



Maharaja Agrasen Institute of Technology

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Department of Electrical & Electronics Engineering Electrical Machines – II Theory (EEC210)

ACADEMIC PLAN FOR SEMESTER-IV 2022

S.No.	TOPICS TO BE COVERED	Total No. of Lectures (42)	CO
UNIT-I (SYNCHRONOUS GENERATORS)			
1	Synchronous Alternators Constructional features, armature windings. , E.M.F. equation, winding coefficients, harmonics in the induced E.M.F.,	2	CO1
2	armature reaction ,O.C. and S.C. tests, voltage regulation-	2	
3	Synchronous impedance method, MMF Method, Potier's triangle method	2	
4	parallel operation, operation on infinite bus, cooling	2	
5	Two reaction theory, power expressions for cylindrical and salient pole machines, performance characteristics.	3	
UNIT-II (Poly phase induction machines)			
7	Poly phase Induction Machines Constructional features, production of rotating magnetic field, working of 3- phase Induction motor cogging and crawling,	3	CO2
8	phasor diagram, equivalent circuit, power and torque relations, torque and slip relations	2	
9	operation of Induction machine as generator and phasor diagram, no load and blocked rotor tests and efficiency	2	
10	speed control by rotor resistance, injected e.m.f, frequency variation and pole changing,	2	

11	DOL, Y- Δ and autotransformer starters, deep bar and double cage rotor motors,	2	
After Mid Term			
UNIT-III(synchronous motors)			
13	Synchronous Motors – Principle of operation, starting methods,	2	CO3
14	phasor diagram torque-angle characteristics	2	
15	V-curves hunting and damping	2	
16	synchronous condenser, introduction to single phase synchronous motors	2	
17	Reluctance and Hysteresis motor	2	
UNIT-IV(Fractional Horse Power Motors)			
18	Single Phase Induction Motor: Double revolving field theory, equivalent circuit, no load and blocked rotor tests,	2	CO4
19	starting methods, split phase Induction motor- capacitor start, two value capacitor motor.	3	
20	Introduction and applications of single phase AC series motor, universal motor,	2	
21	AC servo motor, stepper motor, permanent magnet AC motors.	3	

Course Objectives

C.210.1	To understand the concept of synchronous generator
C.210.2	To understand the concept of three phase induction motor.
C.210.3	To understand the concept of synchronous motor.
C.210.4	To understand the concept of single phase motor.

