

Course code	Course name	L-T-P-Credits	Year of introduction
AE334	POWER ELECTRONICS LAB	0-0-3-1	2016
<b>Prerequisite</b> :AE312 Power Electronics			
<b>Course Objective</b> <ul style="list-style-type: none"><li>To familiarise the characteristics of power semiconductor devices</li><li>To provide experience on design, testing, and analysis of few power electronic circuits</li><li>To expose simulation of power electronic circuits</li></ul>			
<b>Course Plan</b>			
<b>LIST OF EXPERIMENTS:</b> (Minimum 12 experiments are to be done) <ol style="list-style-type: none"><li>SCR characteristics</li><li>Triac and Diac characteristics</li><li>Phase controlled rectifier-resistance triggering</li><li>Phase controlled rectifier- UJT triggering</li><li>Chopper circuits</li><li>MOSFET characteristics</li><li>Simple DC to AC inverter circuit</li><li>Driven DC to AC inverter using MOSFET &amp; IC</li><li>IGBT characteristics</li><li>Inverter circuit using IGBT</li><li>Digital triggering circuit for phase controlled rectifiers</li><li>Application of ICS: PWM IC TL 494, optocoupler IC -MCT2E</li><li>DC motor speed control – Using digital logic circuits/microprocessor/PC</li><li>AC motor speed control – Using digital logic circuits/microprocessor/PC</li><li>Simulation of power electronic converter and inverter circuits using software like MATLAB,PSPIC</li><li>SCR turn-off circuits using (i) LC circuit (ii) Auxiliary Commutation.</li><li>AC voltage controller using Triac – Diac combination.</li><li>Generation of firing signals for Thyristor/Triac using digital Circuit/ Microprocessor.</li></ol>			
<b>Expected outcome</b> <ul style="list-style-type: none"><li>At the end of the semester students will be familiar with the concept of power semiconductor device, power electronics circuits etc</li></ul>			