

LTE Fundamentals Training, LTE Standards Training

LTE Fundamentals Training, LTE (long-term evolution) mobile communication system, standardized by 3rd Generation Partnership Project (3GPP), a united telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

We have developed comprehensive LTE Training Programs to satisfy the competence needs of professionals exploring new LTE business opportunities to expertise required for operating a LTE network.

Learn the fundamentals of the LTE services, features, network architecture, radio interface and the evolution of 4G telecommunication and LTE-Advanced.

LTE Fundamentals Training – Course Description

LTE Fundamentals Training course covers the fundamentals of LTE features and procedures. It gives an in-depth high-level understanding of the LTE Systems, radio access and core network architecture as well as the EPS Bearer Service, End-to-End QoS, policy and security. Also covered in this course are the protocols used over LTE interfaces.

LTE Fundamentals Training course gives an overview of the fundamental technology of Long Term Evolution (LTE). Attendees will learn the basics of the LTE, LTE radio interface, including multiple input, multiple output (MIMO), OFDM, uplink and downlink, SIMO, TDD, FDD, channel coding and GSA.

Learn about LTE standards, LTE services and network technologies, including radio access, the core transport network, and service capabilities, codecs, security, quality of service (QoS) and hooks for non-3GPP radio access to the core network, and for interworking with Wi-Fi networks. Topics included: LTE Radio Access Networks (RAN), LTE/EPC Service & Systems Aspects (SA), LTE Core Network & Terminals (CT) and interworking with UMTS and GSM EDGE Radio Access Networks (GERAN).

LTE Fundamentals Training discusses all aspects of high bitrates in IP communications with *Fourth Generation Mobile Communications/LTE* and various aspects of LTE including change of business and service paradigm, which it is bringing to mobile communications and M2M/IoT. LTE Fundamentals Training is a rich content training course developed and delivered by knowledgeable instructors and consultants focused on the entire mobile communication community.

LTE Fundamentals Training coverage also includes: LTE services, standards and architecture, Radio access sub-system, Evolved Packet Core (EPC), Signaling on the radio path, Macrocells, microcells, femtocells, SIM card and security, location based driven applications, and much more more.

Target Audience

The target audience for LTE Fundamentals Training course is: Business and Operations Professionals, HR, Network Engineers, Systems Engineers, Service Engineers, Service Design Engineer, and Network Design Engineer

Learning Objectives

Upon completion of completing this course, attendees will:

- Understand what LTE and EPC are
- Explain the evolution of cellular networks GSM, WCDMA, CDMA, TD-SCDMA, LTE and LTE-Advanced
- Compare and contrast Service functionalities of LTE and GSM, CDMA, 1xEV-DO and UMTS
- Understand LTE standardization and the role of 3GPP
- Discuss LTE service and business environment
- List LTE and EPC terminology, services and features
- Identify the key goals, functions and requirements of LTE and EPC
- List LTE Radio Fundamentals, Spectrum, Standards, Network Technologies, Architectures, Generations, Terminals & Devices
- Identify Key LTE Carriers, Network Operators & Resellers
- List necessary functions for LTE and EPC implementation
- Describe the key technical components of LTE and EPC
- Explore the role of LTE and EPC in future wireless deployments
- Discover voice and video over LTE requirements and implementation
- Compare and contrast Service functionalities of LTE and LTE-Advanced
- Gain a high level understanding of Voice and Video over LTE profiles
- Examine the future of LTE, LTE-Advanced, Voice over LTE (VoLTE) and Video over LTE (ViLTE)
- Explore the role of LTE and EPC in future M2M and IoT deployments

Course Outlines

LTE Overview

- What is LTE?
- LTE Standardization
- 3rd generation partnership project (3GPP)
- 3GPP history
- 3GPP, the current organization
- 3GPP releases
- GPP LTE release and beyond (LTE-advanced)
- IMT-advanced process
- LTE Market Trends
- Key LTE Business Challenges
- End User LTE Services and Applications

LTE Architecture Overview

- Overall high level description of LTE
- LTE performance

- FDD, TDD, LTE advanced
- Frequencies for LTE
- Basic parameters of LTE
- Radio access subsystem: E-UTRAN (also called EUTRA) E-UTRAN characteristics
- E-UTRAN interfaces
- Macrocells, microcells and femtocells
- Core network
- LTE network elements
- Functional split between the E-UTRAN and the EPC
- LTE – roaming architecture
- LTE network mobility management
- Role of IMS in LTE/EPC
- Voice over LTE (VoLTE)
- Video over LTE (ViLTE)
- SIM, USIM and ISIM

LTE Network Deployment considerations

- LTE Radio Network Considerations
- Transport Network Considerations
- LTE/EPC Core Network Considerations

LTE Radio Technology

- E-UTRAN (Evolved UTRAN)
- What is OFDM/OFDMA?
- OFDM (Orthogonal Frequency Division Multiplexing)
- SC-FDMA (Single-Carrier Frequency Division Multiple Access)
- FDD and TDD
- OFDMA advantages
- LTE channel: bandwidths and characteristics
- OFDM applied to LTE
- MIMO (Multiple Input Multiple Output)
- General facts behind MIMO

LTE Flat IP Core Network

- Fixed mobile convergence
- IP multimedia subsystem (IMS)
- General description of IMS
- Session Initiation Protocol (SIP)

- IMS components and interfaces
- Evolved packet system in GPP standards
- Policy and charging rules function (PCRF)
- Enhanced voice quality
- Circuit-switched fallback (CSFB)
- Simultaneous voice and LTE (SVLTE)
- Voice over LTE (VoLTE)
- Over-The-Top (OTT) applications

LTE Protocols and Procedures

- LTE RAN protocols and procedures
- Mobility in LTE
- LTE Systems radio access network architecture
- QoS in LTE
- Policy and charging
- LTE security
- Principles of LTE security
- LTE EPC security
- SIM card physical interface