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# Course: GPRS Technical Overview

Code	City	hotel	Start	End	price	Hours
428	Manama (Bahrain)	Hotel Meeting Room	2024-08-04	2024-08-08	2950 €	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)

- GSM Architecture
- Mobile Station
- The BTS & BSC
- The Transcoder Rate Adaptation Unit (TRAU)
- Mobile Switching Centre (MSC)
- The Registers
- Layer Functionality & The OSI Model
- Access Methods
- TDMA Frames
- Speech Coding

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

- Evolution of Wireless Data
- GPRS Roaming



- The GSM Phase II Overlay Network
- Circuit Switched & Packet Switched
- GPRS Radio Technologies
- Cells & Routing Areas
- Attaching to a Serving GRPS Support Node
- Packet Data Protocol Context
- Data Transfer
- GPRS Terminals
- Mobile Station Classes
- Applications for GPRS

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

- Network Architecture
- Data Routing
- New Interfaces
- Initial Implementations
- TDMA - GPRS Physical Channel Capacity

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

- Mobility Management
- GPRS Attach
- GPRS Attach Scenario
- Mobile Station Initiated GPRS Detach
- Network Initiated Detach
- Activating a PDP Context Activation
- GPRS Data Transfer
- Security Functions
- Authentication
- Ciphering
- Web Access



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

- Packet Logical Channels
- System Information Type 13
- Network Control
- Packet Traffic Channels
- RLC/MAC Block Structure
- Channel Coding Schemes

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

- Logical Link Control (LLC)
- GPRS Ciphering Environment
- Temporary Logical Link Identifier (TLLI)
- Mobility Management
- GPRS Attach Procedure

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

- The Protocol Stack for Gb Interface
- PDU Transmission
- Flow Control Procedures
- Modes of Operation

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

- GPRS Tunnelling Protocol (GTP)
- GTP Identities
- Roaming & Wireless VPNs
- PDP Context the SGSN role
- Transparent & Non-Transparent Access

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



- Coverage
- Capacity
- High-Bit Rates
- Performance Enhancements

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

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



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- **Theoretical Lectures:**

- We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.

- **Scientific Assessment:**

- We evaluate trainees skills before and after the course to ensure their progress.

- **Brainstorming and Interaction:**

- We encourage active participation through brainstorming sessions and applying concepts through role play.

- **Practical Cases:**

- We provide practical cases that align with the scientific content and the participants specific needs.

- **Examinations:**

- Tests are conducted at the end of the program to assess knowledge retention.

- **Educational Materials:**

- We provide both printed and digital scientific and practical materials to participants.

- **Attendance and Final Result Reports:**

- We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.

- **Professionals and Experts:**

- The programs scientific content is prepared by the best professors and trainers in various fields.

- **Professional Completion Certificate:**

- Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.

- **Program Timings:**

- Training programs are held from 10:00 AM to 2:00 PM and include coffee break sessions during lectures.