



PCB Design for RF and High-Speed Applications

Course Code: RF5-ON Duration: 2 Days Course Level: Introductory

Course Overview

Modern RF and wireless product design is a highly complex engineering task and the design and layout of the PCB is critical to success. The PCB often contains circuits with conflicting requirements. For example, extremely sensitive analogue stages, such as RF receivers, alongside extremely noisy blocks, such as digital processors. The performance of RF components and the PCB substrate also set boundaries on what can be achieved in modern designs. This intensive two-day course provides a thorough introduction to the principles of RF PCB design techniques in an intuitive and practical way.

Who Will Benefit?

RF engineers requiring a system-level view of PCB design, RF PCB designers, design engineers and technical managers requiring an overview of the principles of PCB design for RF applications, designers and those with some RF experience but little formal training who wish to broaden their design skill base and baseband and signal processing designers who need to be aware of RF issues.

Learning Outcomes

Upon completion of this course, participants will be able to:

- ◆ Understand the challenges of modern RF PCB design
- ◆ Understand cross-coupling of signals between circuits
- ◆ Know how to minimise the impact of digital noise
- ◆ Understand the performance and limitations of physical components
- ◆ Understand PCB design and manufacturing technology
- ◆ Know how to correctly lay out an RF PCB

Business Benefits

The course will deliver the following business benefits:

- ◆ Reduced number of PCB design iterations with resulting development cost savings
- ◆ Faster time to market due to fewer PCB design iterations
- ◆ Improved design quality and system performance

Course Programme

The course content covers:

- ◆ The challenges of modern RF PCB design
- ◆ Analogue RF systems - blocks and components
- ◆ Digital RF systems - blocks and components
- ◆ Cross coupling by conduction and radiation
- ◆ Minimising cross coupling, separation and screening techniques
- ◆ Origins of supply noise in digital CMOS circuits and its impact on circuit operation
- ◆ Techniques to achieve optimum supply decoupling
- ◆ Digital power plane - localised versus total board coverage
- ◆ High speed digital signal routing techniques
- ◆ Performance and limitations of physical components
- ◆ PCB technology and layout techniques
- ◆ Implementation - Labelling of schematics, design partitioning, routing, order and guidelines
- ◆ Discussion and examples of PCB layout problems

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Instructor

Detailed information about the course instructor is available on request.

Prerequisites

There are no prerequisites for this course.

Course Level

Introductory: Assumes the participant has little or no prior knowledge of the specific areas covered.

Course Venue

Delivered on-site either at customer premises or at any suitable venue throughout the UK, Europe and Rest of the World.

Dates

Flexible according to your requirements.

Course Fees

Please call us on +44 (0)1962 855 730 to request a quote.

What's Included?

Course participants will each receive a set of high-quality bound course notes printed in full colour and a Certificate of Attendance.

Customisation

For on-site courses, we do not force your organisation to adopt a standard, 'one-size-fits-all' training programme. The standard course programme can be adapted both in content and duration according to your exact requirements and specifications. Our technical experts will assist you in identifying these, even if they are uncertain or unclear. The course programme is then fitted to your exact requirements. Please call us on +44(0)1962 855 730 to discuss your requirements in more detail.

Related Courses

This course provides a firm foundation for Practical Design of Wireless Digital Communications Systems (RF4), which addresses both the system and circuit-level aspects of designing modern digital wireless communications systems.

Terms and Conditions

We encourage you to read our Terms and Conditions, which cover important issues like payment and cancellation policies. Our Terms and Conditions can be found on our website.

Further Information

For further information about this course, please call us on +44 (0)1962 855 730.