

## Power Electronics Lab

**Objective:**

To study the characteristics of various power electronic devices and analyze firing circuits and commutation circuits of SCR.

To analyze the performance of single-phase and three-phase full-wave bridge converters with both resistive and inductive loads.

To understand the operation of AC voltage regulator with resistive and inductive loads.

To understand the working of Buck converter, Boost converter and inverters.



Sections Handled:III/II

**Major Equipment Details:**

S.No	Name of the Equipment	Quantity
1	R,RC & UJT Firing Module	1
2	Single Phase Fully Controlled Bridge Rectifier	1
3	DC Jones Chopper Using R & RL Loads	1
4	Single Phase Parallel Inverter With R & RL Loads	1
5	Single Phase Series Inverter With R & RL Loads	1
6	Study of SCR/MOSFET/IGBT/TRIAC/DIAC Characteristics Study Unit	1
7	Single Phase AC Voltage Controller With R & RL Loads	1
8	Forced Commutation Circuits Module (Class A,B,C,D & E)	1
9	Single Phase Cyclo Converter With R & RL Loads	1
10	Single Phase Half Controlled Bridge Converter With R & RL Load	1
11	Buck and Boost Chopper Trainer Kit	1
12	Single Phase IGBT Based PWM Inverter	1
13	Single Phase MCMURRAY Bridge With Accessories	1
14	M.C Ammeters (0-2)A	3
15	M.C Voltmeters (0-60)V	2

Faculty In charge with qualification: **P.Deepthi, M.Tech**

Lab Technical name with qualification: **N. Ramesh Babu, Diplamo**

Experiment list as per curriculum:

1. Study of characteristics of SCR, MOSFET and 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 Load
5. Single Phase AC Voltage Controller With R and RL Load
6. Single Phase Cyclo Converter With R and RL Load
7. Single Phase Bridge Inverter With R and RL Load
8. Single Phase Dual Converter With RL Load
9. Three phase Half Controlled Bridge Converter With RL Load
10. Three Phase Full Converter With RL Load
11. DC –DC Buck Converter
12. DC –DC Boost Converter
13. Single Phase PWM Inverter
14. Single Phase Diode Bridge Rectifier With R Load and Capacitance Filter
15. Forced Commutation Circuits (Class A, Class B, Class C, Class D and Class E)

Experiment list beyond the curriculum

1. Parallel Inverter.
2. Series Inverter