

**Punyashlok Ahilyadevi Holkar Solapur  
University, Solapur**

**School of Physical Sciences**

**Certificate course on PCB Design and  
Manufacturing using Proteus CAD**

Total Hrs: 60 (Theory-20 & Practical 40)

**Chapter I Introduction 10**

The Old Days, PCB Packages, Standards, The Schematic, Imperial and Metric, Working to Grids, Working from the top, Tracks, Pads, Vias, Polygons, Clearances.

**Component Placement & Design:** Component packages, Basic Routing, Finishing Touches, Single Sided Design Double Sided Design.

**Other Layers:** Silkscreen, Solder Mask Mechanical Layer, Keepout, Layer Alignment, Netlists, Rats Nest, Design Rule Checking, Forward and Back Annotation, Multi layer Design Power Planes, Good Grounding, Good Bypassing, High Frequency Design Techniques, Double Sided Loading, Auto Routing.

**Design For Manufacturing:** Panelisation, Tooling Strips, Fiducial Marks, Thermal Relief, Soldering, Basic PCB Manufacture, Surface Finishies, Electrical Testing.

**Chapter II Overview of CAD software's in PCB Design 10**

Express PCB, Eagle, kicad, Ultiboard, Proteus, Altium, PADS, Ultiboard, Allegro, EasyEda

**Chapter III PCB layout and design using Proteus (Lab Course) 40**

Basics of Proteus, Power supply design (Single and Dual), IC 555 based circuits, Op-amp based circuits, ADC, DAC, Digital electronics examples, Custom component and package design, 8051 development board