

Discipline :
Electrical
Sub: Power Electronics.

Semester: - 5th.

No. of classes/weeks

05

2022 (Winter)

Name of the
Faculty:

Pratimika Pandey

Semester from: 15.09.22 - 22.12.22

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

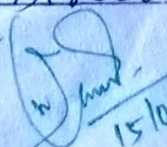
VIJAYA DASAMI

Weeks	class/day	Theory topics
10.10.22 to 15.10.2022	1st	Design of snubber circuit
	2nd	Controlled rectifiers Techniques (Phase Angle, Extinction Angle control), Single quadrant semi converter, two quadrant full converter and dual converter
	3rd	Working of single phase half 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
17.10.22 to 22.10.2022	1st	Working of three-phase half wave controlled converter with resistive load.
	2nd	Working of three phase fully controlled converter with 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 quadrants & control mode.

Weeks	class/day	Theory
	1st	← Dewali →
24.10.22	2nd	classify inverters, Working series inverter
to	3rd	Explain the working of parallel inverter.
29.10.22	4th	Explain working of single phase bridge.
	5th	Basic principle of cycloconverter.
31.10.22	1st	Explain working of single phase step up step down cyclo converter.
to	2nd	Application of cyclo-converter.
5.11.22	3rd	List app ⁿ 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
	2nd	Rahas purnima.
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	to	Working of UPS with block diagram.

	2nd	Battery charger circuit using SCR with the help of a diagram.
19.11.22	3rd. 4th.	Prathamastami 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. 2nd.	Advantages of PLC 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 5th	Applications of PLC Ladder diagram.
28.11.22 to 3.12.22	1st 2nd	Description of contacts and coils in the following states i) Normally open ii) Normally closed. Descriptions of contacts and coils in the following states i) Energized output ii) latched output.

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

Seen  15/09/2022