



Who should attend?

The course is intended for anyone who needs detailed technical information on radio transmission based on WCDMA HSDPA/HSUPA.

Course Content

1. Introduction:
 - Packet Data Access in R99.
 - HSDPA Characteristics.
 - HSUPA Characteristics.
2. Architecture and Protocols:
 - Radio Resource Management.
 - Protocol Architecture.
 - Impact on UTRAN Interfaces.
 - Protocol States.
3. HSDPA Channels:
 - High Speed – Downlink Shared Channel (HS-DSCH).
 - High speed – Physical Downlink Shared Channel (HS-PDSCH).
 - High Speed – Shared Control Channel (HS-SCCH).
 - High Speed – Dedicated Physical Control Channel (HS-DPCCH).
 - Associated PDCHs.
 - Fractional DPCH (F-DPCH).
4. HSDPA Operation:
 - Link Adaptation.
 - HS-DSCH Coding and HARQ.
 - Serving HS-DSCH Cell Change.
 - Measurements.
 - Compressed Mode.
 - Terminal Capabilities.
5. HSUPA Channels:
 - Enhanced – Dedicated Channel E-DCH.
 - Enhanced – Dedicated Physical Data Channel (E-DPDCH).
 - Enhanced – Dedicated Physical Control Channel (E-DPCCH).
 - E-DCH HARQ Indicator Channel (E-HICH).
 - E-DCH Relative Grant Channel (E-RGCH).
 - E-DCH Access Grant Channel (E-AGCH).
6. HSUPA Operation:
 - E-DCH Channel Coding.
 - HARQ.
 - Two TTI Lengths.
 - Measurements.
 - MAC-es and MAC-e.
 - E-TFC Selection.
 - HSUPA Scheduling.
 - Serving E-DCH Cell Change.
 - Compressed Mode.



- Terminal Capabilities.

7. HSPA+.

- Multi-antenna Transmission: Multiple Input Multiple Output (MIMO).
- Higher Order Modulation (64 QAM DL, 16 QAM UL).
- Continuous Packet Connectivity (CPC).
- Enhanced FACH.
- Enhanced RACH.
- Fast Dormancy.
- HSPA voice support (VoIP over HSPA, CS Voice over HSPA).
- Flatter Architecture.
- Integrated RNC/Node B.
- HSPA Multicarrier Operation.
- Terminal Capabilities.

Course Objectives

HSDPA (High Speed Downlink Packet Access) and HSUPA (High Speed Uplink Packet Access) are the next big steps in upgrading WCDMA/UMTS networks. These two new radio capabilities enable a new set of packet-based services to go wireless in an efficient way. This training concentrates on the differences that HSDPA/HSUPA has brought to WCDMA radio access. (More detailed information about WCDMA radio can be obtained from other courses.)

Prerequisites

Intermediate knowledge of WCDMA/UMTS.

Training Structure

Two-day training divided into logical sessions.

Methodology

Instructor-led training.