

GSM Planning (TK213)

Prerequisites

Participant should have advanced knowledge about GSM network design and functions. GSM network elements course is highly recommended.

Targetgroups

Personnel involved in planning and building a GSM network.

Duration

4.0 days

Course content

Planning process

- Preparing a planning project
- Planning targets
- Planning steps

Coverage planning

- Basics of radio wave propagation
- Diversity
- Environments Types
- Free space propagation model
- Okumura-Hata Model
- Walfish-Ikegami Model
- Knife-edge Model
- COST 231 Walfish-Ikegami Model
- COST 231 Okumura-Hata Model
- Link Budget Calculation
- Fading
- Pathloss
- Location probability
- Increasing coverage

Capacity planning

- Introducing traffic theory
- Quality and grade of service
- Erlang-B model
- Erlang-C model
- Calculating the traffic volume
- SDCCH planning
- TCH planning
- Increasing capacity

Frequency planning

- Cellular concept in GSM network
- Frequency plan in GSM network (FDD/FDMA/TDMA)
- Interference and adjacencies
- Frequency reuse and reuse pattern
- Frequency hopping

Optimizing

- Drive test
- Key performance indicator
- Power control
- Discontinuous transmission and voice activity detection
- Codec planning
- Antenna tilt
- Sectorization of the cell
- Hierarchical cell structure