SAMSKRUTI COLLEGE OF ENGINEERING & TECHNOLOGY

EM-III LESSON PLAN

NAME OF THE FACULTY:BSRAVANTHI

Sl. No	Name of the Topic	No. of Classes required	Cumulative number of periods	Teaching Aid
UNIT – I : SYNCHRONOUS MACHINE AND CHARACTERISTICS				
1	Constructional Features of round rotor and salient pole machines	1	1	Chalk and Talk , PPT
2	Armature windings – Integral slot and fractional slot windings; Distributed and concentrated windings	2	3	Chalk and Talk
3	Distribution, pitch and winding factors	2	5	Chalk and Talk
4	E.M.F Equation	1	6	Chalk and Talk
5	Numericals	2	8	Chalk and Talk
6	Harmonics in generated e.m.f.	1	9	Chalk and Talk
7	Suppression of harmonics	1	10	Chalk and Talk
8	Armature reaction - leakage reactance – synchronous reactance and impedance	2	12	Chalk and Talk
9	Experimental determination - phasor diagram	1	13	Chalk and Talk
10	Load characteristics	1	14	Chalk and Talk
UNIT – II : REGULATION OF SYNCHRONOUS GENERATOR				
11	Regulation by synchronous impedance method,	1	15	Chalk and Talk
12	M.M.F. method, Z.P.F. method	1	16	Chalk and Talk
13	Z.P.F. methods and problems	1	17	Chalk and Talk
14	A.S.A. methods ,Problems	2	19	Chalk and Talk
16	Salient pole alternators – two reaction analysis	1	20	Chalk and Talk
17	Experimental determination of X_d and X_q (Slip test)	1	21	Chalk and Talk
18	Phasor diagrams – Regulation of salient pole alternators	1	22	Chalk and Talk
19	Numericals	2	24	Chalk and Talk
UNIT – III : PARALLEL OPERATION OF SYNCHRONOUS GENERATOR				
20	Synchronizing alternators with infinite bus bars	2	26	Chalk and Talk
21	Synchronizing power torque	2	28	Chalk and Talk
22	parallel operation and load sharing - Effect of change of excitation and mechanical power input.	2	30	Chalk and Talk
23	Analysis of short circuit current wave form	2	32	Chalk and Talk
24	Determination of sub-transient, transient and steady state reactances	2	34	Chalk and Talk
25	**Short circuit Ratio (SCR), SCR relation with synchronous reactance**	1	35	Chalk and Talk
UNIT – IV : SYNCHRONOUS MOTORS – PRINCIPLE OF OPERATION				
26	Theory of operation – phasor diagram	1	36	Chalk and Talk
27	Variation of current and power factor with excitation synchronous condenser	3	39	Chalk and Talk
28	Mathematical analysis for power developed	1	40	Chalk and Talk

29	Numericals	2	42	Chalk and Talk
30	Introduction to Excitation and power circles	1	43	Chalk and Talk
31	Hunting and its suppression	1	44	Chalk and Talk
32	Methods of starting.	1	45	Chalk and Talk
33	Synchronous induction motor	1	46	Chalk and Talk
UNIT – V : SINGLE PHASE MOTORS AND SPECIAL MOTORS				
34	Single phase induction motor – Constructional features	2	48	Chalk and Talk
35	Double revolving field theory	2	50	Chalk and Talk
36	Elementary idea of cross-field theory	1	51	Chalk and Talk
37	Split-phase motors , Shaded pole motor.	2	53	Chalk and Talk
38	Characteristics, Applications	2	55	Chalk and Talk
39	Numericals	2	57	Chalk and Talk
40	Principle & performance of A.C. Series motor	1	58	Chalk and Talk
41	Universal motor	1	59	Chalk and Talk
42	Principle of permanent magnet and reluctance motors	1	60	Chalk and Talk