POWER ELECTRONICS LAB

Course Code	23EE3551	**Year**	III	**Semester(s)**	I
Course Category	Professional Core	**Branch**	EEE	**Course Type**	Lab
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	BEEE
Continuous Internal Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	**Analyze** characteristics of various power electronic devices and design firing circuits for SCR.(L4)
CO2	**Analyze** the performance of single–phase full converter, semi converter, dual converter, three–phase full–wave and half wave bridge converters with both resistive and inductive loads. (l4)
CO3	**Examine** the operation of Single-phase AC voltage regulator and cycloconverter with resistive and inductive loads. (L3)
CO4	**Differentiate** the working and control of Buck converter, Boost converter, square wave inverter and PWM inverter. (L3)
CO5	Conduct experiments as a team / individual by using equipment available in the laboratory and make an effective report based on experiments.

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: High, 2: Medium, 1: Low)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3		3		1							2	1
CO2	2	3		3		1						2	2	1
CO3	2	3		3		1						2	2	1
CO4	3			3		1						2	2	1
CO5									3	3				

Any 10 of the following experiments are to be conducted:

Syllabus		
Exp. No.	Contents	Mapped CO
1	Characteristics of SCR - Power MOSFET & Power IGBT.	CO1 CO5
2	R, RC & UJT firing circuits for SCR.	CO1 CO5
3	Single -Phase semi-converter with R & RL loads.	CO2 CO5

4	Single -Phase full-converter with R & RL loads.	CO2 CO5
5	Three- Phase full-converter with R & RL loads.	CO2 CO5
6	Single-phase dual converter in circulating current & non-circulating current mode of operation.	CO2 CO5
7	Single-Phase AC Voltage Regulator with R & RL Loads.	CO3 CO5
8	Single-phase step down Cycloconverter with R & RL Loads.	CO3 CO5
9	Boost converter in Continuous Conduction Mode operation.	CO4 CO5
10	Buck converter in Continuous Conduction Mode operation.	CO4 CO5
11	Single -Phase square wave bridge inverter with R & RL Loads.	CO4 CO5
12	Single - Phase PWM inverter.	CO4 CO5
13	Three-phase bridge inverter with 120^0 and 180^0 conduction mode.	CO4 CO5
14	SPWM control of Three-phase bridge inverter	CO4 CO5