

Access and Edge networks in 5G

Unit 1: 5G standardization process and spectrum allocation

- Standardization in ITU-R and 3GPP
 - 5G Use Cases
 - 5G NSA & SA
- Electromagnetic spectrum for 5G

Unit 2: Basic radio technologies for 5G

- Fundamentals of radiocommunications
 - Modulation techniques
 - Propagation mechanisms
 - Interference
- Multiantenna systems:
 - Antenna arrays and beamforming
 - MIMO and spatial multiplexing
 - Multiuser MIMO and Massive MIMO

Unit 3: 5G NR Standard

- Requirements and design principles
- 5G NR Release 15
 - 5G NR layer 1
 - 5G NR layer 2
 - 5G NR layer 3
- Improvements incorporated in 5G NR Releases 16, 17 and 18

Unit 4: 5G operational aspects

- Transport aspects
- Open RAN
- Deployment aspects
 - 5G operation in millimeter waves

Unit 5: Edge processing

- ETSI MEC standard