



RF and Microwave Power Amplifier Design

Course Code: RF6-ON Duration: 3 Days Course Level: Intermediate

Course Overview

This 3-day intermediate-level course focuses on the practical design of modern RF and microwave power amplifiers (PAs) for wireless communications systems. Fundamental concepts of PAs are reviewed, including the various classes of amplifier operation and selection of suitable devices and circuit topologies required to meet overall performance specifications. The course also addresses nonlinear behaviour of PAs and effects on system performance. Various techniques to improve linearity and enhance efficiency are discussed in detail. Throughout the course, practical PA designs are demonstrated using live measurements on test equipment.

Who Will Benefit?

This technical course is aimed at engineers, technicians and engineering managers involved in the design, development, testing and application of RF, wireless and microwave circuits and systems who wish to develop their knowledge and understanding of practical PA design. Delegates typically include RF Engineers, Microwave Engineers, RF Systems Engineers and RF Field Applications Engineers.

Learning Outcomes

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

- ◆ Understand the various modes of PA operation
- ◆ Select suitable device and circuit topologies for a given performance specification
- ◆ Describe non-linear effects
- ◆ Evaluate digital predistortion methods
- ◆ Understand feedback and feedforward linearisation techniques
- ◆ Improve PA efficiency using Doherty, Chireix and other techniques
- ◆ Understand how to make practical measurements on PAs

Business Benefits

The course will deliver the following business benefits:

- ◆ Reduced design and development times and costs
- ◆ Improved design and development efficiency
- ◆ Improved design quality and system performance
- ◆ Reduced development and project risks

Course Programme

The course content covers:

- ◆ Review of modern modulation techniques
- ◆ RF PA design techniques
- ◆ PA performance requirements and specifications
- ◆ Selection of suitable device and circuit topologies
- ◆ Load pull measurements for device characterisation
- ◆ PA design techniques
- ◆ Nonlinear behaviour of RF PAs
- ◆ Memory effects and intermodulation product asymmetry
- ◆ Predistortion, feedback and feedforward methods
- ◆ Efficiency enhancement techniques
- ◆ Envelope elimination and restoration (EER), envelope tracking, adaptive biasing
- ◆ Doherty, Chireix and Kahn

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Instructor

Detailed information about the course instructor is available on request.

Prerequisites

Participants would normally be qualified to degree level or equivalent in an electronic engineering, physics or mathematics-related subject. They should also have a good understanding of RF and microwave technology.

Course Level

Intermediate: Assumes the participant has general knowledge of the subject and professional experience 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

Related courses include Antennas and Propagation for Wireless Communications Systems (RF2), Practical RF and Microwave Measurements (RF3), Practical Design of Wireless Digital Communications Systems (RF4) and PCB Design for RF and High-Speed Applications (RF5).

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.



The Technology Academy Limited
37-39 Southgate Street
Winchester
Hampshire
SO23 9EH
United Kingdom
t: +44 (0)1962 855 730
f: +44 (0)1962 854 400
e: enquiries@thetechnologyacademy.com
www.thetechnologyacademy.com