

PCB DESIGN **(Skilled Based Lab Elective)**

Course Code: 22EE11S3

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Prerequisites: Electrical Circuit Analysis, Electronic Devices & circuits

Course Outcomes: At the end of the course, the student will be able to

CO1: Determine appropriate components to make circuits.

CO2: Design of a Power Supply Module

CO3: Design of types of Rectifiers

CO4: Analyze the Design of a Security System

CO5: Design of an electronic printed circuit board for a specific application using standard software.

CONTENT:

1. Introduction to PCB DESIGN and EDA Tool Software
2. Parameter setting for PCB Design.
3. Design of a $\pm 5V$ Power supply.
4. Schematic Creation and simulation of an electronic circuit
5. Design and Simulate ON/OFF Switches Circuits
6. Design and simulation of a Half and Full Wave Rectifier
7. Design of a PCB layout of Low pass filter
8. Design of a PCB layout of CE Amplifier
9. Design and Simulate Simple 7 Segment Circuits
10. Design of an IR Proximity Sensor – Touchless Door Bell using Zero PCB
11. Design of a Laser Light Security Alarm.
12. Design of a Mobile Phone Detector Circuit.
13. Study of PCB Thermal management techniques.
14. Study of Transistor Heat dissipation using PCB.
15. Introduction of the materials required for the fabrication of PCB's.
16. Introduction to Eagle software.

TEXT BOOK:

1. Simon Monk, "*Make Your Own PCBs with EAGLE: From Schematic Designs to Finished Boards (Electronics)*" 2017

REFERENCE BOOK:

1. S. Yogesh, "*OSCAD: An Open Source EDA Tool for Circuit Design, Simulation, Analysis and PCB Design*", Shroff Publishers & Distributors Pvt. Ltd, 2013.

WEB RESOURCE:

1. <https://www.udemy.com/course/circuit-design-simulation-and-pcb-manufacturing-bundle>
2. <https://www.allaboutcircuits.com/technical-articles/pcb-thermal-management-techniques/>