



Who Should Attend?

This course is designed for employees of mobile network operators who need to understand the principles of signalling in mobile networks, including an in-depth view of selected topics.

Course Scope

1. Introduction to Signalling.
 - Overview of GSM and 3G Architecture.
 - Node Functions.
 - Protocols and their Roles.
 - Interfaces and Protocols in GSM/UMTS.
2. "Classical" Signalling Transport.
 - MTPL1 - L3.
 - SCCP (addressing, routing).
3. Call Control Protocols.
 - ISUP.
 - BICC.
 - H.248 (MeGaCo).
4. ATM Bearer Control.
 - Overview of ATM/AAL2/AAL5.
 - Q.2630.x (for ALCAP).
5. SIGTRAN (Signalling Transport).
 - Short Summary of TCP/IP.
 - SCTP Protocol - features and procedures.
 - Architecture and Application of M2UA, M2PA, M3UA, and SUA.
 - Overview M2UA, M2PA, SUA/ISUA.
 - M3UA in detail.
6. IP Bearer Control.
 - IPBCP.
 - SDP.
7. Mobile Services.
 - Summary of TCAP.
 - MAP Protocol - interfaces and messages.
8. Traffic Cases from the Perspective of MAP.
 - Attach/Authentication.
 - Call Setup.
 - Inter-MSC Handover.
 - Intra-MSC Handover.
 - Handover between 2G and 3G.
9. Summary of Intelligent Network Architecture and INAP.
 - CAMEL standardisation and call models.
 - RAN/MS Signalling.
 - DTAP.



- BSSAP.
- RANAP.
- 10. UMTS Services (selection).
 - IMS System.
 - SIP Protocol Overview.
- 11. VoIP Usage in Mobile Networks.
 - Architecture.
 - Call Setup Procedures.

Course Objectives

This extensive five-day training provides a unique overview of the signalling protocols that dominate the architecture of contemporary mobile networks. Presented in an easy-to-follow and logical order, during this course we discuss concepts ranging from basic Signalling System No. 7 protocols with a focus on specific user parts and signalling transport in ATM and IP infrastructure (including SIGTRAN), to the specialised protocols used in setting up bearers for multi-rate applications. Supplemented with a series of challenging exercises based on real network scenarios, this training is a great way to obtain an in-depth understanding of signalling concepts.

Prerequisites

The participants must be familiar with the basics of mobile networks and their services. Knowledge of transfer technology such as TDM, ATM and IP is recommended.

Training Structure

Five-day training divided into logical sessions.

Methodology

Instructor-led training.