

## 3GPP Mobile Systems Overview – 2 days

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The 3GPP Mobile Systems Overview course describes four generations of 3GPP systems from the voice-centric GSM via UMTS to later developments such as high-speed Mobile Broadband, LTE, IMS, VoLTE and the emerging 5G System. All topics are presented in a comprehensive – yet easily understandable – way. Essential subsystems, nodes and procedures are described. Basic traffic cases are used to demonstrate the function and architecture of the systems.

### PREREQUISITES

Technical education and/or at least one year of telecom business experience is recommended.

### 3GPP System Introduction

- An overview of the 3GPP Network evolution from GSM via UMTS to LTE/EPS and 5G
- Radio Networks vs Core Networks
- Service Evolution from 2G to 5G

### GSM System Overview

- GERAN – the 2G Radio Access Network
- The CS (Circuit Switched) Core Network
- Cells and Location Areas
- Mobility Management
- Voice Call Setup and SMS transfer

### Data over 2G and 3G

- Introduction to IP
- GPRS vs UMTS for data traffic
- The PS (Packet Switched) Core Network
- New nodes and functions for data traffic
- Registration and Data Session Setup
- Packet Data Networks; the Internet, intranets and IMS

### LTE/EPS/4G System Overview

- E-UTRAN – the 4G Radio Access Network
- The Evolved Packet Core (EPC)
- Network Attach and PDN Connection setup
- The always connected, all-IP paradigm

### Data Session in LTE

- Network Attach and PDN Connection setup
- The always connected, all-IP paradigm
- The path of an IP packet from UE to PDN
- VoLTE and other voice alternatives

### Radio Access Networks

- Radio Access Technologies - RATs
- GERAN vs UTRAN vs E-UTRAN – a comparison

## 5G System Overview

- What is 5G...
- ...and what will we use it for...?
- 5G Use Cases: eMBB, URLLC and mMTC
- Non-Stand Alone New Radio vs Stand-Alone New Radio
- Cloud and Virtualization