

Webinar: Long Term Evolution in 3 Hours

Webinar Duration:

- app. 3 hours + 2 breaks

Webinar Description:

- This Webinar addresses the needs of everybody who needs to understand the technology and concepts of LTE as the future 4G standard of 3GPP.
- After the general introduction to 4G standards is given, the Webinar starts with an introduction of the requirements of LTE.
- The following part presents important characteristics of the key layer 1 technologies: OFDM and MIMO.
- The Webinar continues with a description of the LTE L1. Among others we evaluate in detail the application of essential technologies like OFDMA for the downlink and SC-FDMA for the uplink in LTE as well as the LTE frame structure.
- This part concludes with the discussion of the physical layer procedures.
- The next chapter evaluates in detail the higher layer protocols of E-UTRAN.
- This chapter is presenting the initial context setup procedure of LTE and is describing the data flow of a TCP/IP packet through the protocol layers.

Some of your questions that will be answered during this Webinar:

- What is LTE and why it is introduced in the first place?
- What are the requirements for LTE and how do they differentiate from those of UMTS?
- What are the key characteristics of LTE's (E-UTRAN's) layer 1 and layer 2/3?
- How does the LTE and SAE (System Architecture Evolution) evolved mobile radio network look like?
- How do the basic physical layer technologies of LTE like OFDM and MIMO work?
- How the physical frame structure is facilitating the use of a flexible bandwidth allocation?
- How the physical layer procedures work in LTE?
- How the throughput of the UE categories can be calculated?
- What are the tasks of the higher layer protocol entities and functions of the enhanced node B: MAC, RLC, PDCP, and RRC?
- How in detail the TCP packets travel through the protocol layers?

Table of Content:

Part 1: Principles and Motivation of LTE

- **Mobile Radio: Comparison between 3G and 4G**
 - **Requirements on LTE**
 - **LTE and System Architecture Evolution (SAE)**
 - **The E-UTRAN Protocol Stack**
 - **Overview Channels of E-UTRAN**
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Part 2: Key Technologies of the LTE Physical Layer

- **Introduction OFDM Technology**
 - **Introduction to MIMO Technology**
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Part 3: The Physical Layer of E-UTRAN

- **The Use of OFDM/OFDMA in LTE**
 - **The DL Physical Channels and their Frame Structures**
 - **The UL Physical Channels and their Frame Structures**
 - **Physical Layer Procedures**
 - **UE Classes**
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Part 4: The Higher Layers of E-UTRAN

- **Features of MAC, RLC, PDCP, RRC**
- **NAS Protocol States and Transitions**
- **QoS and Security in LTE**
- **Initial Context Setup Procedure**
- **How a TCP MTU is reaching the UE / the Internet**