Welcome to LTE

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, including both UMTS and 1xEV-DO; its high data rates enable a wide range of advanced multimedia applications. This eLearning course offers a quick, high-level overview of LTE radio and Evolved Packet Core (EPC) networks. The key characteristics of the LTE air interface, access network and core network are defined, along with a review of the capabilities of the LTE user equipment (UE). The services expected to be supported on LTE networks are summarized, with special emphasis on voice solutions. Finally, important considerations for deploying LTE networks are laid out, including the ability to interwork with existing 3G networks.

Intended Audience

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

Objectives

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

- Identify the motivations and goals for 4G networks
- Summarize the basic concepts of LTE Air Interface
- Sketch the high-level architectures of the E-UTRAN and EPC
- Describe the different categories of LTE UE
- Walk through a typical LTE call from power-up to service setup to disconnect
- Define the key services expected on LTE networks
- Illustrate the interworking solutions for GSM/UMTS and 1x/1xEV-DO networks
- Explain the important factors to consider when deploying LTE networks

What You Can Expect

- Self-Paced Duration: 1 HOUR

Outline

1. **Motivations for 4G**
   1.1 3G limitations
   1.2 LTE goals and targets
   1.3 4G building blocks

2. **LTE Network Architecture**
   2.1 LTE architecture goals
   2.2 LTE network components
   2.3 Evolved UTRAN (E-UTRAN)
   2.4 Evolved Packet Core (EPC)

3. **LTE Devices**
   3.1 Device categories
   3.2 Role of SIM card

4. **LTE Air Interface**
   4.1 Scalable bandwidth
   4.2 Supported radio bands
   4.3 OFDM/OFDMA concepts
   4.4 Multiple antennas in LTE

5. **LTE Services**
   5.1 Typical call setup sequence
   5.2 Basic and enhanced services
   5.3 Voice and SMS solutions
   5.4 IP Multimedia Subsystem (IMS)
   5.5 Policy and Charging Control (PCC)

6. **LTE Deployment**
   6.1 Interworking with GSM/UMTS
   6.2 Interworking with 1x/1xEV-DO
   6.3 Deployment considerations
   6.4 Backhaul options

Award Solutions