HSPA+ Overview

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.