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Watch our course intro video.



UMTS Radio Planning

Course Description

Although 3G networks based on UMTS are widely deployed, radio planning associated with maintaining these networks and keeping them optimized is of paramount importance. This course covers the critical aspects of the UMTS radio planning process, covering key areas such as dimensioning, optimization, throughput planning and support for QoS. Common planning tools are also discussed, along with the details of antenna selection and handover optimization.

Prerequisites: UMTS Air Interface.

2

Days
(LiveOnsite, LiveOnline)

12

CPD Learning
Credits



Level: 3
(Advanced)

This course will contain the following sections:

1. Radio Planning and Deployment Process

Topic areas covered include:

- UMTS Planning:
 - GSM Planning verses UMTS Planning.
- Initial Planning:
 - Dimensioning.
- Detailed Planning:
 - Results.
- Optimization:
 - Continuous Optimization.

2. Traffic and QoS Considerations

Topic areas covered include:

- UMTS Services:
 - Multimedia Service.
- Packet Data Services:
 - High Speed Downlink Packet Access.
 - High Speed Uplink Packet Access.
 - High Speed Packet Access.
 - HSPA+.
- UMTS Traffic Characteristics:
 - Service Characteristics.
 - Traffic Total.
- Environment Impact:
 - Radio Propagation Environment.
 - Radio Propagation Channel.
 - Impact to Services.

Traffic and QoS Considerations (cont.)

- Simulation Data:
 - Typical Services.

3. Planning Tools

Topic areas covered include:

- Planning Tools:
 - Initial Planning Tool.
 - Coverage Planning Tool.
 - Capacity Planning Tool.
 - Scrambling Code Planning.
 - Measurement Tool.
- Optimization Tools:
 - Coverage and Capacity Analysis.
 - Network Optimization.

4. UMTS Planning

Topic areas covered include:

- Cell Planning:
 - Planning Criteria.
 - Planning.
 - Coverage Planning.
 - Capacity.
- UMTS Propagation Environment.

2

Days
(LiveOnsite, LiveOnline)

12

CPD Learning Credits



**LiveOnsite,
LiveOnline**

UMTS Planning (cont.)

- UMTS Coverage and Capacity Planning:
 - Coverage Improvements.
 - Capacity Improvements.
 - Traffic Distribution.
 - Coverage/Capacity Link.
- Planning Issues.

5. Antenna Selection

Topic areas covered include:

- Base Station Configuration:
 - Antenna Selection.
 - Antenna Line Configuration.
 - Antenna Characteristics.
 - Cable Losses.
 - Low Noise Amplifier.
 - Antenna Diversity.
- Site Configurations.
- Sectorization:
 - Antenna Beam Width.
 - Sectoring and Beam Width Simulation.
- Antenna Implementation:
 - Antenna Height.
 - Antenna Down Tilt.

6. Planning and Optimizing Handovers

Topic areas covered include:

- UMTS Mobility:
 - Handover.
 - Handover Triggers.
- Measurement Reporting:
 - Intra-Frequency Measurement Reporting.
 - Inter-Frequency Measurement Reporting.
 - Inter-RAT Measurement Reporting.
 - UE Internal Measurement Reporting Events.
 - UE Positioning Measurements.
- UMTS Handovers
 - Handset Capabilities.
 - Soft and Softer Handover.
 - Soft Handover Procedures.

Planning and Optimizing Handovers (cont.)

- Hard Handover.
 - Inter-Frequency Handover Triggers.
 - Planning Handovers.
- Common Channel Procedures:
 - Cell Update Procedure.
 - URA Update Procedure.
- Handover Optimization.

7. UMTS Planning Guide

Topic areas covered include:

- UMTS Planning Guide.
- Site Selection Priorities.
- Site & Antenna Positioning:
 - Nominal Plan.
- Antenna Guidelines:
 - Antenna Height.
 - Antenna Azimuth.
 - Antenna Blocking.
 - Antenna Clipping.
 - Antenna Tilt.



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