



Who Should Attend?

This course is designed for the technical staff of mobile network operators. It gives an in-depth view of IP and related protocols, so it is beneficial for maintenance staff as well as network and service designers.

Course Content

1. Technology Overview.
 - Standardisation.
 - GSM/GPRS.
 - UMTS.
 - LTE.
 - 5G.
2. Internet Protocol.
 - IPv4 Packet and Addressing.
 - IPv6 New Features and Addressing.
 - QoS in IP.
3. Main IP L4 Protocols.
 - Internet Control Message Protocol.
 - Transmission Control Protocol.
 - User Datagram Protocol.
 - Stream Control Transmission Protocol.
4. IP Routing.
 - Routing Principles.
 - Autonomous Systems.
 - Routing Information Protocol.
 - Open Shortest Path First.
 - Border Gateway Protocol.
5. Domain Name System.
 - Domain Structure.
 - DNS Resolution.
 - DNS in Mobile Networks.
6. IP Tunnelling.
 - IP Encapsulation in IP.
 - Generic Routing Encapsulation.
 - IPSec Introduction.
 - Virtual IP for Tunnelling.
 - GPRS Tunnelling Protocol.
7. IP Security.
 - Reasons for IP Security.
 - Firewall Concepts.
 - Public Key Infrastructure.
 - IPSec.



- DNSSec.
 - Transport Layer Security.
 - Mobile Backbone Perspective.
8. Management of IP Hosts and Networks.
- Point-to-Point Protocol.
 - Dynamic Host Configuration Protocol.
 - Remote Authentication Dial-In User Service.
 - DIAMETER.
 - Simple Network Management Protocol.
 - Telecommunication Management Network.
9. Transmission Technology.
- Ethernet.
 - WLAN.
 - ATM.
 - MPLS and GMPLS.
10. IP Service-supporting Protocols.
- Real-time Transmission Protocol.
 - Hyper-Text Transmission Protocol.
 - Wireless Application Protocol.
 - Session Initiation Protocol.
11. Mobile IP-based services.
- Mobile vs. IP QoS.
 - MMS Architecture.
 - SIGTRAN.
 - IP Multimedia Subsystem.
 - Mobile IP.

Course Objectives

This course covers Internet Protocol with underlying transmission technologies as well as higher level protocols and services. Participants will leave with extensive generic IP knowledge from the perspective of mobile networks, including the specific usage of IP-based services (such as GPRS domain and SIGTRAN).

Prerequisites

Participants should have a basic technical background in telecommunication or computer science, and be able to understand technical topics. Familiarity with GSM, UMTS, 4G and 5G architecture and services is recommended.

Training Structure

Five-day training divided into logical sessions.



Methodology

Instructor-led training.