DISCIPLINE – ELECTRICAL ENGG	SEMESTER 5TH	NAME OF THE TEACHING FACULTY- ASIT KUMAR SAHOO, PTGF(ELECT.)	
SUB-PE & PLC	No Of Days Per Week Class Alloted-4	SEMESTER FROM 19.04.2021 TO 13.08.2021 NO OF WEEK – 17 WEEKS	
WEEK	CLASS DAY	THEORY	STATUS
1ST WEEK	1ST day 2nd day 3rd day 4th day 5TH day	Construction, Operation, V-I characteristics & application of power diode, SCR, DIAC,TRIAC, Power MOSFET,GTO &IGBT Two transistor analogy of SCR. Gate characteristics of SCR. Switching characteristic of SCR during turn on and turn off. Turn on methods of SCR.	completed
2nd WEEK	1ST day 2nd day 3rd day 4th day 5TH day	Turn off methods of SCR (Line commutation and Forced commutation) Load Commutation Resonant pulse commutation Voltage and Current ratings of SCR. Protection of SCR	completed
3RD WEEK	1ST day 2nd day 3rd day 4th day 5TH day	Over voltage protection Over current protection Gate protection Firing Circuits General layout diagram of firing circuit R firing circuits R-C firing circuit UJT pulse trigger circuit Synchronous triggering (Ramp Triggering) Design of Snubber Circuits	completed
4TH WEEK	1ST day 2nd day &3rd day	UNDERSTAND THE WORKING OF CONVERTERS, AC REGULATORS AND CHOPPERS. Controlled rectifiers Techniques(Phase Angle, Extinction Angle control), Single quadrant semi converter, two quadrant full converter and dual Converter	completed

	4th day(govt holiday) 5th day	Working of single-phase half wave controlled converter with Resistive and R-L loads. Understand need of freewheeling diode.	
5TH WEEK	1ST day 2nd day &3rd day 4th day 5th day	Working of single phase fully controlled converter with resistive and R- L loads. Working of three-phase half wave controlled converter with Resistive load Working of three phase fully controlled converter with resistive load. Working of single phase AC regulator. Working principle of step up & step down chopper. Control modes of chopper Operation of chopper in all four quadrants	**completed**
6TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	**UNDERSTAND THE INVERTERS AND CYCLO-CONVERTERS** Classify inverters. Explain the working of series inverter.	**completed**
7TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	Explain the working of parallel inverter Explain the working of single-phase bridge inverter Explain the basic principle of Cyclo-converter. Explain the working of single-phase step up & step down Cyclo-converter. Applications of Cyclo-converter.	**completed**
8TH WEEK	1ST day 2nd day 3rd day(govt holiday) 4th day 5th day	. List applications of power electronic circuits. List the factors affecting the speed of DC Motors. Speed control for DC Shunt motor using converter. Speed control for DC Shunt motor using chopper. List the factors affecting speed of the AC Motors.	**completed**
9TH WEEK	1ST day(govt holiday) 2nd day 3rd day 4th day 5th day	Speed control of Induction Motor by using AC voltage regulator. Speed control of induction motor by using converters and inverters (V/F control). Working of UPS with block diagram. Battery charger circuit using SCR with the help of a diagram. Basic Switched mode power supply (SMPS) - explain its working & applications	**completed**

10TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	Introduction of Programmable Logic Controller(PLC) Advantages of PLC Different parts of PLC by drawing the Block diagram and purpose of each part of PLC. Applications of PLC	
11TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	Ladder diagram Description of contacts and coils in the following states i)Normally open ii) Normally closed iii) Energized output iv)latched Output v) branching Ladder diagrams for i) AND gate ii) OR gate and iii) NOT gate. Ladder diagrams for combination circuits using NAND,NOR, AND, OR and NOT	completed
12TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	Timers-i)T ON ii) T OFF and iii)Retentive timer Counters-CTU, CTD Ladder diagrams using Timers and counters PLC Instruction set	completed
13TH WEEK	1ST day(govt holiday) 2nd day 3rd day 4th day 5th day	Ladder diagrams for following (i) DOL starter and STAR-DELTA starter (ii) Stair case lighting (iii) Traffic light Control (iv) Temperature Controller	completed
14TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	Special control systems- Basics DCS & SCADA systems Computer Control–Data Acquisition, Direct Digital Control System (Basics only)	completed
15TH WEEK	1ST day 2nd day 3rd day 4th day 5th day	REVISION FOR EXAM	completed