11 th	CVT (Constant Voltage Transformer)		
	12 th	Assignment	8 th Group-2	To measure power and power factor of a single phase induction motor.
5 th	13 th	Test	9 th Group-1	To run a synchronous motor with a.c supply and to measure speed to verify the relation $N=120 f/ P$
	14 th	Introduction to Rotating Electrical Machines		
	15 th	E.M.F induced in a coil rotating in a magnetic field	10 th Group-2	To run a synchronous motor with a.c supply and to measure speed to verify the relation $N=120 f/ P$
6 th	16 th	Definition of motor and generator	11 th Group-1	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
	17 th	Basic principle of a generator and a motor		
	18 th	Torque due to alignment of two magnetic fields and the concept of Torque angle	12 th Group-2	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
7 th	19 th	Basic Electromagnetic laws (Faraday's laws of Electromagnetic Induction)	13 th Group-1	Study construction of a stepper and servomotor and to write their complete specifications.
	20 th	DC Machines Principle of working of d.c motors and their constructional details		
	21 th	Principle of working of d.c generator and their constructional details	14 th Group-2	Study construction of a stepper and servomotor and to write their complete specifications.
8 th	22 nd	Function of the commutator for motoring a action	15 th Group-1	Revision
	23 rd	Function of the commutator for generating action		
	24 th	Factors determining the speed of a DC motor	16 th Group-2	Revision
9 th	25 th	Different types of excitation of DC motor	17 th Group-1	Study construction of a stepper and servomotor and to write their complete specifications.
	26 th	Characteristics of different types		

		of DC machines		
	27 th	Starting of DC motors and starters	18 th Group-2	Study construction of a stepper and servomotor and to write their complete specifications.
10 th	28 th	Application of DC machines	19 th Group-1	Class Quiz
	29 th	Assignment		
	30 th	Test	20 th Group-2	Class Quiz
11 th	31 st	A.C. Motors Revolving magnetic field produced by poly phase supply	21 st Group-1	Revision
	32 nd	Brief introduction about three phase induction motors		
	33 rd	principle of operation of three phase induction motors	22 nd Group-2	Revision
12 th	34 th	Principle of Synchronous Machines	23 rd Group-1	Revision
	35 th	working of Synchronous Machines		
	36 th	Application of Synchronous Machines	24 th Group-2	Revision
13 th	37 th	Single Phase Fractional Kilowatt Motors Introduction	25 th Group-1	Test
	38 th	Principle of operation of single phase motors		
	39 th	Types of single phase induction motors and their constructional details	26 th Group-2	Test
14 th	40 th	Single phase synchronous motors – reluctance motor (hysteresis motor)	27 th Group-1	Revision
	41 st	Introduction to Commentator type single-phase motors		
	42 nd	Introduction to servo- motors	28 th Group-2	Revision
15 th	43 rd	Introduction to stepper motors	29 th Group-1	Revision
	44 th	Concept of micro-motors Assignment		
	45 th	Test	30 th Group-2	Revision