A cellular network consists of a radio network, one or more core networks, and a services network. The LTE Evolved Packet Core (EPC) is the next-generation core network that is expected to replace the existing/legacy core networks. A typical 3G core network consists of a Circuit Switched Core Network (CS-CN) and a Packet Switched Core Network (PS-CN). The EPC is an all-IP packet-switched core network that can connect to a variety of radio networks such as the LTE-based E-UTRAN, WCDMA-based UTRAN, GERAN, CDMA2000 1x, 1xEV-DO/HRPD, and WiMAX. The EPC is formally defined by 3GPP as part of the Evolved Packet System (EPS) that uses an LTE-based EUTRAN. This eLearning course provides an overview of the EPC, including the architecture, basic functions, its role in session setup, and its support for inter-technology mobility.

### Intended Audience
This course is intended for those seeking a fundamental understanding of how EPC works in the next-generation cellular network. This includes those in a design, test, systems engineering, sales engineering, network engineering, or verification role.

### Learning Objectives
After completing this course, the student will be able to:
- Summarize key benefits and challenges of the EPC
- Specify roles of various EPC components
- Explain the functions (e.g., authentication and security) performed by the EPC
- Describe a high-level session setup using the EPC
- Discuss how EPC supports inter-technology handover

### Suggested Prerequisites
- Welcome to IP Networking (eLearning)

### Complementary Courses
- [LTE_102] LTE Overview (eLearning)

### Course Outline

1. **Introduction to LTE EPC**
   1.1. Setting the stage
   1.2. Introduction to LTE
   1.3. 3GPP evolution path

2. **EPC Architecture**
   2.1. Legacy (3G) architecture
   2.2. LTE architecture
   2.3. EPC interfaces and protocols

3. **EPC Registration**
   3.1. Authentication and security
   3.2. Default bearer setup

4. **Service Addition**
   4.1. Introduction to service data flow and EPS bearers
   4.2. QoS
   4.3. Service addition and dedicated bearer setup
   4.4. PMIPv6-based EPS bearer

5. **Intra-LTE and Inter-3GPP Mobility**
   5.1. Introduction
   5.2. Intra-LTE mobility without S-GW
   5.3. Inter-3GPP mobility

6. **Inter-technology Handovers**
   6.1. Mobile IP techniques
   6.2. LTE <-> non-3GPP Interworking Interfaces
   6.3. Optimized and non-optimized handovers

7. **Summary**

**Put It All Together**
Assess the knowledge of the participant based on the objectives of the course