

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2016–17

Class: III B. Tech

Branch: EEE

Semester: I

Subject: Electrical Machines - III

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Synchronous machines and characteristics		
1	Introduction to Electrical machines III	13 June 2016
2	Constructional features of wound rotor	14 June 2016
3	Constructional features of salient pole machines	16 June 2016
4	Armature windings, Integral slot and fractional slot windings	18 June 2016
5	Tutorial (G3, G1, G2) –Basic definitions	14, 15, 18 June 2016
6	Distributed and concentrated windings	20 June 2016
7	E.M.F equation	21 June 2016
8	Harmonics in generated EMF, suppression of harmonics	23 June 2016
9	Armature reaction, Leakage reactance	25 June 2016
10	Tutorial (G3, G1, G2) –Problems related to EMF equation	21, 22, 25 June 2016
11	Synchronous reactance and impedance-experimental determination	27 June 2016
12	Phasor diagram,	28 June 2016
13	load characteristics	30 June 2016
14	load characteristics	2 July 2016
15	Tutorial (G3, G1, G2) – Problems related to phasors	28, 29 June, 2 July 2016
UNIT – II: Regulation of Synchronous Generators		
16	Regulation by synchronous impedance method	4 July 2016
17	M.M.F method	5 July 2016
18	Z.P.F method	9 July 2016
19	Tutorial (G3, G2) – Problems related to E.M.F method	5, 9 July 2016
20	A.S.A methods	11 July 2016
21	Comparison between Z.P.F method and A.S.A method	12 July 2016
22	Salient pole alternators-two reaction analysis	14 July 2016
23	Experimental determination of X_d and X_q (slip test) phasor diagrams	16 July 2016
24	Tutorial (G3, G1, G2) – Problems related to M.M.F method	11,12,16 July 2016
25	Regulation of salient pole alternators	18 July 2016
UNIT-III: Parallel operation of Synchronous Generator		
26	Synchronizing alternators with infinite bus bars	19 July 2016
27	Synchronizing power and torque	21 July 2016
28	Parallel operation	23 July 2016
29	Tutorial (G3, G1, G2) – Problems related to Z.P.F method	19, 20, 23 July 2016
30	load sharing	25 July 2016
31	Effect of change of excitation	26 July 2016
32	Mechanical power input	28 July 2016
33	Analysis of short circuit current wave form	30 July 2016
34	Tutorial (G3, G1, G2) – Problems related to A.S.A method	26, 27, 30 July 2016
35	Determination of sub-transient reactance	2 August 2016
36	Determination transient and steady state reactance's	4 August 2016
37	Revision	6 August 2016
38	Tutorial (G3, G1, G2) – Problems related to A.S.A method	2, 4, 6 August 2016
UNIT-IV: Synchronous Motors and Power circles		
39	Theory of operation	16 August 2016
40	Phasor diagram	18 August 2016

41	Variation of current excitation	20 August 2016
42	Tutorial (G3, G1, G2) – Problems related to A.S.A method	16,17,20 August 2016
43	Variation of power factor with excitation	22 August 2016
44	Variation of current and power factor with excitation	23 August 2016
45	Synchronous condenser	27 August 2016
46	Tutorial (G3, G1, G2) – Problems related to A.S.A method	23,24,27 August 2016
47	Mathematical analysis for power developed	29 August 2016
48	Excitation and power circles	30 August 2016
49	Excitation and power circles	1 September 2016
50	Hunting and its suppression	3 September 2016
51	Tutorial (G3, G1, G2) – Problems related to power circle	30,31 August, 3 September 2016
52	Methods of starting-synchronous induction motor	6 September 2016
53	Revision	8 September 2016
UNIT-V: Single phase Motors and special motors		
54	Single phase motors (introduction)	10 September 2016
55	Tutorial (G3, G1, G2) – Problems related to power circle	6,7,10 September 2016
56	Single phase induction motor	13 September 2016
57	Constructional features	15 September 2016
58	Double field revolving theory	17 September 2016
59	Tutorial (G3, G1, G2) – Problems related to power circle	13, 14, 17 September 2016
60	Double field revolving theory	19 September 2016
61	Elementary idea of cross field theory	20 September 2016
62	Split phase motors	22 September 2016
63	Split phase motors	24 September 2016
64	Tutorial(G3, G1, G2): objective questions	20,21,24 September 2016
65	Principle of A.C series motor	26 September 2016
66	Principle of A.C series motor	27 September 2016
67	Principle and performance of Universal motor	29 September 2016
68	Principle and performance of Universal motor	1 October 2016
69	Tutorial: problems related to single phase motors	27, 28 September, 1 October 2016
70	Shaded pole motors	3 October 2016
71	Shaded pole motors	4 October 2016
72	Tutorial (G3): Seminars	4 October 2016
73	Stepper Motor	27 October 2016
74	Stepper Motor	29 October 2016
75	Tutorial (G2): Seminars	29 October 2016
76	Revision	1 November 2016
77	Previous question papers	3 November 2016
78	Tutorial(G3, G1): Previous question papers	1,2 November 2016

Text books:

1. I.J.Nagarath & D.P.Kothari, "Electrical Machines", 3/e, TMG, 2006
2. P.S.Bimbra, "Electrical Machines", 7/e, Khanna publishers
3. S.Kamakashia, "Electro mechanics-III", 3/e, Right Publishers

Name and signature of the faculty: S.Deepthi ----

Name and signature of Head of the Department: Y.Mastanamma ----