

## LTE/IMS Basics

LTE/IMS Basics course will make the participants familiar with the new cellular system – Long Time Evolution (LTE) / Evolved Packet System (EPS) – a descent of PS GPRS/HSPA solutions of modern GSM/UMTS networks. LTE network, on its own, does not offer any teleservices (e.g. telephony, video-telephony, messaging) towards the end subscribers, but rather concentrates on packet bearer services (i.e. transmission of IP packets with required quality of services). Teleservices are offered instead by IP Multimedia Subsystem (IMS), that is described in a second part of the training. IMS is offering its teleservices to the end subscribers via IP connectivity provided by the LTE access network. The course also includes section about Circuit Switched Fallback (CSFB) and SMSoSGs which can be used to hand over the connection during setup from LTE to CS GSM/UMTS in order to establish traditional CS call or send traditional SMS via LTE in case the IMS is not present in the network.

### Target audience

The course is intended for the staff, who wants to extend their GSM/UMTS knowledge with issues regarding LTE/IMS architecture and functionality on a basic level. The detailed description of technical solutions is not included in the course.

### Training contents

- Performance of LTE - throughput, delay
- Evolution of radio access technologies from FDMA, through TDMA and CDMA to the latest LTE's OFDMA – presented in an easy way, as analogies between radio and music
- Evolution of cellular system architecture from GSM/GPRS/GERAN, through UMTS/HSPA/UTRAN up to EPS/E-UTRAN (gradual simplification of the architecture, reduction of transmission delays)
- Evolution of signalling procedures (location update, connection establishment, reduction of transmission gaps and setup delays)
- IMS architecture - analogies between traditional GSM and IMS
- IMS telephony call setup (including international roaming)
- Other IMS services (presence service, push-to-talk, whiteboard communication, emergency call, instant messaging, session based messaging, SMS, voice call continuity)
- IMS as fixed-mobile convergence solution
- Provisioning of telephony and other traditional CS teleservices (SMS, USSD) without IMS (CSFB and SMSoSGs)

### Prerequisites

The participants should have attended "GSM/UMTS/LTE Basics" course or should have the equivalent knowledge about GSM/UMTS.

## Training method

Lecture supported by multimedia presentation (including music and animation).

## Duration

1 day

## Level

Basic