



**Certification & Training on Exposure to Advance 3G**  
**Course Duration (1 Month)**

**Course Content**

**1). UMTS Overview.....(1 Day)**

- Brief History of cellular system
- Standardization of ITU
- Why UMTS?
- Evolution Path of UMTS Technology
- 3GPP Releases
- Date rate evolution till Rel.8

**2). UMTS Network Architecture and Functionality.....(3 Days)**

- R99 Architecture
- Functionalities of Network Nodes
  - RNC
  - Node B
  - MGW
  - MSS/VLR
  - GCS
  - IN
  - HLR
  - AUC
  - EIR
  - SGSN
  - GGSN
  - LIG
  - Border Gateway
  - Charging gateway
  - Billing center
  - NMS/OMC
- Understand basic procedures
  - Paging
  - Authentication





- Cell updates
- URA update
- Location update

- Overview of UMTS Network signaling & its Bearer, Protocols ,Call Flows

### **3). UMTS Radio Technology Concept .....( 2 Days)**

- WCDMA Principle
- WCDMA Duplex Method
  - FDD
  - TDD
- WCDMA Frequency Band Allocations
- Spreading Principle
- Chip Concept
- WCDMA codes
  - Channelization code
  - Scrambling code
- Processing Gain
- Multipath Propagation
- Rake receiver

### **4). UMTS Air Interface and Procedures overview.....(8 Days)**

- WCDMA Channels Overview
  - Logical Channels
  - Transport Channels
  - Physical Channels
- Channel Mapping
- RRC states
  - Cell DCH
  - Cell FACH
  - Cell PCH
  - Cell URA
- Radio Resource Management overview
  - Admission Control
  - Load Control
  - Packet Scheduler





- Code Allocation
- Power Control
  - Open Loop
  - Closed Loop
  - Outer Loop
- Handover Control
  - Soft Handover
  - Softer Handover
  - Hard Handover

**5). Introduction to HSDPA & HSUPA .....(2 Days)**

- HSDPA Principles
- HSDPA Channels
- HSUPA Principle
- HSUPA Channels
- HSPA Evolution path

**6). UMTS Services & traffic classes .....(1 Day)**

- Types of services
- QoS Parameters & classification
- Multi Bearer concept in UMTS
- UMTS services examples-
  - Conversation services
  - Streaming Services
  - Interactive Services
  - Video Download

**7).Optimization & Analysis.....(3 Days)**

- Site Audit
- Tool Setup
- Drive Collection
- Analysis of Field Parameters
- Troubleshooting of Field Problems
- Key Parameter Indicators (KPI)
- Layer 3 Analysis
- Post Processing of data
- Report Preparation





MobileComm Professionals, Inc.

1255 W 15th Street, Suite 440

Plano, TX 75075

Tel: (972)-633-5100

Toll Free: 1-8777-RF-MCPS

Fax: (972)-633-5106

[www.mcpsinc.com](http://www.mcpsinc.com)

**Holiday for Test Preparation.....(2 Days)**

**Course Assessment through written test & mock interview**



*Quality*



*Cost Effective*



*Wireless Engineering*



*Service*