

Government Polytechnic Nawada

Department of Electrical Engineering

Lesson Plan

Name-Anand Kumar

Designation-Lecturer

Subject Name-A.C. Machines

Subject code-1620502

Semester-5th

S.No.	Unit	Lecture No.	Topic
1	Three phase induction motor.	1	Construction of three phase induction motor
		2	Production of rotating magnetic field
		3	Principle of working/operation
		4	Concept of slip
		5	Equation of rotor induced emf.
		6	Equation of rotor current, frequency.
		7	Equation of rotor induced reactance, and impedance under steady and running condition
		8	Torque equation of three phase induction motor
		9	Starting and running torque of squirrel cage
		10	Starting and running torque of slip ring induction motor
		11	Condition for maximum and starting torque
		12	Torque slip characteristics of three phase induction motor
		13	Effect of change in rotor circuit resistance on torque-slip characteristics
		14	Effect of change in supply voltage on torque-slip characteristics
		15	measurement of slip by a) Tachometer method
		16	measurement of slip by b) Comparing rotor frequency and stator frequency
		17	Speed control of three phase induction motor by a) Pole changing method b) Frequency control method
		18	Speed control of three phase induction motor by c) By stator voltage control d) Rotor resistance control
		19	Comparison between squirrel-cage and slip-ring induction motor.
		20	Applications of three phase induction motor.

		21	Power stages of three phase induction motor
		22	Double cage IM a) Construction b) Characteristic of outer, inner cage & combined characteristic
		23	Double cage IM c) Industrial Applications (Numerical on all above)
		24	I.M. as a generalized transformer
		25	Vector diagram of IM
		26	Equivalent circuit of 3-phase IM (No numerical)
		27	Starting of 3-phase IM (No numerical)
		28	a) Stator resistance starter
		29	b) Star-Delta starter
		30	c) Auto transformer starter
		31	d) Rotor resistance starter
2	Three Phase Alternator	1	Definition and construction of three phase Alternator a) Armature
		2	b) Rotor- smooth cylindrical
		3	construction of three phase Alternator projecting type
		4	Derivation of e.m.f. equation
		5	Define a) Chording factor b) Distribution factor
		6	Factors affecting the terminal voltage of Alternator
		7	a) Armature resistive drop
		8	b) Leakage reactance drop
		9	c) Armature reaction at various power factors &
		10	concept of Synchronous impedance
		11	Regulation of three phase Alternator by a) Synchronous impedance method
		12	b) mmf method
		13	Numerical based on above topic
3	Synchronous Motor	1	Principle of working/operation
		2	Synchronous Motor on load with constant excitation
		3	Effect of excitation at constant load
		4	V curve
		5	Inverted V curve
		6	Hunting
		7	Phase swinging

		8	Applications
		9	Starting of Synchronous Motor
		10	Comparison between IM & Synchronous Motor
		11	Numerical based on above topic
4	Single phase Motors	1	Types of Single phase IM
		2	Split phasing principle of starting
		3	a) Resistance start induction run
		4	b) Capacitor start induction run
		5	c) Capacitor start Capacitor run
		6	d) Double value Capacitor applications motor
		7	Shaded pole IM
		8	Applications

Note- Class duration may be increases.