



POWER ELECTRONICS LAB

Objective:

- To verify the operation and characteristics of power electronic devices.

Course outcomes:

CO1: Study the Characteristics of SCR, MOSFET & IGBT

CO2: Design firing circuits of SCR

CO3: Study and control of power electronic converters

CO4: Design forced commutation circuits of SCR

List of Experiments:

1. Study of Characteristics of SCR, MOSFET & IGBT
2. Gate firing circuits for SCR's
3. Single -Phase Half controlled converter with R and RL load
4. Single -Phase fully controlled bridge converter with R and RL loads
5. Single -Phase AC Voltage Controller with R and RL Loads
6. Single -Phase Cyclo-converter with R and RL loads
7. Single -Phase dual converter with RL loads
8. Three- Phase full converter with RL-load.
9. Single -phase PWM inverter.
10. Single -phase diode bridge rectifier with R load and capacitance filter.

Additional Experiments:

1. Forced commutation circuits.
2. Single phase Parallel Inverter.

Lab Equipment with cost

S. No.	Item Description	Quantity	Cost (Rs.)
1	1- Φ Dual converter with R and L load kit,T/F 1kva 1:1 50 Hz	1	50,434.00
2	1- Φ Cyclo Converter with Resistive and Inductive load kit.	1	20,209.00
3	3- Φ Fully Bridge converter with firing circuit kit R & L loads tapping 3- Φ T/F	1	38,516.00
4	3- Φ Half Bridge converter with firing circuit kit R & L loads tapping 3- Φ T/F	1	38,516.00
5	Study characteristics of SCR, MOSFET, IGBT trainer kit	1	4,500.00
6	Forced communication circuit trainer kit	1	7,500.00
7	1- Φ A.C voltage controller kit R & L loads	1	10,815.00
8	1- Φ series inverter power circuit trainer kit R & L loads	1	12,750.00
9	1- Φ parallel inverter power circuit trainer kit R & L loads	1	13,450.00
10	1- Φ Half controlled power circuit & Firing circuit	1	11,865.00
11	1- Φ Full controlled power circuit & Firing circuit	1	7,375.00
12	R C Firing circuit kit	1	3,150.00
13	Regulated power supply (0-30V/2A)	3	8,580.00
14	Rheostats 200 Ω /2.8 A	2	5,440.00
15	Rheostats 50 Ω /2 A	10	19,970.00
16	Voltmeter's	21	23,494.00
17	Ammeter's	27	29,640.00
18	CRO's 30 MHz	10	159,120.00
19	Dual channel DSO 100MHz 1GHz Sampling	1	30,450.00
Total			4,95,774.00