



**IT, Telecommunication &  
Networking**



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Training and Development

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# Course: GPRS Technical Overview

| Code | City             | hotel              | Start      | End        | price  | Hours |
|------|------------------|--------------------|------------|------------|--------|-------|
| 428  | Florence (Italy) | Hotel Meeting Room | 2024-07-15 | 2024-07-19 | 5450 € | 25    |

## Overview

This course has been designed to inform the student of the technical aspects of the GPRS overlay network on GSM and the main procedures and applications. It is assumed the student will have an understanding of basic mobile cellular technology.

## Modules

### Introduction to GSM (10 topics)

1. GSM Architecture
2. Mobile Station
3. The BTS & BSC
4. The Transcoder Rate Adaptation Unit (TRAU)
5. Mobile Switching Centre (MSC)
6. The Registers
7. Layer Functionality & The OSI Model
8. Access Methods
9. TDMA Frames
10. Speech Coding

### General Packet Radio Service (GPRS) (12 topics)

1. Evolution of Wireless Data
2. GPRS Roaming
3. The GSM Phase II Overlay Network
4. Circuit Switched & Packet Switched
5. GPRS Radio Technologies
6. Cells & Routing Areas
7. Attaching to a Serving GRPS Support Node
8. Packet Data Protocol Context
9. Data Transfer
10. GPRS Terminals
11. Mobile Station Classes



## 12. Applications for GPRS

### **System Architecture (5 topics)**

1. Network Architecture
2. Data Routing
3. New Interfaces
4. Initial Implementations
5. TDMA - GPRS Physical Channel Capacity

### **Main GPRS Procedures (11 topics)**

1. Mobility Management
2. GPRS Attach
3. GPRS Attach Scenario
4. Mobile Station Initiated GPRS Detach
5. Network Initiated Detach
6. Activating a PDP Context Activation
7. GPRS Data Transfer
8. Security Functions
9. Authentication
10. Ciphering
11. Web Access

### **Radio and MS-PCUSN Interfaces (6 topics)**

1. Packet Logical Channels
2. System Information Type 13
3. Network Control
4. Packet Traffic Channels
5. RLC/MAC Block Structure
6. Channel Coding Schemes

### **MS to SGSN Interface (5 topics)**

1. Logical Link Control (LLC)
2. GPRS Ciphering Environment
3. Temporary Logical Link Identifier (TLLI)
4. Mobility Management



#### 5. GPRS Attach Procedure

#### **PCUSN - SGSN Interface (4 topics)**

1. The Protocol Stack for Gb Interface
2. PDU Transmission
3. Flow Control Procedures
4. Modes of Operation

#### **SGSN - GGSN Interface (5 topics)**

1. GPRS Tunnelling Protocol (GTP)
2. GTP Identities
3. Roaming & Wireless VPNs
4. PDP Context the SGSN role
5. Transparent & Non-Transparent Access

#### **Physical Layer Performance (4 topics)**

1. Coverage
2. Capacity
3. High-Bit Rates
4. Performance Enhancements

#### **Future Development (4 topics)**

1. HSCSD
2. Enhanced Data Rate for GSM Evolution (EDGE)
3. E-GPRS
4. UMTS/3G



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  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
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