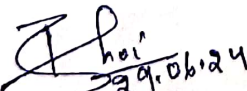



LESSON PLAN FOR ACADEMIC SESSION 2024-25(WINTER-2024)

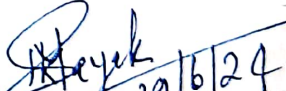
Discipline: Electrical Engineering		Semester:5th	Name of Teaching faculty:Pratima Bhoi		
Subject:Power Electronics & PLC		Semester From Date:01.07.2024 to 08.11.2024			
SI NO.	WEEK	DATE	CHAPTER	THEORY TOPIC NAME	NO. OF PERIODS
1	1st	1.07.24	UNDERSTAND THE CONSTRUCTION AND WORKING OF POWER ELECTRONIC DEVICES CHAPTER-01	Introduction to Power Electronics	1
2		2.07.24		1.1 Construction , Operation , V-I Characteristics & application of Power diode & DIAC	1
3		4.07.24		1.1 Construction , Operation , V-I C haracteristics & application of SCR	1
4		5.07.24		1.1 Construction , Operation , V-I Characteristics & application of TRIAC	1
5	2nd	8.07.24		1.1 Construction , Operation , V-I Characteristics & application of Power MOSFET.	1
6		9.07.24		Continue.....	1
7		11.07.24		1.1 Construction , Operation , V-I C haracteristics & application of GTO & IGBT.	1
8		12.07.24		1.2 Two Transistor analogy of SCR.	1
9	3rd	15.07.24		1.3 Gate characteristic of SCR.	1
10		16.07.24		1.4 Switching characteristics of SCR during Turn on and turn off Time.	1
11		18.07.24		1.5 Turn on method of SCR.	1
12		19.07.24		1.6 Turn off methodes of SCR (Line commutation and forced commutation)	1
13	4th	22.07.24		1.6.1 Load Commutation	1
14		23.07.24		1.6.2 Resonance pulse Commutation	1
15		25.07.24		1.7 voltage and current rating of SCR	1
16	5th	26.07.24		1.8 Protection of SCR 1.8.1 Over volatge protection 1.8.2 over current protection 1.8.3 Gate protection	1
17		29.07.24		1.9 Firing circuit 1.9.1 General layout diagram of firing circuit 1.9.2 R firing circuits	1
18		30.07.24		1.9.3 R-C firing circuit	1
19	6th	1.08.24		1.9.4 UJT Pulse trigger circuit	1
20		2.08.24		1.9.5 Synchronous triggering (Ramp Triggering) 1.10 Design of Snubber Circuits	1
21		5.08.24		Doubt Clearing	1
22	6th	6.08.24		2.1 Controlled rectifier Technioques(Phase Angle , Extinction Angle control) , single quadrant semi converter, two quadrant full converter and dual converter.	1
23		8.08.24		2.2 Working of Single-phase half wave controlled converter with Resistive (R) loads.	1

24		9.08.24		2.2 Working OF Single-phase half wave controlled converter with R-L load	1
25	7th	12.08.24	UNDERSTAND THE WORKING OF CONVERTERS, AC REGULATORS AND CHOPPERS CHAPTER-02	2.3 Understand need of Freewheeling diode.	1
26		13.08.24		2.4 working of single phase fully controlled converter with resistive load.	1
27		16.08.24		2.4 Working of single phase fully controlled converter with R-L load.	1
28	8th	20.08.24		2.5 Working of three -phase half wave controlled converter with resistive load	1
29		22.08.24		Continue.....	1
30		23.08.24		2.6 Working of three phase fully controlled converter with resistive load	1
31	9th	27.08.24		2.7 Working of single phase AC regulator 2.8 Working principle of step up chopper	1
32		29.08.24		2.8 Working principle of step down chopper	1
33		30.08.24		2.9 control mode of chopper 2.10 Operation of chopper in all four quadrants	1
34	10th	2.09.24		Doubt Clearing	1
35		3.09.24	3.1 Classify inverters.	1	
36		5.09.24	3.2 Explain the working of series inverter.	1	
37		6.09.24	3.3 Explain the working of Parallel inverter.	1	
38	11th	9.09.24	UNDERSTAND THE INVERTERS AND CYCLO- CONVERTERS CHAPTER-03	3.4 Explain the Working of single-phase bridge inverter.	1
39		10.09.24		3.5 Explain the basic principle of Cyclo-converter.	1
40		12.09.24		3.6 Explain the Working of single -phase step-up Cyclo-Converter	1
41		13.09.24		3.6 Explain the Working of single -phase step-down Cyclo-converter. 3.7 Application of Cyclo-Converter .	1
42		17.09.24		Doubt Clearing	1
43	12th	19.09.24	UNDERSTAND THE APPLICATION OF POWER ELECTRONIC CIRCUIT CHAPTER-04	4.1 List application of power electronic circuits. 4.2 List the factors affecting the speed of D.C Motors.	1
44		20.09.24		4.3 Speed control for DC shunt motor using converter.	1
45	13th	23.09.24		4.4 Speed control for DC shunt motor using chopper.	1
46		24.09.24		4.5 List the factors affecting speed of the AC Motors.	1
47		26.09.24		4.6 Speed control of induction motor by using AC voltage regulator.	1
48		27.09.24		4.7 Speed control of induction motor by using converter and inverter (V/F control).	1
49	14th	30.09.24		4.8 Working of UPS with block diagram.	1
50		1.10.24		Continue.....	1
51		3.10.24		4.9 Battery charger circuit using SCR with the help of a diagram	1

52		4.10.24		4.10 Basic Switched mode power supply (SMPS). Explain its working & application	1	
53		14.10.24		Doubt Clearing	1	
54	15th	15.10.24	PLC AND ITS APPLICATION CHAPTER-05	5.1 Introduction of programmable Logic controller (PLC) 5.2 Advantages of PLC	1	
55		17.10.24		5.3 different parts of PLC by drawing the Block diagram and purpose of each parts of PLC 5.4 Application of PLC 5.5 Ladder diagram	1	
56		18.10.24		5.6 Description of contacts and coils in the following states i) Normally Open ii) Normally closed iii) Energized output iv) latched output v) branching	1	
57		21.10.24		5.7 Ladder diagram for i) AND Gate ii) OR Gate and iii) NOT Gate	1	
58	16th	22.10.24		5.8 Ladder diagram for combination circuit using NAND , NOR AND , OR and NOT	1	
59		24.10.24		5.9 Timers i) T ON II) T OFF and iii) Retentive timer 5.10 counter-CTU, CTD	1	
60		25.10.24		5.11 Ladder diagrams using Timers and counter 5.12 PLC instruction SET	1	
61	17th	28.10.24		5.13 Ladder diagram for following i) DOL starter and STAR-DELTA starter ii) Stair case lighting	1	
62		29.10.24		5.13 Ladder diagram for following iii) Traffic light control iv) Temperature controller	1	
63		01.11.24		5.14 Special control system- Basics DCS & SCADA systems	1	
64	18th	04.11.24		5.15 computers control-Data Acquisition, Direct Digital Co	1	
65		05.11.24		LAST YEAR QUESTION DISCUSSION	Previous year question discussion.....	1
66		07.11.24				1
67		08.11.24				1
				TOTAL CLASSES	67	


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