

SEMESTER <i>Sixth</i>	DEPARTMENT <i>Control Engineering</i>	COURSE TITLE <i>Power Electronics Lab</i>
COURSE CODE <i>EP611</i>	HOURS: 3 UNITS: 1	COURSE SPECIFICATIONS <i>Practical Content</i>
<p>1. Understand the Power Electronic Devices, Its Firing and Protection Techniques.</p> <p>By experiment the student should verify:</p> <ul style="list-style-type: none"> ➤ Interpreting the data sheets for power electronic devices. ➤ Interpreting the diode characteristics and diode testing, ➤ Interpreting thyristor characteristics and thyristor testing. 		
<p>2. Determine the Average Value of the Output Voltage and Current. Exams the Effect of the Inductive Load on the Rectification Process.</p> <p>By experiment the student should verify:</p> <ul style="list-style-type: none"> ➤ Operation of thyristor firing circuits. ➤ Single phase controlled rectifier with resistive load. ➤ Demonstrates effect of inductive load on the single phase controlled rectifier. ➤ Three phase controlled rectifier with resistive load. 		
<p>3. Understand the Theory of Operation of Different Types of Chopper Circuits.</p> <p>By experiment the student should verify:</p> <ul style="list-style-type: none"> ➤ Speed control of DC motor using choppers. ➤ Build a test circuits chopper circuits. 		
<p>4. Understand the AC Voltage Controller.</p> <p>By experiment the student should verify:</p> <ul style="list-style-type: none"> ➤ Speed control of AC motor using phase controllers. ➤ Speed control of universal motor using a traic. ➤ Build a test control circuits. 		

5. Understands the Theory of Operation of Inverters with the Control of Voltage and Frequency.

By experiment the student should verify:

- Speed control of DC motors using controlled rectifier circuits (Thyristors).
- Build a test control circuit.

References:

1. *Power electronics for technology*, Printice Hal. By Ashfag Ahmed.
2. *Introduction to power electronics*, Arnold and Oxford university press inc. ,Newyork. Denis Fewson.
3. *Power control electronics*, Printice Hall Inc.,1983. By Boyd Larson.
4. *Power electronics*, Printice Hall Inc, 1993. By Mohammed H. Rashid.Collin, Robert. E.

