

## PCB Design Excellence Key skills in circuit board design

### Learn key skills

- Design Flow
- Routing and placement techniques
- Working with power planes
- Producing documentation
- Designing to standards

### Widen your horizons

- Consider new aspects of PCB design
- Understand component packaging
- Learn to take into consideration all of the key elements of design

### Clarify your views

- What impact will WEEE make?
- Do I really need to use Gerber?

### Be prepared to use EDA software

- Understand the parts of a design system
- Consider the impact of units, grids and libraries

### Appreciate manufacturing

- What drives cost?
- Working with multilayers
- Requirements for test

### An invaluable reference

- Comprehensive delegate notes
- Glossary of terms
- Further reading
- Useful websites and organisations

*As an active member of the IPC Designers Council, Premier has put together this high quality course in order to provide delegates with skills and techniques that are not taught at Universities and go beyond the scope of on-the-job training.*

## Key skills in circuit board design

### Who should attend?

Designers wishing to fully explore the world of printed circuit board design. Ideal for electronics technicians, draughtsmen and electronics engineering graduates wishing to enhance their skills and discover the intricacies of modern PCB design. The PCB Design Excellence course is ideal for those wishing to gain the essential grounding prior to embarking on the IPC Designer Certification programme.

### Course Style

The tutor introduces each subject and outlines the underlying concepts using high quality audio-visuals and real world samples of circuit boards. This helps to maximise the retained value of this course. There will be plenty of opportunity for questions, individual discussions and guidance.

### Customer Comment

*"The course provided me with a better understanding of PCB manufacture and will assist in resolving PCB failures.*

*Also, I will now be able to design to a standard to create ease of manufacture and reliability."*

*AF, Tyco Healthcare*

### The programme

A two-day course (day starts at 9.30am and ends at 4.30pm) developed to take delegates from basic to an intermediate level of knowledge. The delegate notes provide a comprehensive resource that provides guidance beyond the duration of the course.

### Venue & Date

The course is held at our training suite in Stanstead Abbots. Please check the website for the next course date. The course is limited to a maximum of twelve delegates so please call to check availability of places. On-site training may be accommodated on request, please contact us for details.

### Pricing & accompaniments

Our PCB Design Excellence course costs £795 per delegate (excl. VAT). Price includes a comprehensive set of delegate notes plus refreshments and a buffet lunch (Please advise us if you have any special dietary requirements). Details of local hotels can be supplied if required. Delegates are responsible for confirming their own bookings and indeed the cost of this accommodation.

# PCB Design Excellence

## Module Overview

Day One

Concepts	Component Packaging	Designing PCBs	Routing
<ul style="list-style-type: none"> <li>Evolution of PCBs</li> <li>Types of board used by the industry</li> <li>Elements of a PCB</li> <li>Key skills of a PCB designer</li> </ul>	<ul style="list-style-type: none"> <li>Through hole components</li> <li>Surface mount technology</li> <li>Odd-form components</li> <li>Emerging packaging technologies</li> <li>Data sheets</li> </ul>	<ul style="list-style-type: none"> <li>Data flow</li> <li>Parts of an EDA system</li> <li>Comparison of EDA vendors</li> </ul>	<ul style="list-style-type: none"> <li>Good habits</li> <li>Bad habits</li> <li>Power handling</li> <li>Typical design rules</li> <li>Controlled impedance</li> <li>Routing workshop</li> </ul>
<b>Standards for PCB Design &amp; manufacture</b> <ul style="list-style-type: none"> <li>Benefits of standards</li> <li>Standards organisations</li> </ul>		<b>Component Placement</b> <ul style="list-style-type: none"> <li>Good habits</li> <li>Thermal considerations</li> <li>Bad habits</li> <li>3D components</li> <li>Typical design rules</li> <li>Placement workshop</li> </ul>	<b>Postprocessing</b> <ul style="list-style-type: none"> <li>Basic documentation</li> <li>Design rule checking</li> <li>Post processing formats</li> </ul>

Day Two

Introduction to PCB Manufacture	Soldering	Environmental Issues	Next Steps
<ul style="list-style-type: none"> <li>PCB construction</li> <li>What is required to manufacture a PCB?</li> <li>PCB drilling, scoring and routing</li> <li>Tooling and registration</li> <li>Fiducial marks</li> <li>Assembly</li> <li>Anti-static precautions</li> <li>PCB cost comparison</li> </ul>	<ul style="list-style-type: none"> <li>Solder paste printing</li> <li>Soldering methods</li> </ul>	<ul style="list-style-type: none"> <li>Impending legislation</li> <li>WEEE directive</li> <li>Lead free solder</li> <li>EEE directive</li> </ul>	<ul style="list-style-type: none"> <li>Glossary of terminology</li> <li>Reading list</li> <li>Useful web sites</li> </ul>
	<b>Testing and Inspection</b> <ul style="list-style-type: none"> <li>Inspection</li> <li>Electrical testing</li> <li>Inspection exercise</li> </ul>		



## Course Tutor

The tutor, Alan Johnson, a former Electronics Lecturer has a total of 30 years experience of training electronics.

Alan joined Premier EDA Solutions in 1999 as the Training Manager. In September 2002 he became the Vice Chairman on the executive board of the IPC Designers Council and he is currently the only qualified tutor in the UK & Ireland for the advanced level.

### Terms and Conditions

Our training courses are governed by a specific set of terms and conditions, which cover a number of important issues like payment and cancellation. Please read these prior to attending the course.

Available on request or on our website: ([http://www.eda.co.uk/training\\_terms\\_designer.htm](http://www.eda.co.uk/training_terms_designer.htm)).

# PCB Design Excellence



## Order Form

Email Form

This two-day course provides an intermediate level of training in PCB design. Ideal for electronics technicians, draughtsmen and electronics engineering graduates wishing to enhance their skills and discover the intricacies of modern PCB design. The PCB Design Excellence course is ideal for those wishing to gain the essential grounding prior to embarking on the IPC Designer Certification program.

FAX Back to us on + 44 (0) 1920 872 615			
Company: .....		Tel: .....	
Name(s): .....		Email: .....	
.....		Email: .....	
.....		Email: .....	
<i>For additional delegates, please use a separate page, or multiple forms.</i>			
<input type="checkbox"/> Please reserve ..... place(s) at your 'PCB Design Excellence', Course Date: ..... Course Venue: ..... <i>(At all venues registration is at 09:00, the course will start at 09.30 and close at around 16.30)</i>		Qty	Price <i>(per delegate)</i>
			£795
			VAT at 20%
		<b>Grand Total</b>	
Please charge payment to:			
<input type="checkbox"/> Credit card (subject to a 2.3% charge) Type: VISA/MC ..... Expiry date: ..... Registered address of cardholder: ..... Purchase Order number: .....		<input type="checkbox"/> Company purchase orders will only be accepted with reference to our Terms and Conditions* Cardholders name: ..... Card number: ..... Card security number: .....	

**Thank you for your Order**

### \*Terms and Conditions

Our training courses are governed by a specific set of terms and conditions, which cover a number of important issues like payment and cancellation. Please read these prior to attending the course. Available on request or on our website ([http://www.eda.co.uk/training\\_terms\\_designer.htm](http://www.eda.co.uk/training_terms_designer.htm)).



**Premier EDA Solutions Ltd.**  
 4 Millers House, (1<sup>st</sup> Floor)  
 Roydon Road, Stanstead Abbotts,  
 Ware, Herts. SG12 8HN.  
 United Kingdom  
 Registered in England, number: 2889888.

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)