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15EC102L	<b>ELECTRONICS ENGINEERING PRACTICES</b>	0	0	2	1
	<b>Total Contact Hours – 30</b>				
	<b>Prerequisite: Nil</b>				
	<b>Common for ECE, EEE, EIE and Bio med</b>				
<b>PURPOSE</b>					
To equip the students with the knowledge of PCB design and fabrication processes.					
<b>INSTRUCTIONAL OBJECTIVES</b>					
1.	To familiarize the electronic components and basic electronic instruments.				
2.	To make familiar with PCB design and various processes involved.				
3.	To provide in-depth core knowledge in the fabrication of Printed Circuit Boards.				
4.	To provide the knowledge in assembling and testing of the PCB based electronic circuits.				

**UNIT I-INTRODUCTION TO BASICS OF ELECTRONIC COMPONENTS AND INSTRUMENTS (4 hours)**

Study of electronic components- active & passive, Electronic Instruments: CRO, Function generator, Power Supply, Multi-meter, IC tester. Solder practice.

**UNIT II -SCHEMATIC CAPTURE (6 hours)**

Introduction to ORCAD/TINA schematic capture tool, Simulation of simple electronic circuit, Schematic to layout transfer, Layout Printing.

**UNIT III-PCB DESIGN PROCESS (6 hours)**

Conception Level Introduction: Specifying Parts, Packages and Pin Names, Libraries and Checking foot prints of the components, Partlist, Netlist, Making Netlist Files, Placing Parts, Routing Traces, Modifying Traces, Mounting Holes, Adding Text, PCB Layout, DRC, Pattern Transfer.

**UNIT IV-PCB FABRICATION PROCESS (6 hours)**

Etching, cleaning, drying and drilling.

**UNIT V-ASSEMBLING AND TESTING (8 hours)**

Identifying the components and its location on the PCB, soldering of active and passive components, Testing the assembled circuit for correct functionality.

**REFERENCES**

1. Department Laboratory Manual.
2. ORCAD/TINA User manual.
3. Printed Circuit Boards: Design, Fabrication, and Assembly (McGraw-Hill Electronic Engineering-2006) by Raghbir Singh Khandpur.

