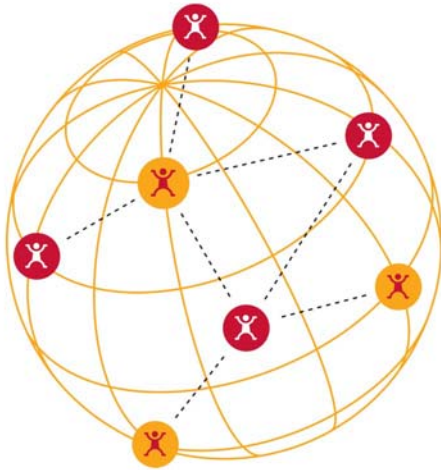


TRAINING PROGRAM OUTLINE



ENG-507E **FIXED & MOBILE WiMAX: PLANNING, DESIGN & DEPLOYMENT**

DESCRIPTION

A 5-day Training Program to provide participants with a comprehensive wealth of knowledge on the subject of fixed and mobile WiMAX technologies, applications and services, from the perspectives of technology, regulatory, marketing and business.

This training program covers all relevant and important topics concerning WiMAX, including:

- Standards: MAC and PHY protocol layers, security, quality and interoperability
- Technology: certified equipment manufacturers, products, systems and services
- Regulatory: spectrum policies and licensing
- Planning: propagation, coverage, interference, frequency and capacity
- Design: site survey and selection, network topology, backhaul
- Deployment: project management, vendor selection, installation and commissioning
- Optimization: testing and troubleshooting

OBJECTIVES

- Identify the components of fixed and mobile WiMAX products and systems



- Explain the detailed layers and protocols covered in the IEEE standards 802.16 for fixed and mobile broadband wireless access systems
- Provide an in-depth understanding of wireless voice, video and data access systems from a technical perspective combined with regulatory, market and business objectives
- Develop the skills to plan, design and deploy efficient and profitable wireless networks
- Plan for growth, operational support and emerging technologies

TOPICS

Part A – Fixed WiMAX

- General overview
 - Identify the components of WiMAX systems
 - Explore the various standards, forums and suppliers
 - Understand the network architecture, deployment challenges and business opportunities in terms of:
 - Regulatory and spectrum policies
 - Frequency bands and standards
 - Applications and services
 - Products and systems
 - Current deployments
 - Basic network architecture
 - Voice and video over WiMAX
 - Emerging standards
- Concepts of the IEEE 802.16 standard for WiMAX
 - Overview
 - PHYSical layer
 - MAC overview
 - Service specific Convergence Sublayer
 - MAC Common Part Sublayer
 - Privacy/security sublayer
 - Configuration file
 - Parameters and constants



- Engineering planning, design and deployment of WiMAX
 - Project management
 - Radio engineering
 - Frequency planning
 - Capacity planning
 - Site engineering
 - Backhaul

- Business planning of WiMAX
 - Understand the business objectives for optimum wireless network deployment
 - Business opportunities and service offerings
 - Market segmentation
 - Strategy and implementation
 - Sales, cost of sales, capital and operational costs
 - Personnel plan
 - Management systems
 - Key Performance Indicators (KPIs)

Part B – Mobile WiMAX

- Mobile communications standards
 - Compare 2G, 3G and 4G mobile technologies
 - History
 - Subscriptions and market share
 - Business/tariff model
 - Solution providers
 - Spatial capacity
 - Goodput
 - Radio Resource Management (RRM)
 - GoS, LoS and QoS
 - Fixed Mobile Convergence (FMC)

- Review of the IEEE 802.16 standard features for WiMAX
 - Tolerance to multipath
 - MIMO
 - Scalable channel bandwidths
 - Frequency selective scheduling
 - Fractional frequency reuse
 - Power conservation management



- Network-optimized Hard Hand-Off (HHO) and cell selection
- Multicast and Broadcast Service (MBS)
- Certification waves

- Core and edge networks
 - Define the network elements involved in mobile WiMAX
 - Connectivity Service Network (CSN)
 - Access Service Network (ASN)
 - Mobile Home Agent (HA)
 - WiMAX end to end protocol stack
 - IP Multimedia Subsystem (IMS)
 - Border Gateway (BG) and Interworking Gateway (IG)
 - Backbone and distribution network

- Smart antennas
 - Explore new antenna technologies
 - Definition and overview
 - Terms and abbreviations
 - Principles and gains
 - Implementations and algorithms
 - Uplink and downlink processing
 - Approaches and benefits

- Enhancements in WiMAX
 - Overview of WiMAX Release 1.5 features
 - Overview of WiMAX Release 2.0 features

TARGET AUDIENCE

- Telecommunications engineers, technicians and personnel responsible for the design, planning, deployment and management of wireless voice, video and data access networks
- Entrepreneurs, managers, marketing and sales professionals looking to complement their skill-set by gaining a good understanding of broadband wireless access systems and technologies, applications and services, market and business opportunities
- Telecommunications regulators responsible for spectrum policies, coordination and standard radio system plans



- A good understanding of wired and wireless technologies and networks is helpful for anyone working in WiMAX or related areas (e.g. IEEE standards 802.3, 802.11, 802.16, etc.)

METHODOLOGY

Our Training Programs combine expert presentations, workshops, case studies and discussions on real-life situations faced by participants. Complete training material is provided to all participants for future reference and follow-up action plans.

LOCATION

Our Training Programs are held at regular intervals in selected cities around the world. Upon request, our expert trainers can lead Training Programs at the location of your choice. If interested, please contact us at training@neotelis.com.

EXPERTISE

Neotelis provides consulting and training services to telecommunications organizations worldwide. Its team of experts has trained thousands of executives and managers working for operators, regulators, policy-makers and governments in over 100 countries around the world.

