



Wireless Network Fundamentals

Course Length: 2 days

Description: Mobile telecommunications is primary under the vast and expanding wireless umbrella. This course explains how today's mobile networks evolved and where they are headed. We will also examine what they all share in common and, conversely, how they are different.

Course Outline:

- **Introduction to Mobile Communications**
 - ✓ Radio Frequency (RF) basics
 - Terminology
 - Cell configurations
 - ✓ Background and evolution
 - ✓ Components of a mobile telephone network
 - The air interface
 - The base station
 - The mobile network
 - The signaling network
 - Mobility Management
 - Interconnection to the PSTN
 - ✓ How a mobile network operates
 - Registrations
 - Mobile originated calls
 - Mobile terminated calls
 - Handoffs (handovers)
 - ✓ Cellular and PCS licensing
- **Mobile Network Architecture**
 - ✓ Radio basics
 - ✓ The mobile station (MS)
 - ✓ Cell sites
 - ✓ Switches and registers
 - ✓ Databases
 - ✓ Signaling and trunks
 - ✓ Network Standards
 - ANSI-41 (IS-41)
 - GSM MAP

- **Wireless Services (5 hours)**
 - ✓ Switch-based services
 - ✓ Network-based services
 - ✓ Mobility management
 - ✓ Call flow scenarios
 - ✓ Intelligent networking
 - CAMEL
 - WIN
 - ✓ Wireless Number Portability (WNP)
 - ✓ Short Message Service (SMS)
 - ✓ Wireless E911
 - ✓ Prepay services

- **Digital Air Interface Standards**
 - ✓ Access Technologies
 - ✓ TDMA
 - ✓ CDMA
 - ✓ GSM
 - ✓ Generation 2.5 – GPRS and EDGE
 - ✓ ESMR

- **3G Standards**
 - ✓ 3rd Generation Partnership Project (3GPP)
 - ✓ 3rd Generation Partnership Project 2 (3GPP2)
 - ✓ UMTS
 - ✓ W-CDMA
 - ✓ cdma2000
 - ✓ Wi-Fi
 - ✓ WiMAX
 - ✓ IMS

Exercises are provided throughout the course, reinforcing a practical understanding of the material.



What You Will Learn: You will learn all of the basic components of a wireless network and how they interact to support mobility. In addition, you will gain knowledge of the basic Radio Frequency (RF) techniques that are deployed. You will become familiar with how mobile telephone systems operate including the services offered today. Lastly, you will understand future trends, standards and technologies.

Who Will Benefit From This Course: This course will be valuable for those individuals who are responsible for direct customer contact and those new to mobile telecommunications. Also, people working in the area of interconnection could benefit as well.

Course Prerequisites: There are no prerequisites, though a basic understanding of mobile communications is helpful.

Instructors: All of our instructors have years of experience developing and teaching technical courses at Telcordia Technologies (Bellcore) Learning Services in Lisle, IL.. They are all SS7 certified and CompTIA CTT+ Certified Professionals.

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