5G in Half a Day

CONTENTS

This course provides an overview of the fifth-generation mobile technology, or 5G. It focuses on establishing important technical concepts and terms, as well as putting 5G into context by relating it to other current technological trends today.

The central 5G standard discussed comes from 3GPP, but contributions from other relevant organizations are also described.

This condensed 5G course is the perfect way to kick-start your path on the 5G journey, regardless of your end goal. Perhaps you are aiming for an expert level of knowledge, and this is your first steppingstone, or you just want to keep up with the buzz and learn what is going on at the current forefront of the mobile evolution.

The course has been designed to be covered by students within half a normal working day.

PREREQUISITES

General technical knowledge of computing as well as experience from Tele- and/or Data communication is beneficial.

NOTE: This course is not delivered with the FoldOut methodology.

What is 5G and why?

- How 5G is described by the different industry players
- What will 5G be used for
- How 5G is defined from a technical point-of-view
- What is really new this time?

5G Network Architecture

- Non-Stand-Alone NR – the first step into 5G
- 5GC – The 5G Core Network
    - Functionalities and services in 5GC
    - Main functions e.g. SMF, AMF, UPF
    - The Service Based Architecture
    - Cloud and Virtualization basics
- NG-RAN – The Next-Generation Radio Access Network
    - NG-RAN architecture
    - gNB – The new base station
    - C-RAN – splitting the base station into separate parts
    - How is New Radio “new” and different from previous radio technologies

Some Important 5G Terms and Concepts

- Network Slicing
    - What is a Network Slice and what is the point?
    - How are Networks Sliced created and managed?
    - How does a 5G UE end up in the right Slice?
- The three main 5G use cases
    - eMBB – Extreme Mobile Broadband
    - mMTC – Massive Machine-Type Communication
    - URLLC – Ultra-Reliable and Low-Latency Communication

- Multi-access Edge Computing (MEC) and Local Area Data Networks (LADN)
    - Edge computing – why and how?
    - Which 5G services require edge computing
    - What is a LADN