Course ID
UMTS-TDD-DO
Course Duration
2 days

Course Title
UMTS-TDD Network Design and Optimization

Related Courses

- UMTS-FDD Network Design and Optimization (UMTS-FDD-DO, 2 days)
- UMTS-FDD: Network Architecture, Operation, and Design (UMTS-FDD, 2 days)
- HSDPA: Network Architecture, Operation, and Design (HSDPA, 2 days)
- 1xRTT: Network Architecture, Operation, and Design (1XRTT, 2 days)
- 1xEVDO: Network Architecture, Operation, and Design (EVDO, 2 days)
- Traffic Engineering Models for 3G Network Design (TRAFFIC3G, 2 days)
- IP-Based Systems: TCP/IP and Mobile IP (IPSYS, 2 days)
- Multimedia Applications: IMS, SIP, and VoIP (MULTIMEDIA, 2 days)
- GSM: Network Architecture, Operation, and Design (GSM-I, 5 days)

Aimed At

Those with UMTS-TDD background who wish to learn more about the UMTS-TDD network design and optimization process. The standard presentation of this course assumes a bachelor of science in Electrical Engineering, Mathematics, Physics, or a related subject along with an appropriate background in communications engineering.

Group Size

5-25

Prerequisites

- UMTS-TDD: Network Architecture, Operation, and Design (UMTS-TDD, 2 days)
- Direct Sequence Spread Spectrum: Techniques and CDMA-based Technologies (CDMA, 2 days)

Course in a Nutshell

As the implementation of broadband wireless access technologies and UMTS gathers worldwide momentum, there's growing interest in using UMTS-TDD for broadband wireless access. We created this course to respond to the need for a good, strong course on the design and optimization of UMTS-TDD networks.

In this course, you will build on your existing knowledge of the UMTS network architecture and operation by learning how to design and optimize a radio network based on the TDD mode of UMTS. We will learn both the user and network equipment protocols. We will cover in detail the connection of the TDD RAN to the 3G core and IP networks. We will also study in depth the dimensioning and optimization of both the radio and core network parameters. All in all, the course will help you design UMTS-TDD networks that provide optimum performance for broadband wireless services while also being cost effective

Customize It!

Customize this course to your specific needs at little-to-no additional cost. We offer distinct versions of this course tailored for audiences such as:

- Network design, optimization, and teletraffic engineers
- Equipment or application designers
- Less technical audiences such as managers, business planners, marketing specialists, and analysts

Learn How To

- Describe the channels and protocols of UMTS-TDD
- Describe the overall architecture of a UMTS-TDD network
- Discuss deployment scenarios and radio resource management issues
- Explain how to dimension a UMTS-TDD radio network
- Define and use the parameters involved in the optimization process
- Design and optimize a UMTS-TDD network for wireless broadband services

Course Outline

- UMTS-TDD Air Interface
  - UMTS-TDD Overview
  - UMTS-TDD Protocols
  - PHY Layer Structure
  - MAC Layer Structure
  - Layer 3 Structure
- UMTS-TDD Architecture
  - PLMN Interconnection
  - 3G Core Network Interconnection
- Radio Network Procedures
  - Cell Selection/Reselection
  - RAB/RB Procedures
  - Power Control
  - Handovers

- Signaling
- End-to-End Communications

- Radio Resource Management
  - RRM Function
  - Layer 1 RRM Algorithms
- Dimensioning and Optimization
  - RAN dimensioning of TDD
  - Designing for Maximum Coverage and Capacity
  - Optimization of Handovers
  - Optimization of Interference Due to Coexistence
  - Optimizing Radio Performance Using the Link Budget and RNP Tools
- Deployment Scenarios
  - Types of Deployment
  - Coverage and Capacity
  - Coexistence with GSM, EDGE and/or UMTS-TDD

- Wrap-up: Course Recap, Q/A, and Evaluations

How You Will Learn

- A seasoned instructor will present this course in interactive lecture format.
- Along with lecture, we use exercises, puzzles, case studies, and interesting group activities to enrich the instruction and drive home the essential points.
- If you already know something about the technology, we will build on that. We'll compare and contrast what's familiar with what's new, making new ideas easier to learn as well as more relevant.
- If your background is less technical, we will use meaningful and ingenious examples and analogies to simplify the complex subject matter.
- You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.
- You will learn the key concepts and techniques of UMTS-TDD network design and optimization from both the theoretical and practical perspectives.

Revised *Feb. 12, 2007*