# POWER ELECTRONICS LAB

**(Core Subject)**

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| Course Code: | 1B1WEC671 | Semester: | 6th Semester, B. Tech (ECE) |
| Credits: | 1 | Contact Hours: | L-0, T-0,P-2 |

## Course Objectives

1. To know the behavior of Power semiconductor devices and compare their performances.
2. To know how to synthesize a power converter using power electronics equipment.

## Course Outcomes

After the successful completion of the course, student should be able to:

1. Analyze and test the power semiconductor devices and their applications.
2. Compare and contrast various power semiconductor devices according to their applications.
3. Have confidence in dealing with high-power equipments and upgrade their performance.
4. Use the knowledge acquired through this lab to design circuits which are useful in day-day life.

## List of Experiments

1. To study V-I characteristics of silicon controlled rectifier (SCR) and determine the break over voltage, on state resistance, holding current and latching current.
2. To study and verify V-I characteristics of DIAC.
3. To study V-I characteristics of TRIAC in both directions and determine the break over voltage, on state resistance, holding current and latching current.
4. To verify the V-I Characteristic of Unijunction Transistor (UJT)
5. Design of an oscillator circuit using UnijunctionTtransistor (UJT)
6. To design a circuit for AC voltage control by using SCR and observe the effect of varying firing angle on average output voltage.
7. To design a circuit for illumination control of incandescent lamp using thyristor.
8. To study the performance of half wave controlled rectifier with R and RL load.
9. To design a fixed DC to variable DC convertor.
10. Mini Project

## Evaluation Scheme

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| 1. | Mid Sem Evaluation | 20 Marks |
| 2. | End Sem Evaluation | 20 Marks |
| 3. | Attendance | 15 Marks |
| 4. | Class response | 30 Marks |
| 5. | File | 15 Marks |
| **Total Marks** | | **100 Marks** |

## Text Books


1. Ned Mohan, Tore Undeland, and William Robbins, Power Electronics: Converters, Applications, and Design, 3rd edition, Wiley India.

2. Rashid Muhammad H., Power Electronics Circuits, Devices, and Applications, 3rd edition, Prentice hall of India.