Lesson plan				
Name of Faculty		**Sh. Ashok Kumar + Sh. Amit Kumar**		
Discipline		**Electrical Engineering**		
Semester		**3th**		
Subject		**Electrical Machine-I**		
Lesson Plan Duration		**15 Week (From September 2023 to Jan 2024) Theory :04, Practical:02**		
Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including Assignment/ Test)**	**Practical day**	**Topic**
1st	Day1	**1:Introduction to Electrical Machines**	Day1	To measure the angular displacement of rotor of the three phase synchronous machine with respect to the stator on application of DC to the field winding and simultaneously to each phase-winding in sequence
	Day 2	Definition of motor and generator		
	Day 3	Torque development due to alignment of two fields and the concept of torque angle		
	Day 4	Electro-magnetically induced emf		
2nd	Day 1	Elementary concept of an electrical machine	Day1	
	Day 2	Comparison of generator and motor		Speed control of DC shunt motor (i) Armature control method
	Day 3	Generalised theory of electrical machines		
	Day 4	Revision/Assignment Checking		
3rd	Day 1	Class test	Day1	(ii) Field control method
	Day 2	**2: Introduction to DC Machines**		
	Day 3	Main constructional features, Types of armature winding		
	Day 4	Function of the commutator for motoring and generation action		
4th	Day 1	Factors determining induced emf	Day1	Practical Quiz No.1/ Revision and file checking
	Day 2	Factors determining the electromagnetic torque		
	Day 3	Various types of DC generators		
	Day 4	Significance of back e.m.f., the relation between back emf and Terminal voltage		
5th	Day 1	Armature Reaction	Day1	Study of DC series motor with starter(to operate the motor on no load)
	Day 2	Methods to improve commutation		
	Day 3	Performance and characteristics of different types of DC motors		
	Day 4	Speed control of dc shunt/series motors		
6th	Day 1	Need of starter, three point dc shunt motor starter and	Day1	Determine efficiency of DC motor by Swinburne's Test at (i) rated capacity, half full load
	Day 2	4 point starter, Electric Braking		
	Day 3	Applications of DC motors		
	Day 4	Faults in dc machines and their retrospective		
7th	Day 1	Losses in a DC machine	Day1	To perform open circuit and short circuit test of transformer for determining: equivalent circuit , the regulation and efficiency
	Day 2	Determination of losses by Swinburne's test		
	Day 3	Rating and Specifications of DC machines		
	Day 4	Revision/Assignment Checking		
8th	Day 1	Class test	Day1	Practical Quiz No.1/ Revision and file checking
	Day 2	**3: Introduction, Single Phase Transformer**		
	Day 3	Constructional features of a transformer and parts of transformer		
	Day 4	Working principle of a transformer		
9th	Day 1	EMF equation	Day1	To find the efficiency and regulation of single phase
	Day 2	Transformer on no-load and its phasor		

		diagram		transformer by actually loading it
	Day 3	Transformer – neglecting voltage drop in the windings –		
	Day 4	Ampere turn balance – its phasor diagram		
10th	Day 1	Mutual and leakage fluxes, leakage reactance	Day1	Checking the polarity of the windings of a three phase transformer and connecting the windings in various configurations
	Day 2	Transformer on load, voltage drops and its phasor diagram		
	Day 3	Equivalent circuit diagram		
	Day 4	Relation between induced emf and terminal voltage		
11	Day 1	voltage regulation of a transformer-mathematical relation	Day1	Finding the voltage and current relationships of primary and secondary of a three phase transformer under balanced load in various configuration conditions such as Star-Star, Star-delta.
	Day 2	Losses in a transformer		
	Day 3	Open circuit and		
	Day 4	Short circuit test.		
12th	Day 1	Calculation of efficiency, condition for maximum efficiency-maintenance of Transformer, scheduled Maintenance		
	Day 2	Auto transformer construction, working and applications	Day1	Delta-star Delta – Delta configuring conditions
	Day 3	Different types of transformers including dry type transformer.		
	Day 4	Rating and Specifications of single phase transformer		
13	Day 1	Revision/Assignment Checking	Day1	Practical Quiz No.1/ Revision and file checking
	Day 2	**4: Three Phase Transformer**		
	Day 3	Construction of three phase transformers and accessories of transformers such as Conservator,		
	Day 4	breather, Buchholtz Relay, Tap Changer (off load and on load) (Brief idea)		
14	Day 1	Types of three phase transformer i.e. delta-delta, delta-star, star-delta and star-star	Day1	Viva-voice/Practice of experiment
	Day 2	Star delta connections (relationship between phase and line voltage, phase and line current)		
	Day 3	Conditions for parallel operation (only conditions are to be studied)		
	Day 4	On load tap changer		
15	Day 1	Difference between power and distribution transformer	Day1	Revision and checking
	Day 2	Cooling of transformer		
	Day 3	Rating and Specifications of three phase transformers		
	Day 4	Revision/Assignment Checking		