

# Bhoj Reddy Engineering College for Women: Hyderabad

## Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2018-19

Class: II B Tech

Branch-Section: EEE

Semester: I

Subject: Electrical Machines-I

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
<b>UNIT – I: DC Generators</b>		
1	Introduction to DC machines	9 July 2018
2	Principle of operation–single coil dynamo operation, Action of commutator	10 July 2018
3	Constructional features	11 July 2018
4	Armature windings, Use of laminated core	13 July 2018
5	Lap and Wave winding	14 July 2018
6	Simplex and multiplex windings	16 July 2018
7	Numerical on Armature windings	17 July 2018
8	EMF equation	18 July 2018
9	Tutorial: Numerical problems on EMF equation	20 July 2018
10	Cross magnetizing and demagnetizing AT/Pole	21 July 2018
11	Armature reaction	23 July 2018
12	Commutation	24 July 2018
13	Reactance voltage	25 July 2018
14	Tutorial: Problems on AT/pole,	27 July 2018
15	Methods of Excitation	28 July 2018
16	Separately & Self excited generators	30 July 2018
17	Critical field resistance and critical speed	31 July 2018
18	Causes for failure to self-excite and remedial measures	1 August 2018
19	Tutorial: Numerical on commutation	3 August 2018
20	Load characteristics of shunt generator	4 August 2018
21	Load characteristics of series generator	7 August 2018
22	Load characteristics of compound generators	8 August 2018
<b>UNIT-II: DC Motors</b>		
23	DC motor–Principle of operation	10 August 2018
24	Tutorial: Problems on motors	11 August 2018
25	Torque equation	13 August 2018
26	Characteristics of series and shunt motors	17 August 2018
27	Characteristics of compound motors, Applications of motors	18 August 2018
28	Constant & variable losses	20 August 2018
29	Tutorial: Armature Reaction, Commutation	24 August 2018
30	Speed control of DC motors, Armature Voltage control	25 August 2018
31	Field flux control method	27 August 2018
32	3-point starters, 4–point starters Losses, Constant & variable losses	28 August 2018
33	Calculation of efficiency, Condition for maximum efficiency	29 August 2018
34	Tutorial: Numerical problems on back emf, efficiency	31 August 2018
<b>UNIT-III</b>		
36	Methods of Testing direct, indirect & regenerative Testing	1 September 2018
37	Brake Test, Swinburne's test	7 September 2018
38	Hopkinson's test	8 September 2018
39	Field's test	10 September 2018
40	Tutorial: Numerical problems on brake and Swinburne's tests	11 September 2018
41	Separation of stray losses in a DC motor test	12 September 2018
<b>UNIT-IV: Single Phase Transformers</b>		
42	Constructional details	14 September 2018
43	Single phase transformers –types	15 September 2018

Lecture Number	Topics to be covered	Date (s)
44	Tutorial: Problems on Hopkinson's and Field's tests	17 September 2018
45	EMF equation, Problems	19 September 2018
46	Operation on no-load – Phasor diagram	22 September 2018
47	Operation on Load – Phasor diagram	24 September 2018
48	Equivalent circuit	25 September 2018
49	Regulation	26 September 2018
50	Tutorial: Problems on EMF equation	28 September 2018
51	Losses & Minimization of iron losses	29 September 2018
52	Efficiency & All-day efficiency	1 October 2018
53	Effect of variations of frequency & supply voltage on iron losses	3 October 2018
54	Tutorial: Problems on regulation and losses	5 October 2018
<b>UNIT-V</b>		
55	OC and SC Tests	6 October 2018
56	Sumpner's Test	8 October 2018
57	Separation of losses test	10 October 2018
58	Tutorial: Problems on OC & SC tests	12 October 2018
59	Problems on sumpner's and separation of losses tests	13 October 2018
60	Parallel operation with equal voltage ratios	22 October 2018
61	Parallel operation with unequal voltage ratios	23 October 2018
62	Tutorial: Problems on parallel operation	24 October 2018
63	Auto transformers - Equivalent circuit	26 October 2018
64	Comparison with two winding transformer	27 October 2018
65	Problems on auto transformer	29 October 2018
66	Poly phase connections - Y/Y, Y/delta, delta/Y and open delta	30 October 2018
67	Tutorial: Discussion of previous question papers	31 October 2018
68	Discussion of previous question papers	2 November 2018
69	Assignment - II	3 November 2018
70	Revision	5 November 2018
71	Revision	6 November 2018
72	Revision	9 November 2018
73	Revision	10 November 2018

**Text books:**

1. Dr. P. S. Bimbhra, "Electrical Machines", 7/e, Khanna Publishers, 2014.
2. V. K. Mehta, Rohit Mehta, "Principles of Electrical Machines", 2/e, S. Chand Publishers, 2015.

Name and signature of the faculty: Mrs Deepti S

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Name and signature of Head of the Department: Mrs Manju Bhargavi R

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