UMTS RAN Signalling

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 Scope

1. UMTS Radio Introduction.
   - Overview.
   - Radio Access Evolution.
   - UMTS Network Architecture.
   - UTRAN Architecture.
   - Radio Access Methods: FDMA,TDMA,CDMA.
   - WCDMA Transmitter
     - Spreading,
     - Channelisation,
     - Scrambling.
   - Power Control and Handover.
   - Transport and Logical Channels.
   - Radio Interface Protocols Structure.
   - UTRAN Protocols Introduction.
2. Radio Interface Protocols: RRC, RLC, MAC.
   - 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.
   - Radio Link Control (RLC).
     - Services,
     - Functions,
     - Transparent Mode,
     - Unacknowledged Mode,
     - Acknowledged Mode,
     - PDU Formats.
   - Medium Access Control (MAC).
     - Functions,
     - Transport Format,
     - MAC Architecture,
     - PDU Format.

3. UTRAN Protocols: NBAP, RNSAP, RANAP.
   - UTRAN Architecture.
   - Radio Network Signalling Protocols.
   - UTRAN Interface Protocol Layers
     - Node-B Application Part (NBAP),
     - I_{ub} Interface Protocol Structure,
     - NBAP Functions and Procedures.
   - Radio Network Subsystem Application Part (RNSAP).
     - I_{ur} Interface Protocol Structure,
     - RNSAP Functions and Procedures.
   - Radio Access Network Application Part (RANAP).
     - I_u Interface Protocol Architecture,
     - RANAP Procedures.

Course Objectives

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

Prerequisites

None. Basic knowledge of UMTS and air interface recommended.

Training Structure

Five-day training divided into logical sessions.

Methodology

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