JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA–533003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III Year –I SEMESTER		L	T	P	C
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POWER ELECTRONICS LABORATORY					

Course objectives:
- To learn 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 and Boost converter.
- To understand the working of single-phase & three-phase inverters.

Any 10 of the Following Experiments are to be conducted
1. Characteristics of SCR - Power MOSFET & Power IGBT.
2. R - RC & UJT firing circuits for SCR.
3. Single -Phase semi-converter with R & RL loads.
4. Single -Phase full-converter with R & RL loads.
5. Three- Phase full-converter with R & RL loads.
6. Single-phase dual converter in circulating current & non circulating current mode of operation.
7. Single-Phase AC Voltage Regulator with R & RL Loads.
8. Single-phase step down Cycloconverter with R & RL Loads.
9. Boost converter in Continuous Conduction Mode operation.
10. Buck converter in Continuous Conduction Mode operation.
11. Single -Phase square wave bridge inverter with R & RL Loads.
12. Single - Phase PWM inverter.
13. Three-phase bridge inverter with 120^0 and 180^0 conduction mode
14. SPWM control of Three-phase bridge inverter

Course outcomes:
After the completion of the course the student should be able to:
- Analyse characteristics of various power electronic devices and design firing circuits for SCR.
- Analyse the performance of single–phase dual, three–phase full–wave bridge converters and dual converter with both resistive and inductive loads.
- Examine the operation of Single-phase AC voltage regulator and Cycloconverter with resistive and inductive loads.
- Differentiate the working and control of Buck converter and Boost converter.
- Differentiate the working & control of Square wave inverter and PWM inverter.