

Essential 4G

A 1 day training course



Description

This course provides a complete technical foundation in the 4G ecosystem covering both the core network and the air interface. This includes core network components and procedures, air interface basics and security procedures.

Also explained is the process of attaching to the PLMN and setting up the necessary session for data and voice access when authentication is complete.



Key outcomes

By the end of the course delegates will be able to:

- ✓ List and describe all nodes in the 4G core network
- ✓ Explain the attach process
- ✓ Explain the concept of EPS Bearer setup
- ✓ Explain the basics of the OFDM air interface
- ✓ Explain how voice can be handled in 4G
- ✓ Explain the basic concepts of the IP Multimedia Subsystem



Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning.



Details

Who will benefit?

Anyone working in mobile telecommunications

Prerequisites

Mobile communications demystified

Duration: 1 day

Customer rating: ★★★★★

Generic training



Generic training complements product specific courses covering the complete picture of all relevant devices including the protocols "on the wire".

"Friendly environment with expert teaching that teaches the why before the how."
G.C. Fasthosts

Small class sizes



We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.

"Excellent course. The small class size was a great benefit..."
M.B. IBM

Hands On training



The majority of our courses use hands on sessions to reinforce the theory.

"Not many courses have practice added to it. Normally just the theoretical stuff is covered."
J.W. Vodafone

Our courseware



We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.

"Comprehensive materials that made the course easy to follow and will be used as a reference point."
V.B. Rockwell Collins

Customise your course



Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.

"I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on."
S.R. Qinetiq

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Course content

4G Long Term Evolution Components & Functions

- The eNodeB
- The role of the Mobility Management Entity
- System Architecture Evolution (SAE) equipment
- The Serving Gateway (SGW)
- The Packet Data Network Gateway (PDNGW)
- The Policy & Charging Rules Function (PCRF)
- The Home Subscriber Server (HSS)

The Air Interface

- Basic principles of OFDMA
- Configuration of the Air Interface
- LTE radio frames
- Sub frames & slots
- Resource blocks
- Resource grid configuration
- The cyclic prefix

Initial attach procedures

- Initial attach requests
- Authentication procedures
- Temporary identities from MME & eNodeB
- Tracking areas
- Default EPS bearer setup
- Dedicated EPS bearer requirements
- QoS support

Practical deployments

- Voice support
- Circuit-Switched FallBack (CSFB)
- VoLTE solutions
- IMS

What our customers say

"Absolutely brilliant, very knowledgeable and helpful trainer would recommend to teach anyone. Kept me interested 100% of the time which is very impressive as this does not happen often, if at all!"

O. B. Network Rail

"The best technical course I've been on!"

L. W. Fujitsu Telecoms Europe

"Very well thought out and structured course. Would recommend 100%. Lots of equipment, good quality."

A.R. Unipart

"Course content is interesting. Relevant to current systems and presented well."

S.S-T. Arqiva

