

Overview:-

Advance PCB design is one of the Industrial Required concepts. During the summer training program students will learn the complete concept Printed Circuit Board with the advance technology with the interfacing of different IC's and Microcontroller. Problems in PCB design, latest technology and finally live advance board design in the college campus, Live testing of the printed circuit board with direct potential application and real-time operating projects.

Day-1

1. Introduction of PCB design.

- What is PCB designing?
- Types of PCB designing.
- Importance of PCB designing.

2. Factors consideration while designing.

3. Mechanical wiring designing process.

4. PCB design over mechanical design.

DAY 2

5. Introduction to bread-board.

6. Connection of electrical components.

- Resistors.
- Capacitors.
- Transistors.
- Diodes.
- IC's.
- USB Pins.
- Microcontrollers.

DAY 3 TO 5.

8. Designing Software.

- Orcad.
- Proteus.
- Dip-trace.

9. Introduction to Orcad.

- Designing of circuit.
- Simulation of circuit.
- Testing of circuit using voltage & current indicator.

10. Introduction Dip-trace.

- Advantages.
- Schematic capture.
- PCB layout

DAY 6 TO 9

11. Introduction to Proteus.

- Introduction to ISIS.
- Introduction to ARES.
- Designing of No-Firmware circuits.
- Simulation of no-firmware circuits.
- Introduction to Firmware (Microcontroller based) circuit.

12. Introduction to Programming.

- Need of hardware programming.
- Programming used for working of advance PCB.
- Embedded C.
- Implementation of conditional statements.
- Implementation of Loop.
- Writing source code of firmware project.
- Compilation.
- Debugging.

Day 10 to 12

13. Live projects on software.

- Design of LED pattern.
- Design of Traffic light.
- Design of autonomous robot.
- Design of Inverter.
- Design of Chopper circuit.
- Design of Power Supply.

Day 13

14. Layout circuit Printing.

- Why we use glossy paper for printing?
- Why we use laser printer for printing?
- How to get Inverted image for PCB??
- Measurement of print with board edge.

15. Pressing or Ironing on PCB.

- Printing layout on PCB from glossy paper.
- Overdrawing circuit on PCB.

16. Preparation of Etching solution.

- Forming ferric chloride solution.
- Water and Chemical Proportion.

Day 14

17. Drilling.

- Introduction
- Types of driller.
- Driller used for PCB drilling.
- Practical implementation on board.

18. Soldering.

- Introduction
- Materials required
- Practical implementation on board.

19. De-soldering

DAY 15 to DAY 20

LIVE FABRICATION OF PRINTED CIRCUIT BOARD IN THE COLLEGE CAMPUS.

Day 15

20. Practical Implementation of LED blinking circuit.

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing
- Soldering
- Testing
- Debugging.

Day 16

21. Practical Implementation of Traffic Light.

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing
- Soldering
- Testing
- Debugging

Day 17

22. Practical Implementation of autonomous robot.

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing
- Soldering
- Testing
- Debugging

Day 18

23. Practical Implementation of Inverter.

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing
- Soldering
- Testing
- Debugging

Day 19

24. Practical Implementation of Chopper (fixed DC- variable DC).

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing

- Soldering
- Testing
- Debugging

DAY 20

25. Practical Implementation of Power supply.

- Pressing
- Etching
- Cleaning
- Drilling
- Component Placing
- Soldering
- Testing
- Debugging

After the complete technical projects and training all the participants will go for the Industrial visit on the construction site where they will learn the practical aspects of the design with live projects.