LTE Overview

LTE_102d | On-Demand | LTE and VoLTE | Express
Course Duration: 3.5 hours

Long Term Evolution (LTE) is one of the choices for next generation broadband wireless networks and is defined by the 3GPP standards as an evolution to a variety of 3G wireless networks such as UMTS and 1xEV-DO. Its high data rates enable advanced multimedia applications. This on-demand course offers a quick and concise overview of LTE networks and the OFDM-based air interface. The LTE network architecture, network interfaces and protocols, air interface and mobility aspects are covered to provide an end-to-end view of the network.

Intended Audience

This course is an end-to-end overview of LTE networks, and is targeted for a broad audience. This includes those in design, test, sales, marketing, system engineering and deployment groups.

Objectives

After completing this course, the student will be able to:

- Describe the state of wireless networks and trends for next generation wireless networks
- Sketch the System Architecture Evolution (SAE) for LTE and its interfaces
- Describe OFDM concepts and how it is used in LTE
- Define the key features of the LTE air interface
- Walk through the mobile device operations from power-up to service setup
- Explain how uplink and downlink traffic are handled in LTE networks
- Walk through a high level service flow setup on an end-to-end basis
- Explain deployment scenarios of LTE networks

Course Prerequisites

No Prerequisites

Outline

1. Setting the Stage
1.1 Introduction to LTE

2. LTE Network Architecture
2.1 Evolved Packet Core (EPC)
2.2 E-UTRAN - eNodeB
2.3 Network interfaces and protocol stacks

3. LTE Air Interface
3.1 OFDM/OFDMA radio concepts
3.2 SC-FDMA radio concepts
3.3 Radio transmission frame structures
3.4 Transport to physical channel mapping

4. LTE UE Operations
4.1 System acquisition
4.2 Idle mode operations
4.3 Initial access procedures
4.4 QoS
4.5 Registration and traffic

5. LTE Traffic Handling
5.1 Downlink traffic handling
5.2 Uplink traffic handling

6. LTE Mobility
6.1 Idle mode mobility
6.2 Active mode mobility / handover

7. Deployment
7.1 Typical LTE evolutionary path

8. Summary
8.1 Put It All Together
8.2 Assess the knowledge of the participant based on the objectives of the course