



**Course Title:** PCB Design Lab

**Course Code:** ECE202

**Credit Units:** 1

**Level:** UG

L	T	P/ S	SW/F W	TOTAL CREDIT UNITS
0	0	2	0	1

**Course Objectives:** This is a basic course for designing of PCB using software. The major objective is to select and use appropriate test equipment and procedures from a wide range of possibilities; to analyse and interpret test results and measurements on electric circuits, in terms of theoretical models, to predict the performance of electric circuits from device characteristics and to design an electronic printed circuit board for a specific application using industry standard software.

**Prerequisites:** Analog & Digital electronics, EDC

### List of Laboratory Experiment

1. Introduction to PCB and OrCAD software.
2. Getting Familiar with OrCAD and designing of schematic.
3. Designing of capture from OrCAD and getting positive for PCB manufacturing.
4. Winding shop: Step down transformer winding of less than 5VA.
5. Soldering shop: Fabrication of DC regulated power supply
6. PCB Lab:
  - (a) Artwork & printing of a simple PCB.
  - (b) Etching & drilling of PCB.
7. Wiring & fitting shop: Fitting of power supply along with a meter in cabinet.
8. Testing of regulated power supply fabricated.

**Student Learning Outcomes:**

- Able to analyze the fabrication processes of printed circuit boards.
- Perform the chemical and mechanical processes by using negative/positive masks
- Students are able to define how to operate the software and hardware (i.e. drilling, etching/routing, milling equipments as well as the developer and etcher machines)

**Pedagogy for Course Delivery:**

The course would be covered under laboratory. In addition to assigning project-based learning, early exposure to hands-on design to enhance the motivation among the students. It incorporates designing of problems, analysis of solutions submitted by the students groups and how learning objectives were achieved. Continuous evaluation of the students would be covered under quiz, viva etc.

**Assessment/ Examination Scheme:**

<b>Theory L/T (%)</b>	<b>Lab/Practical (%)</b>	<b>Total</b>
NA	100%	100%

**Lab Assessment (P):**

<b>Continuous Assessment/Internal Assessment</b>					<b>End Term Examination</b>
<b>Components (Drop down)</b>	<b>A</b>	<b>PR</b>	<b>LR</b>	<b>V</b>	
<b>Weightage (%)</b>	5%	10%	10%	5%	70%

A: Attendance, PR- Performance, LR – Lab Record, V – Viva. EE- External Exam,

**References:** Lab Manual