

<b>Lesson Plan</b>			
	<b>Discipline:Electrical Engineering</b>	<b>Semester-5th Winter 2023</b>	<b>Name of the Teaching Faculty: Smt. Swati Sukla</b>
<b>Sl. No.</b>	<b>Subject-POWER ELECTRONICS AND PLC SEC-A</b>	<b>No. Of Days/Week Class allotted: 04</b>	<b>Semester From date: 07/08/2023 to date: 30/11/2023. No of weeks: 16</b>
	<b>Weeks/Months</b>	<b>Class Day</b>	<b>Topic</b>
1	1st Week	1st (07/08/2023)	1.1 Construction, Operation, V-I characteristics & application of power
		2nd (08/08/2023)	1.2 Two transistor analogy of SCR.
		3rd (09/08/2023)	1.5 Turn on methods of SCR.
		4th (10/08/2023)	1.6 Turn off methods of SCR (Line commutation and Forced commutation)
	2nd Week	1st (14/08/2023)	1.6.1 Load Commutation
		2nd (16/08/2023)	1.6.2 Resonant pulse commutation
		3rd (17/08/2023)	1.7 Voltage and Current ratings of SCR.
3	3rd Week	1st (21/08/2023)	1.8 Protection of SCR
		2nd (22/08/2023)	1.8.1 Over voltage protection
		3rd (23/08/2023)	1.8.2 Over current protection 1.8.3 Gate protection
		4th (24/08/2023)	1.9 Firing Circuit 1.9.1 General layout diagram of firing circuit
4	4th Week	1st (28/08/2023)	1.9.2 R firing circuits
		2nd (29/08/2023)	1.9.3 R-C firing circuit
		3rd (31/08/2023)	1.9.4 UJT pulse trigger circuit 1.10 Synchronous triggering (Ramp Triggering )
5	5th Week	1st (04/09/2023)	2.1 Controlled rectifiers Techniques(Phase Angle, Extinction Angle control), Single quadrant semi converter.
		2nd (05/09/2023)	2.2 Working of single-phase half wave controlled converter with Resistive and R-L loads.
		3rd (07/09/2023)	2.3 Understand need of freewheeling diode. 2.4 Working of single phase fully controlled converter with resistive loads.
6	6th Week	1st (11/09/2023)	2.5 Working of three-phase half wave controlled converter with Resistive load
		2nd (12/09/2023)	2.6 Working of three phase fully controlled converter with resistive load
		3rd (13/09/2023)	2.7 Working of single phase AC regulator.
		4th (14/09/2023)	2.8 Working principle of step up & step down chopper.
7	7th Week	1st (18/09/2023)	2.8 Working principle of step down chopper.
		2nd (21/09/2023)	2.9 Control modes of chopper
8	8th Week	1st (25/09/2023)	2.10 Operation of chopper in all four quadrants
		2nd (26/09/2023)	3.1 Classify inverters. 3.2 Explain the working of series inverter
		3rd (27/09/2023)	3.3 Explain the working of parallel inverter
		4th (28/09/2023)	3.4 Explain the working of single-phase bridge inverter.

9	9th Week	1st (03/10/2023)	3.5 Explain the basic principle of Cyclo-converter
		2nd (04/10/2023)	3.6 Explain the working of single-phase step up Cyclo-converter.
		3rd (05/10/2023)	3.6 Explain the working of single-phase step down Cyclo-converter.
10	10th Week	1st (09/10/2023)	3.7 Applications of Cyclo-converter. 4.1 List applications of power electronic circuits
		2nd (10/10/2023)	4.2 List the factors affecting the speed of DC Motors
		3rd (11/10/2023)	4.3 Speed control for DC Shunt motor using converter
		4th (12/10/2023)	4.4 Speed control for DC Shunt motor using chopper.
11	11th Week	1st (16/10/2023)	4.5 List the factors affecting speed of the AC Motors. 4.6 Speed control of Induction Motor by using AC voltage regulator.
		2nd (17/10/2023)	4.7 Speed control of induction motor by using converters and inverters (V/F control).
		3rd (18/10/2023)	4.8 Working of UPS with block diagram.
		4th (19/10/2023)	4.9 Battery charger circuit using SCR with the help of a diagram
12	12th Week	1st (30/10/2023)	4.10 Basic Switched mode power supply (SMPS) - explain its working & applications
		2nd (31/10/2023)	5.1 Introduction of Programmable Logic Controller(PLC) 5.2 Advantages of PLC
		3rd (01/11/2023)	5.3 Different parts of PLC by drawing the Block diagram and purpose of each part of PLC. 5.4 Applications of PLC
		4th (02/11/2023)	5.5 Ladder diagram
13	13th Week	1st (06/11/2023)	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
		2nd (07/11/2023)	5.7 Ladder diagrams for i) AND gate ii) OR gate and iii) NOT gate.
		3rd (08/11/2023)	5.8 Ladder diagrams for combination circuits using NAND, NOR, AND, OR and NOT
		4th (09/11/2023)	5.9 Timers-i) T ON ii) T OFF and iii) Retentive timer
14	14th Week	1st (13/11/2023)	5.10 Counters-CTU, CTD
		2nd (14/11/2023)	5.11 Ladder diagrams using Timers and counters
		3rd (15/11/2023)	5.12 PLC Instruction set
		4th (16/11/2023)	5.13 Ladder diagrams for following (i) DOL starter and STAR-DELTA starter
15	15th Week	1st (20/11/2023)	5.13 Ladder diagrams for following (ii) Stair case lighting
		2nd (21/11/2023)	5.13 Ladder diagrams for following (iii) Traffic light Control
		3rd (22/11/2023)	5.13 Ladder diagrams for following (iv) Temperature Controller
		4th (23/11/2023)	5.14 Special control systems- Basics DCS & SCADA systems
16	16th Week	1st (28/11/2023)	5.14 Special control systems- Basics DCS & SCADA systems
		2nd (29/11/2023)	5.15 Computer Control–Data Acquisition, Direct Digital Control System (Basics only)
		3rd (30/11/2023)	5.15 Computer Control–Data Acquisition, Direct Digital Control System (Basics only)