



Endorsed Training  
Provider®



## PCB Foundation Course

An introduction to circuit board design and manufacture

### PCB Foundation Course

The design of printed circuit boards is becoming more and more difficult. Designers need to be able to balance conflicting requirements. Nowadays the circuit board itself is more than a simple interconnection medium it is a fundamental part of the design.

For companies designing circuit boards the ability to consider key aspects of both design and manufacturing early in the design phase leads to faster product development cycles, decreases time to market and gives key competitive advantages.

The PCB Foundation Course provides the basic building blocks necessary for success with the design of modern circuit boards.

### Who is the course aimed at?

Covering from fundamentals up to intermediate-level subjects, the PCB Foundation Course is ideal for anyone wishing to gain a good grounding in PCB design and manufacturing. Delegates may be electronics engineers new to PCB design, mechanical engineers wishing to train as PCB designers, electronics technicians and/or production/test engineers requiring understanding of PCB design. While useful, no previous knowledge of electronics or printed circuit board design is required.

### Course format

Intensive 5-day (9:30-16:30) tutor-led training. Includes comprehensive delegate notes, glossary of terms and useful web site addresses.

High quality audio-visuals and real-world examples are used to illustrate key points.

The course has been designed to be independent of company size, strategy and working practices. There is no bias towards any computer-aided design software on this course and indeed the hands-on workshop is performed without any computers at all.

### Where is the course held?

The PCB Foundation Course is held regularly at Staffordshire University, our offices in Stanstead Abbots and other UK and Irish venues. Courses are limited to a maximum of ten delegates so please call to check dates and availability.

On site and customised courses for larger customers may be arranged.

### The challenge

- Technology is getting smaller, faster, cheaper.
- Time to market is critical to success.
- Recruiting staff with the correct skills is becoming a major problem.
- Critical company procedural knowledge is "stored" in key individuals.
- The educational system provides graduates with knowledge "peaks" rather than a balanced understanding of the real world.
- Companies using FPGA or ASIC technology often do not appreciate that ultimately the device must be placed on a board.

### Premier EDA Solutions Ltd.

4 Millers House (1<sup>st</sup> Floor),  
Roydon Road, Stanstead Abbots,  
Ware, Herts. SG12 8HN.

United Kingdom

Telephone: 01920 876 250.

Facsimile: 01920 872 615.

eMail: [training@eda.co.uk](mailto:training@eda.co.uk)

[www.eda.co.uk](http://www.eda.co.uk)



Endorsed Training  
Provider®



## Course synopsis

Day 1	Day 2	Day 3	Day 4	Day 5
<b>Concepts</b> <ul style="list-style-type: none"> <li>• The need for interconnects</li> <li>• What is a PCB?</li> <li>• What is a trace?</li> </ul> <b>Construction</b> <ul style="list-style-type: none"> <li>• Materials</li> <li>• Printing</li> <li>• Etching</li> <li>• Holes</li> <li>• Solder Resist</li> <li>• Multi-layers</li> <li>• Finishes</li> </ul>	<b>Design Software</b> <ul style="list-style-type: none"> <li>• Data flow</li> <li>• Parts of an EDA system</li> <li>• EDA software vendors</li> </ul> <b>Placement</b> <ul style="list-style-type: none"> <li>• Good habits</li> <li>• 3D components</li> </ul> <b>Routing</b> <ul style="list-style-type: none"> <li>• Good habits</li> <li>• Power handling</li> <li>• Design rules</li> </ul> <b>Photoplotting</b> <ul style="list-style-type: none"> <li>• Gerber</li> <li>• ODB++</li> </ul>	<b>Workshop</b> <ul style="list-style-type: none"> <li>• Positive &amp; negative</li> <li>• Interactive placement lab</li> <li>• Interactive routing lab</li> <li>• Split power plane exercise</li> <li>• Visual inspection techniques</li> </ul> <b>Manufacturing</b> <ul style="list-style-type: none"> <li>• Fabrication</li> <li>• Tooling &amp; registration</li> <li>• Assembly</li> <li>• SMT</li> </ul>	<b>Manufacturing (cont'd)</b> <ul style="list-style-type: none"> <li>• Soldering</li> <li>• Common problems</li> </ul> <b>Testing</b> <ul style="list-style-type: none"> <li>• ATE overview</li> <li>• Environmental issues</li> <li>• EMC</li> <li>• Inspection</li> </ul> <b>Documentation</b> <ul style="list-style-type: none"> <li>• Sample dwgs</li> <li>• Passing info to manufacturing</li> <li>• Standards</li> <li>• WEEE directive</li> </ul>	<b>Futures</b> <ul style="list-style-type: none"> <li>• Packaging technology</li> <li>• Micro vias and HDI</li> <li>• BGA technology</li> </ul> <b>Exotics</b> <ul style="list-style-type: none"> <li>• Flexible circuits</li> <li>• Thick film</li> <li>• Hybrid/MCM</li> </ul>

### Some customer comments

Comments from some of the 150+ customers who have already attended our PCB Foundation Course:-

*"I found this course both informative and enjoyable. I have worked within the electronics industry for six years so to find that others experience similar problems and to find possible solutions to these problems is worth its weight in gold."*

*"The course was well structured and covered a wide range of topics and allowed me to gain a good foundation into the various aspects of PCB design."*

*"The course was well-prepared and the content was beneficial. I'm sure I'll be referring to the delegate notes to enforce and recap what I have learnt on this course."*

*"The course gave me a good insight into PCB Design. It covered a wide range of topics and was very well prepared. Well done and thank you."*

### Find out more

Contact us at the following address or by email to [training@eda.co.uk](mailto:training@eda.co.uk)

### By attending the course you will

- Appreciate how a PCB is made and understand the variations in construction.
- Familiarise yourself with the seemingly endless terminology and jargon.
- Evaluate the key aspects of design software and how to get the most from it.
- Gain hands-on experience of different PCB routing and placement techniques.
- Establish the important requirements of PCB manufacture.
- Become aware of the implications of PCB testing.
- View sample assembly drawings and become aware of the information flow between design and manufacturing.
- Investigate the future technology trends that will impact on PCB design in the 21st Century.

### Premier EDA Solutions Ltd.

4 Millers House (1<sup>st</sup> Floor),  
Roydon Road, Stanstead Abbots,  
Ware, Herts. SG12 8HN.

United Kingdom

Telephone: 01920 876 250.

Facsimile: 01920 872 615.

eMail: [training@eda.co.uk](mailto:training@eda.co.uk)

[www.eda.co.uk](http://www.eda.co.uk)