

Cellular Technologies Cellular Technologies **(3G and LTE)**

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Course Objective:

This course will enable the participants to understand the following concepts

- Network standards, GSM, EGPRS, UMTS, CDMA, HSPA, and LTE
- Radio Access Network Architecture
- Network Optimization and Parameter Modifications
- Key Performance Indicators (KPIs)
- Presenting real case studies with CS and PS drop calls and their solutions

Outline

- ***GSM and EGPRS***
 - *Introduction to GSM Technology*
 - *GSM Architecture*
 - *Signaling and Interfaces in the GSM Network*
 - *Channel Structure in the GSM*
 - *Network Optimization in GSM*
 - *Introduction to EGPRS Technology*
 - *EGPRS Network Elements*
 - *Interfaces in the EGPRS Network*
 - *EGPRS Network Design and Optimization*
- ***CDMA***
 - *Multiple Access Techniques Concept*
 - *Spread Spectrum*
 - *Codes in CDMA*
 - *Link Structure in CDMA*
 - *Radio Resource Management*
- ***UMTS (3G)***
 - *Introduction to 3G Evolution-UMTS*
 - *UMTS Services and Applications*
 - *UMTS Bearer Service QoS Parameters*
 - *QoS Classes (Traffic Classis)*
 - *WCDMA Concept*
 - *UMTS Architecture– Radio and Core Networks*
 - *Interfaces in UMTS*
 - *Radio Resource Management (RRM)*
 - *Network Optimization*

- **LTE (4G)**
 - *Introduction to LTE (Long Term Evolution)*
 - *LTE Technology*
 - *Radio Resource Management*
 - *Security in LTE*

- **Case Studies**
 - *CS-drop calls*
 - *PS-drop calls*
 - *IRAT drop calls*
 - *IRAT failure and successful handover*