LESSON PLAN (WINTER-2023)			
Discipline: Electrical		Semester:5 th Sem	Name of the Teaching Faculty: Mrs. Jayashree Mohanty (Sr. Lect. Electrical Engg)
Subject: Power Electronics and PLC	Date	Theory Periods: 4P/Week	Semester From Date:-01.08.23 to Date:- 30.11.23 No. of Weeks:18
1st Week	02.08.23	1st	Construction, Operation, V-I characteristics & application of power diode
	04.08.23	2nd	Construction, Operation, V-I characteristics & application of SCR
	05.08.23	3rd	Construction, Operation, V-I characteristics & application of DIAC
2nd Week	07.08.23	1st	Construction, Operation, V-I characteristics & application of TRIAC
	09.08.23	2nd	Construction, Operation, V-I characteristics & application of Power MOSFET
	11.08.23	3rd	Construction, Operation, V-I characteristics & application of GTO
	12.08.23	4th	Construction, Operation, V-I characteristics & application of IGBT
3rd Week	14.08.23	1st	Two transistor analogy of SCR,Gate characteristics of SCR.
	16.08.23	2nd	Switching characteristic of SCR during turn on and turn off.
	18.08.23	3rd	Turn on methods of SCR
	19.08.23	4th	Turn off methods of SCR (Line commutation and Forced commutation) (i)Load Commutation (ii) Resonant pulse commutation
4th Week	21.08.23	1st	Voltage and Current ratings of SCR,Protection of SCR,Over voltage protection
	23.08.23	2nd	Over current protection,Gate protection
	25.08.23	3rd	Firing Circuits,General layout diagram of firing circuit
	26.08.23	4th	R firing circuits
5th Week	28.08.23	1st	R-C firing circuit
	01.09.23	2nd	UJT pulse trigger circuit,Synchronous triggering (Ramp Triggering)
	02.09.23	3rd	Design of Snubber Circuits
6th Week	04.09.23	1st	Controlled rectifiers Techniques(Phase Angle, Extinction Angle control), Single
	08.09.23	2nd	Working of single-phase half wave controlled converter with R-L loads,Understand need of freewheeling diode.
	09.09.23	3rd	Working of single phase fully controlled converter with resistive and R- L loads.
7th Week	11.09.23	1st	Working of single phase fully controlled converter with resistive and R- L loads.
	13.09.23	2nd	Working of three-phase half wave controlled converter with Resistive load
	15.09.23	3rd	Working of three phase fully controlled converter with resistive load
	16.09.23	4th	Working of single phase AC regulator
8th Week	18.09.23	1st	Working principle of step up & step down chopper
	22.09.23	2nd	Control modes of chopper,Operation of chopper in all four quadrants.
	23.09.23	3rd	Operation of chopper in all four quadrants.
9th Week	25.09.23	1st	Operation of chopper in all four quadrants.
	27.09.23	2nd	Operation of chopper in all four quadrants.
	30.09.23	3rd	Classify inverters,Explain the working of series inverter.
10th Week	04.10.23	1st	Explain the working of parallel inverter
	06.10.23	2nd	Explain the working of single-phase bridge inverter.
	07.10.23	3rd	Explain the basic principle of Cyclo-converter,Explain the working of single-phase step up & step down Cyclo-converter,Applications of Cyclo-converter

11th Week	09.10.23	1st	List applications of power electronic circuits,List the factors affecting the speed of DC Motors,Speed control for DC Shunt motor using converter.
	11.10.23	2nd	Speed control for DC Shunt motor using chopper
	13.10.23	3rd	List the factors affecting speed of the AC Motors,Speed control of Induction Motor by
	14.10.23	4th	Speed control of induction motor by using converters and inverters (V/F control).
12th Week	16.10.23	1st	Working of UPS with block diagram.
	18.10.23	2nd	Battery charger circuit using SCR with the help of a diagram
	20.10.23	3rd	Basic Switched mode power supply (SMPS) - explain its working & applications
14th Week	30.10.23	1st	Introduction of Programmable Logic Controller(PLC),Advantages of PLC,Different parts of
	01.11.23	2nd	Assignment
	03.11.23	3rd	Ladder diagram,Description of contacts and coils in the following states
	04.11.23	4th	Ladder diagrams for combination circuits using NAND,NOR, AND, OR and NOT
15th Week	06.11.23	1st	Timers-i)T ON ii) T OFF and iii)Retentive timer
	08.11.23	2nd	Counters-CTU, CTD,Ladder diagrams using Timers and counters
	10.11.23	3rd	PLC Instruction set,Ladder diagrams for following
	11.11.23	4th	(ii)Stair case lighting
16th Week	13.11.23	1st	(iii) Traffic light Control
	15.11.23	2nd	(iv) Temperature Controller
	17.11.23	3rd	Special control systems- Basics DCS
	18.11.23	4th	SCADA systems
17th Week	20.11.23	1st	Computer Control–Data Acquisition
	22.11.23	2nd	Direct Digital Control System (Basics only)
	24.11.23	3rd	Tutorial
	25.11.23	4th	Tutorial
18th Week	29.11.23	1st	Tutorial

Mohan
31.07.2023
(Sr. Lect. Elect)