LESSON PLAN

Subject :- TH:3 AC Machines and Special Electrical Machines**(Code) TH-2** EEPC206**Name of faculty:-** Bhatruhari Singh

Semester :-4th **Class allotted 4p/w** **Branch :- Electrical Engineering**

Discipline	Semester:-4TH	From date:-23/12/25 To date:18/4/26	45P/45H
Subject:AMSEM	No. of days/ per week 4p/w:	Theory –Topics/Lesson	
DATE	**PERIOD**	**TOPIC COVERED**	**REMARKS**
23/12/25 to 15/1/26		**Unit No. I Three Phase Induction Motor** 1.1 Working principle: production of rotating magnetic field, Synchronous speed, rotor speed and slip 1.2 Constructional details of 3 phase induction motors: Squirrel cage induction motor and Slip ring induction motor 1.3 Rotor quantities: frequency, induced emf, power factor at starting and running condition 1.4 Characteristics of torque versus slip (speed), Torques: starting, full load and maximum with relations among them(numericals) 1.5 Induction motor as a generalized transformer with phasor diagram 1.6 Four quadrant operation, Power flow diagram(numericals) 1.7 Starters: need and types; stator resistance, auto transformer, star delta, rotor resistance and soft starters 1.8 Speed control methods: stator voltage, pole changing, rotor resistance and VVVF 1.9 Motor selection for different applications as per the load torque speed requirements 1.10 Maintenance of three phase induction motors	
16/1/26 to 07/02/26		**Unit No. II: Single phase Induction Motors** 2.1 Double field revolving theory 2.2 Principle of making single phase induction motors self-start 2.3 Construction and working of single phase induction	

		motors 2.3.1 Resistance start induction run 2.3.2 Capacitor start induction run 2.3.3 Capacitor start capacitor run 2.3.4 Shaded pole 2.3.5 Repulsion type 2.3.6 Series motor 2.3.7 Universal motor 2.3.8 Hysteresis motor 2.4 Torque-speed characteristics for all of the above motors. 2.5 Motor selection for different applications as per the load torque- speed requirements 2.6 Maintenance of single phase induction motors	
09/02/26 to27/02/26		**Unit No. III: Three phase Alternators** 3.1 Principle of working, moving and stationary armatures 3.2 Constructional details: parts and their functions 3.2.1 Rotor constructions 3.2.2 Windings: Single and Double layer 3.3 E.M.F. equation of an Alternator with numerical by considering short pitch factor and distribution factor 3.4 Alternator loading 3.4.1 Factors affecting the terminal voltage of alternator 3.4.2 Armature resistance and leakage reactance drops. 3.5 Armature reaction at various power factors and synchronous impedance 3.6 Voltage regulation: direct loading and synchronous impedance methods 3.7 Maintenance of alternators	
28/02/26 to 21/03/26		**Unit No. IV: Synchronous Motors** 4.1 Principle of working /operation, significance of load angle. 4.2 Torques: starting torque, running torque, pull in torque, pull out torque 4.3 Synchronous motor on load with constant excitation (numerical), effect of excitation at constant load (numerical). 4.4 Curves and Inverted V-Curves. 4.5 Hunting and Phase swinging.	

		4.6 Methods of Starting of Synchronous Motor 4.7 Losses in synchronous motors and efficiency (no numerical). 4.8 Applications areas	
23/03/26 to 18/4/26		**Unit No. V: Fractional horse power (FHP) Motors** 5.1 Construction and working 5.1.1 Synchronous Reluctance Motor 5.1.2 Switched Reluctance Motor 5.1.3 BLDC 5.1.4 Permanent Magnet Synchronous Motors 5.1.5 Stepper motors 5.1.6 AC and DC servomotors 5.2 Torque speed characteristics of above motors 5.3 Applications of above motors	
Signature of HOD			**Signature of Faculty**