



Who Should Attend?

This course is designed for Telecom employees who need to know about signalling in UMTS Air Interface and Radio Access Network

Course Content

1. UMTS Radio Introduction.
 - a) Overview.
 - b) Radio Access Evolution.
 - c) UMTS Network Architecture.
 - d) UTRAN Architecture.
 - e) Radio Access Methods: FDMA, TDMA, CDMA.
 - f) WCDMA Transmitter
 - ✓ Spreading,
 - ✓ Channelisation,
 - ✓ Scrambling.
 - g) Power Control and Handover.
 - h) Transport and Logical Channels.
 - i) Radio Interface Protocols Structure.
 - j) UTRAN Protocols Introduction.
2. Radio Interface Protocols: RRC, RLC, MAC
 - a) Radio Resource Control (RRC).
 - ✓ Interactions between Protocols,
 - ✓ Protocol Termination,
 - ✓ Model of RRC,
 - ✓ RRC States,
 - ✓ RRC Procedures,
 - ✓ RRC Connection Management,
 - ✓ Radio Bearer Control,
 - ✓ Measurement,
 - ✓ RRC Connection Mobility.

- b) Radio Link Control (RLC).
 - ✓ Services,
 - ✓ Functions,
 - ✓ Transparent Mode,
 - ✓ Unacknowledged Mode,
 - ✓ Acknowledged Mode,
 - ✓ PDU Formats.
 - ✓ Medium Access Control (MAC).
 - ✓ Functions,
 - ✓ Transport Format,
 - ✓ MAC Architecture,
- 3. UTRAN Protocols: NBAP, RNSAP, RANAP
 - a) UTRAN Architecture.
 - b) Radio Network Signalling Protocols
 - c) UTRAN Interface Protocol Layers
 - ✓ Node-B Application Part (NBAP),
 - ✓ Iub Interface Protocol Structure,
 - ✓ NBAP Functions and Procedures.
 - d) Radio Network Subsystem Application Part (RNSAP).
 - ✓ Iur Interface Protocol Structure,
 - ✓ RNSAP Functions and Procedures.
 - e) Radio Access Network Application Part (RANAP).
 - ✓ Iu Interface Protocol Architecture,
 - ✓ RANAP Procedures
- 4. Q&A, Open discussion.

Course Objectives

This course explains the main procedures of UMTS RAN Signalling and their importance for the effectiveness and quality of specific Telecom services..

Pre-requisites

None. Basic knowledge of UMTS and air interface recommended

Training Structure

Four-day training divided into logical sessions.

Methodology

Instructor-led training. Theory, procedures, and logs.