Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

Syllabus for B. Tech in Electrical Engineering

(Applicable from the academic session 2018-2019)

Name of the course	**POWER ELECTRONICSLABORATORY**
Course Code: PC-EE 594	**Semester: 5th**
Duration: 6 months	**Maximum marks:100**
Teaching Scheme	**Examination scheme:**
Theory: 0 hr/week	**Continuous Internal Assessment:40**
Tutorial: 0 hr/week	**External Assessment: 60**
Practical: 2 hrs/week	
Credit Points:1	

	Laboratory Experiments:
1.	Study of the characteristics of an SCR.
2.	Study of the characteristics of a Triac
3.	Study of different triggering circuits of an SCR
4.	Study of firing circuits suitable for triggering SCR in a single phase full controlled bridge.
5.	Study of the operation of a single phase full controlled bridge converter with R and R-L load.
6.	Study of performance of single phase half controlled symmetrical and asymmetrical bridge converters.
7.	Study of performance of step down chopper with R and R-L load.
8.	Study of performance of single phase controlled converter with and without source inductance (simulation)
9.	Study of performance of step up and step down chopper with MOSFET, IGBT and GTO as switch (simulation)
10.	Study of performance of single phase half controlled symmetrical and asymmetrical bridge converter.(simulation)
11.	Study of performance of three phase controlled converter with R & R-L load. (simulation)
12.	Study of performance of PWM bridge inverter using MOSFET as switch with R and R-L load.
13.	Study of Zero Voltage Switching Resonant converter and Zero Current Switching Resonant Converter andto plot its output waveforms.
14.	Study the speed control of universal motor to plot speed v/s α

Institute may develop experiments based on the theory taught in addition to experiments mentioned.

Reference book:

1. Power Electronics Laboratory: Theory, Practice and Organization, O.P.Arora, Om Prakash Arora, Alpha science International.

Course outcome: After completion of this course, the learners will be able to

1. identify appropriate equipment and instruments for the experiment.
2. test the instrument for application to the experiment.
3. construct circuits with appropriate instruments and safety precautions.

4. validatecharacteristics of SCR, Triac, and performance of phase controlled converter, DC-DC converter, inverters and resonant pulse converters.
5. demonstrate the relation between the speed and firing angle of Universal motor.
6. work effectively in a team

Special Remarks:

The above-mentioned outcomes are not limited. Institute may redefine outcomes based their program educational objective.