



Fundamentals of RF and Wireless Communications

Course Code: RF1-ON **Duration:** 2 Days **Course Level:** Introductory

Course Overview

This 2-day course introduces modern RF and wireless communications systems and provides a solid grounding in the technical concepts of the subject. A straightforward and easy to understand approach is adopted, emphasising the practical aspects of RF and wireless communications components and systems. Complex theory and mathematics is avoided whenever possible.

Who Will Benefit?

This technical course is aimed at engineers, technicians and managers working in the RF and wireless communications industry. It is especially suited to new entrants to the field, with little or no previous RF and wireless experience. Sales and marketing and other non-technical personnel involved with RF and wireless products and services will also benefit from the course.

Learning Outcomes

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

- ◆ Understand the basic characteristics of RF waves
- ◆ Explain how RF waves propagate
- ◆ Describe various RF components used in RF communications systems
- ◆ Explain the basic characteristics of RF and wireless transceiver systems
- ◆ Understand the important differences between various communications standards
- ◆ Describe the characteristics of different modulation methods
- ◆ Define the common terms used to characterise RF and wireless systems

Business Benefits

The course will deliver the following business benefits:

- ◆ Quickly bring staff new to the field up to speed with RF and wireless technology
- ◆ Improve technical understanding of company wireless products and services

Course Programme

The course content covers:

- ◆ Electromagnetic spectrum, waves and RF propagation
- ◆ Definitions of amplitude, frequency, wavelength, phase, bandwidth and power
- ◆ Transmission lines and waveguides
- ◆ Impedance matching: Reflected power, return loss and reflection coefficient
- ◆ Definition and application of S-parameters
- ◆ LNAs, power amplifiers, mixers, oscillators
- ◆ Modulators, demodulators, filters, directional couplers, antennas
- ◆ Analogue and digital signals
- ◆ Modulation techniques and speech coding
- ◆ Modulation schemes: AM FM, PM, QAM, PSK, QPSK
- ◆ Bit error rate and error detection
- ◆ Principles of cellular mobile communications systems
- ◆ Multiple access techniques
- ◆ Basic principles of FDMA, TDMA, CDMA, spread spectrum
- ◆ Wireless systems overview: GSM, 3G, 3GPP LTE, MIMO
- ◆ WiFi 802.11, WiMAX, femtocells, GPS, DBS, Bluetooth, RFID
- ◆ Future developments in RF and wireless communications technology

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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

The course provides a firm grounding for more advanced courses on Antennas and Propagation for Wireless Communications Systems (RF2), Practical RF and Microwave Measurements (RF3), Practical Design of Wireless Digital Communications Systems (RF4), PCB Design for RF and High-Speed Applications (RF5) and RF and Microwave Power Amplifier Design (RF6).

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.



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