III YEAR B.Tech EEE II-Sem

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POWER ELECTRONICS LAB

Course Objectives:

1. To make the students to design triggering circuits & commutation circuits of SCR.
2. To introduce power electronics components from which the characteristics of SCR, IGBT and MOSFET are obtained.
3. To perform the experiments on various converters.

Part-A (All Experiments are compulsory)

1. Study of Characteristics of SCR, MOSFET & IGBT
2. Study of Driver circuit of SCR and pulse transformer
3. AC Voltage Controller with R and RL Loads
4. Single Phase fully controlled bridge converter with R and RL loads
5. Forced Commutation circuits (Class A, Class B, Class C, Class D & Class E)
6. Four quadrant chopper with R and RL Loads
7. Single Phase Bridge inverter with R and RL loads
8. Single Phase Cycloconverter with R and RL loads

Part-B (Any two of the following experiments)

1. Single-phase full converter using R and RL loads and single-phase AC voltage controller using R&RL loads using MATLA
2. Four quadrant chopper with R&RL loads circuit using MATLAB.
3. Single phase Inverter with PWM control using MATLAB
4. Three Phase half controlled bridge converter with R-load
5. Three phase inverter in 120^0 & 180^0 mode of operation.
6. Single Phase dual converter with R&RL load

Course Outcomes: After completion of this course the student is

1. able to correlate theoretical and practical analysis of AC-AC, DC-AC converters
2. Able to analyze AC to DC converters.
3. Able to analyze the characteristics of SCR, MOSFET and IGBT.
4. Able to analyze driving ckt of SCR and commutation circuits.
5. Able to analyze DC-DC converters.
6. Able to analyze cyclo and dual converters

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