

# Essential UMTS

A 3 day training course



## Description

An in-depth study of the UMTS technologies and network structure.



## Key outcomes

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

- ✓ Explain what 3G and UMTS are.
- ✓ Describe the migration path to UMTS.
- ✓ Describe the UMTS architecture.



## 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 who needs to know more about UMTS.

### Prerequisites

Total GSM

**Duration:** 3 days

**Overall rating:**



### Generic training



Generic training compliments 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

### Introduction

3G WCDMA 2G WCDMA comparison. European and international spectrum allocations.

### UMTS Services

UMTS QoS classes, Conversational, Streaming, Interactive and Background. UMTS bearer services.

### Radio Access Network (RAN) Architecture

System architecture. The Radio Network Controller (RNC) and Node B functionality. Protocol model. The lu interface for Circuit and Packet switching. The lur interface and RNSAP. RNC node B interface and NBAP.

### The Physical layer

Spread spectrum coding and modulation. Logical and physical channels. User data rates and transmission. Power control. Signalling, synchronisation, common control, access and indicator channels. Procedures for transmit diversity, measurement, power control and handover.

### Radio Resource Management

Fast and outer loop power control. Transmit power and power rise. Handover algorithms. Intra frequency and inter system handovers. Load, measurement on the air interface. Admission and load control.

### Packet Access

Packet data traffic. Packet data transport channels. Packet scheduling algorithms. Handover, load and administration control. Packet data performance.

### UTRA TDD Mode

Time Division Duplex (TDD). UTRA TDD modulation and spreading, transport channels, physical channels and their structure. Noise and interference limited network. Interference, FDD and TDD co-existence.

## 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

