

# Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2017–18

Class: III B Tech

Branch Section: EEE

Semester: II

Subject: Static Drives

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
<b>UNIT-I: Control of DC Motors through Phase Controlled Rectifiers</b>		
1	Introduction to Thyristor controlled drives	18 December 2017
2	Single phase semi and fully controlled converters with dc separately excited motor	20 December 2017
3	Numerical	20 December 2017
4	Single phase semi and fully controlled converters with series motors, $V_o$ & $I_o$ waveforms	23 December 2017
5	Tutorial (G3, G1, G2) Numerical	19,20,22 December 2017
6	Speed & torque expressions	27 December 2017
7	Numerical	27 December 2017
8	N-T characteristics of dc series motor	30 December 2017
9	Tutorial (G3, G1, G2) Numerical	26,27,29 December 2017
10	Problems on converter fed dc motors	03 January 2018
11	Numerical	03 January 2018
12	3-phase semi and fully controlled converters with dc separately excited motor	06 January 2018
13	Tutorial (G3, G1, G2) Numerical	02,03,05 January 2018
14	3-phase semi and fully controlled converters connected with series motors	08 January 2018
15	Speed & torque characteristics of dc motor with 3- phase converters	10 January 2018
16	Numerical	10 January 2018
17	Problems on 3- phase converter fed dc motors	13 January 2018
18	Tutorial (G3, G1, G2) Numerical	09,10,12 January 2018
<b>UNIT-II: Four Quadrant Operation of DC Drives through Dual Converters</b>		
19	Introduction to quadrant operation of dc drives	17 January 2018
20	4 quadrant operation of dc drives	17 January 2018
21	Numerical	20 January 2018
22	Tutorial (G3, G1, G2) Numerical	16,17,19 January 2018
23	4 quadrant operation of dc drives	22 January 2018
24	Electric braking- plugging, dynamic	24 January 2018
25	Regenerative braking	24 January 2018
26	Closed loop operation of dc motor using dual converter	27 January 2018
27	Tutorial (G3, G1, --) Numerical	23,26 January 2018
28	Closed loop operation of dc motor using dual converter	29 January 2018
<b>UNIT-III: Control of DC Motors by Choppers (1-, 2-, 4- Quadrant Operations)</b>		
29	Single & two quadrant chopper fed dc separately excited motor	31 January 2018
30	Numerical	31 January 2018
31	Single & two quadrant chopper fed dc series excited motor	03 February 2018
32	Tutorial (G3, G1, G2) Numerical	30,31 January 2018, 02 February 2018
33	Speed & torque expressions & N-T characteristics	05 February 2018
34	Tutorial (G3, G1, --) Numerical	06,07 February 2018
35	4 quadrant chopper fed dc separately excited motor	12 February 2018
36	4 quadrant chopper fed dc series excited motor	14 February 2018
37	Waveforms	14 February 2018
38	4 quadrant chopper fed dc series excited motor with waveforms	17 February 2018

39	Tutorial (--, G1, G2) Numerical	14,16 February 2018
40	Closed loop operation with block diagram	19 February 2018
41	Problems on chopper fed dc motors	21 February 2018
<b>UNIT-IV: Control of Induction Motors</b>		
42	Control of IM by AC voltage controller	21 February 2018
43	Waveforms	20,21,23 February 2018
44	Speed & torque characteristics of INDUCTION MOTOR -2	26 February 2018
45	Variable frequency control of I.M by CSI	28 February 2018
46	Variable frequency control of I.M by Cyclo- converter& PWM control	28 February 2018
47	Comparison of VSI&CSI operations	03 March 2018
48	Tutorial (G3, G1, G2) Numerical	27,28 February 2018, 02 March 2018
49	Speed & torque characteristics of I.M using VSI&CSI	05 March 2018
50	Problems on I.M drives	07 March 2018
51	Closed loop operation of I.M drives using block diagram	07 March 2018
52	Problems on I.M drives	10 March 2018
53	Control of I.M from rotor side	06,07,09 March 2018
54	Slip power recovery performance& N-T characteristics	12 March 2018
55	Static Scherbius drive performance& N-T characteristics	14 March 2018
56	Static Kramer drive performance& N-T characteristics	14 March 2018
57	Advantages of different types of control & Applications	17 March 2018
58	Tutorial (G3, G1, G2) Numerical	13,14,16 March 2018
<b>UNIT-V: Control of Synchronous Motors</b>		
59	Separate & self-control of synchronous motor.	19 March 2018
60	Tutorial (G1, G2, G3)	21 March 2018
61	Operation of self-controlled synchronous motor by VSI & CSI	21 March 2018
62	Operation of self-controlled synchronous motor by Cyclo-converter	24 March 2018
63	Tutorial (G3, G1, G2) Numerical	20,21,23 March 2018
64	Load commutated CSI fed synchronous motors	28 March 2018
65	Applications & Advantages of different types of control	31 March 2018
66	Tutorial (G3, G1, --) Numerical	27,28 March 2018
67	Closed loop operation of synchronous motor (block diagram) Variable frequency control, PWM, VSI, CSI	02 April 2018
68	Tutorial G3 Revision	03 April 2018

**Text Books:**

1. Power Semiconductor Drives, PV Rao, BS Publication
2. Fundamental of Electric Drive, G K Dubey Narosa Publication
3. S. B. Dewan, G. R. Slemon, A. Straughen, "Power Semiconductor Drives", Wiley Pvt Ltd.
4. Vedam Subramanyam, "Thyristor Control of Electric drives", Tata McGraw Hill Publications.
5. Bimal K. Bose, "Power Electronics and Variable Frequency Drives Technology and Applications", Wiley India Pvt. Ltd.

Name and signature of the faculty: Pramod Singh -

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