



RobosapiensTM
INDIA

**Course & Kit Content
Of
PCB & Circuit Designing**

Duration 7 Days

Kit Partner

ROBOMART.com

Corporate Office

Robosapiens Technologies Pvt. Ltd.

B 5, Block 'C', Sector-31,

Noida-201301

Email: info@robosapi.com/

Website: <http://www.robosapi.com>

Course Name : PCB & CIRCUIT DESIGNING
Certification : By Robosapiens Technologies Pvt. Ltd.
Fee : 5900/- Only
Toolkit : **FREE** to Each Participant

Detailed Course Content

1. INTRODUCTION TO CIRCUIT DESIGNING

- 1.1. Need of Circuit Designing
- 1.2. Basic Electronic Components
 - 1.2.1. Resistors, Capacitors, Inductors, Diodes
 - 1.2.2. Transistors, Relays, Connectors
- 1.3. How to select components
- 1.4. Basic Circuit Designing Process

2. INTRODUCTION TO THE PCB

- 2.1. Definition and Evolution of the Printed Circuit Board (PCB)
- 2.2. Purposes of a PCB
- 2.3. Types of PCBs
- 2.4. Applications
- 2.5. Typical Development Flow for a PCB
- 2.6. PCB Problems and Root Causes

3. Printed Circuit Technology

- 3.1. Printed Circuit Board Characteristics
- 3.2. PCB Materials
 - 3.2.1. Fillers, resins, laminates
 - 3.2.2. Base material characteristics
 - 3.2.3. Dielectric, conductors
 - 3.2.4. Design and Analyses
- 3.3. Design and Environmental Requirements
 - 3.3.1. Functional
 - 3.3.2. Thermal
- 3.4. Electrical Engineering
 - 3.4.1. Analog and digital signals

- 3.4.2. Signal integrity
- 3.4.3. Grounding concepts
- 3.4.4. Current carrying capacity
- 3.4.5. Layout rules of thumb
- 3.5. Mechanical Engineering
 - 3.5.1. Panels, Standard board sizes, Packaging
- 3.6. Thermal Design
 - 3.6.1. Heat transfer basics
 - 3.6.2. Convection, Conduction
 - 3.6.3. PCB Thermal Design Features
 - 3.6.4. Thermal modeling
 - 3.6.5. Cycling and fatigue
- 3.7. Component Vibration Fatigue
- 3.8. Vibration Models and Terminology
 - 3.8.1. Combined Thermal and Structural Fatigue

4. Eagle Software Tool

- 4.1. Pad stacks
- 4.2. Creating New Components in Library
- 4.3. Starting a new design
- 4.4. Developing the board outline
- 4.5. Placing Items in the Layout
- 4.6. Editing the Layout
- 4.7. Placing Power and Ground Planes
- 4.8. Assigning Nets
- 4.9. Linking the Schematic and PCB

LIVE Projects Covered

1. POWER SUPPLY.
2. Blinking LED Using 555 Timer

7 Day Kit Contains:

1. Copper Clad PCB
 2. Hand Held PCB Drilling Machine & Drill Bit
 3. Software Suit (Freeware)
 4. Robosapiens Paper Bag
 5. Solder Wire
 6. Flux
 7. Nipper
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