



Certification & Training on GSM, GPRS Network Planning & Optimisation

Course Duration (25 Days)

Course Content

Part 1: Network Introduction (Day 1-2)

- Introduction
- History of Wireless Communication
- Phases of Network Deployment
 - Planning
 - Installation, Commissioning
 - Configuration
 - Optimization
 - Network Expansions
- Understanding of Basic Terminologies
- Analog and Digital Technologies
 - Sampling
 - Quantization
 - Encoding
- Concept of Modulation
 - Amplitude Modulation
 - Frequency Modulation
 - Phase Modulation
 - GMSK
 - QPSK
- In depth of Multiple Access Technology
 - FDMA
 - TDMA
 - CDMA
- Wireless Generations
- Standard Releases
- Electromagnetic Propagations
- Traffic Theory
- Concept of decibel (dB)





Part 2: GSM Overview (Day 3)

- GSM History & Phases
- GSM Fundamental
- Standardized GSM Frequency Bands
- GSM Architecture and Elements
 - MS
 - BSS
 - NSS
 - OSS study
- Interfaces
- Identities
- Frequency Re Use Concept

Part 3: GSM Air Interface and Parameters (Day 4-5)

- Channels Classification
 - Logical
 - Physical
- Radio Resource Management (RR)
 - Security and Authentication
 - Encryption/Ciphering
 - TMSI
 - Frame Concept
- Coding
 - Traffic
 - Signaling
- Burst Knowledge

Part 4: Planning Process Overview (Day 6-9)

- Link Budgeting
- Hands-on on Planning Tool**
 - Capacity Planning
 - Coverage Planning
 - Nominal Planning
 - Predictions in 3G
 - Neighbor Plan
 - 2G Best Arrays
- Generating Reports





Part 5: Network Parameters (Day 10-13)

- Idle Mode Procedure
 - First Time ON
 - Location Update
 - Paging
 - Cell Reselection
- Dedicated Mode
 - Mobile Originated Call (MOC)
 - Mobile Terminating Call (MTC)
 - Mobile to PLMN
 - SMS
 - Interference
 - Handover Concept
 - Power Control feature
 - Timing Advance
 - Frequency Hopping
 - Discontinuous Transmission

Part 6: GPRS/EDGE Overview (Day 14-15)

- Introduction to GPRS/EDGE
- GPRS/EDGE Architecture
- GPRS/EDGE Air Interface
- Coding Schemes
- Modulation
- States

Part 7: BSS Domain (Day 16)

- BSS Architecture
- Understanding of BTS
 - Functionality
 - BTS Elements
 - Types of BTS
 - Interface
 - Supporting BTS Elements
- BTS-BSC Connectivity
 - Transmission Knowledge
 - PCM Concept (E1)
 - Abis Interface
 - Microwave Connectivity
 - Antenna
 - Importance of VSWR





Part 8: NSS Domain (Day 17)

- Knowledge of NSS
- NSS Elements
 - MSC
 - VLR
 - HLR
 - AuC
 - EIR
 - SMSC
 - TRAU
 - GMSC
 - GGSN
 - SGSN
 - Billing Centre
 - MGW
 - TRAU
- PLMN-PLMN connectivity (POI)
- Interfaces

Part 9: Optimization (Day 18-20)**

- Site Audit
- Tool Setup
- Drive Collection

Part 10: Analysis (Day 21-23)

- Analysis of Field Parameters
- Troubleshooting of Field Problems
- Key Parameter Indicators (KPI)
- Layer 3 Analysis
- Post Processing of data
- Report Preparation

Drive Testing on Live Network

**Course Assessment
Question & Answer
Mock Interview**

