Discipline: Electrical
Sub:- Power Electronics.

Semister:- 5th.
No. of classes/weeks 05
2022 (Winter)

Name of the faculty: Priyanka Pandey
Semester from: 15.09.22 – 22.12.22

Weeks	class/day	Theory topics
15.09.2022 to 17.09.2022	1st	Constn, operation, VI ch. & applicatn of power diode, SCR, DIAC, TRIAC, Power MOSFET, GTO, IGBT
	2nd	Two transistor analogy of SCR & Gate characteristics of SCR
19.09.2022 to 24.09.2022	1st	Switching characteristics of SCR during turn on & turn off.
	2nd	Turn on method of SCR & turn off methods of SCR.
	3rd	Load commutation & Resonant pulse commutation.
	4th	Voltage & Current ratings of SCR
	5th	Over voltage protection.
26.09.2022 to 1.10.2022	1st	Over current protection &
	2nd	Gate protection
	3rd	General layout diagram of firing circuit.
	4th	R-firing circuit and R-C firing circuit.
	5th	UJT pulse trigger circuit Synchronous triggering.
3.10.2022 to 8.10.2022	1st	
	2nd	
	3rd	
	4th	
	5th	

VIJAYA DASAMI

Weeks	class/day	Theory topics.
	1st	Design of snubber circuit
		Controlled rectifiers Techniques
	2nd	(Phase Angle, Extinction Angle control), Single quadrant
10.10.22		semi converter, two quadrant
to		full converter and dual converter
	3rd	Working of single phase half
15.10.2022		wave controlled converter with
		resistive & R-L load
	4th	Understand need of freewheeling
		diode.
	5th	Working of single phase fully
		controlled converter with
		resistive and R-L loads
	1st	Working of three-phase half
		wave controlled converter with
		resistive load.
17.10.22	2nd.	Working of three phase fully
to		controlled converter with
22.10.2022		resistive load
	3rd	Working of single phase
		AC regulator.
	4th	Working principle of step up
		& step down chopper.
	5th.	Operation of chopper in
		all four quadrant &
		control mode.

Weeks	class/day	Theory
	1st	← Diwali →
24.10.22	2nd	classify inverters. Working series inver
to	3rd	Explain the working of parallel inverter.
29.10.22	4th	Explain working of single phase bridge.
	5th	Basic principle of cycloconverter.
		Explain working of single phase step up
31.10.22	1st	step down cyclo converter.
to	2nd	Application of cyclo-converter.
5.11.22	3rd	list appn of power electronics circuit
	4th	List factor affecting the speed DC motors
	5th.	Speed control of DC shunt motor using converter.
	1st	Last Monday of Kartik Rahas purnima.
	2nd	
7.11.22	3rd	Speed control for DC shunt motor using chopper.
to	4th	List the factors affecting speed of the AC motors.
12.11.22	5th.	Speed control of Induction motor by using AC voltage regulator.
	6th	
	1st	Speed control for DC shunt motor using chopper converters & Inverters (V/F control)
14.11.22		Working of UPS with block
to		diagram.

	2nd	Battery charger circuit using SCR with the help of a diagram.
	3rd.	Prathamastami
19.11.22	4th.	Basic (Switched mode power supply (SMPS) - Explain its working and applications.
	5th	Introduction of Programmable Logic controller. (PLC)
21.11.22 to 26.11.22	1st.	Advantages of PLC
	2nd	Different parts of PLC by drawing the Block diagram & purpose of each part of PLC.
	3rd.	Different parts of PLC by drawing the block diagram & purpose of each part of PLC.
	4th	Applications of PLC
	5th	Ladder diagram.
28.11.22 to 3.12.22	1st	Description of contacts and coils in the following states i) Normally open ii) Normally closed
	2nd	Descriptions of contacts and coils in the following states i) Energized output ii) Latched output.

	3rd	Ladder diagrams for i) AND gate ii) OR gate iii) NOT gate.
	4th.	Ladder diagram for combination circuits using NAND, NOR, AND, OR and NOT
	5th.	Ladder diagram for combination circuits using NAND, NOR, AND OR
5.12.22 to 10.12.2022	1st	Timers - i) T ON ii) T OFF iii) Retentive timer.
	2nd	Counters - CTU, CTD
	3rd	Ladder diagrams using Timers and counters.
	4th.	Last thursday of Margasira.
	5th.	LC instruction set.
12.12.22 to 17.12.22	1st	DOL starter and star-delta starter
	2nd	Stair case lighting.
	3rd.	Traffic light control.
	4th.	Temperature control.
	5th.	4 special control systems. Basics DCS & SCADA s/m.
19.12.22 to 24.12.22	1st	4 special control system. Basic DCS & SCADA system.
	2nd.	Computer control Data Acquistion, Direct Digital control system.
	3rd.	Computer control Data Aquistion, Direct Digital control system.

15/09/2022