



## GSM Services and Protocols

**Course Length:** 4.5 days

**Description:** Global System for Mobile Communication (GSM) is the world's leading wireless communication standard. Starting from a brief historical perspective, this course looks at the architecture, elements and interfaces used in GSM. Next we will examine call flow scenarios and services available in GSM. Lastly, we will also define the protocol structure and content of the messages which support the GSM mobile applications and services. The course finishes with a brief GPRS overview.

This course is a combination of the GSM Overview and GSM MAP courses.

### **Proposed Course Outline:**

- **GSM Architecture Overview**
  - ✓ Worldwide GSM deployment
  - ✓ Trends in mobile telecommunications
  - ✓ GSM network components
  - ✓ GSM identities
  - ✓ GSM interfaces
  - ✓ GSM and Intelligent Networking (CAMEL)
  - ✓ GSM and 3GPP
  
- **The GSM Air Interface**
  - ✓ Radio link and user access
  - ✓ Physical channels and logical channels
  - ✓ Different types of channels
  - ✓ Frames and channel coding
  - ✓ Call setups using the radio channels
  
- **GSM Services**
  - ✓ Bearer services and teleservices
  - ✓ Phase I, Phase II and Phase 2+
  - ✓ Short Message Service (SMS)
  - ✓ Supplementary Services (various)
  
- **Roaming and Call Flow Scenarios**
  - ✓ Location Updating
  - ✓ Authentication and ciphering
  - ✓ Mobile originated calls
  - ✓ Mobile terminated calls
  - ✓ Short Message Service (SMS)
  - ✓ Handovers

- **Signaling in GSM**
  - ✓ Signaling across the various interfaces
  - ✓ Links – low-speed & high-speed
  - ✓ Network interconnection
  - ✓ SS7 protocol and GSM
  - ✓ 3GPP standards
  
- **A-Interface**
  - ✓ Signaling on the A-interface
  - ✓ Connection-oriented SCCP
  - ✓ BSSMAP and DTAP
  - ✓ Call flows across the A-interface
  
- **GSM Mobile Application Part (MAP)**
  - ✓ ITU-T TCAP structure
  - ✓ 3GPP Standards
  - ✓ GSM MAP operations
  - ✓ GSM MAP parameters
  - ✓ GSM MAP standards documents
  - ✓ ISDN-UP in handovers
  
- **Introduction to GPRS**
  - ✓ GPRS architecture
  - ✓ Services
  - ✓ Session, mobility and location management
  - ✓ Protocol overview
  - ✓ GSM MAP standards documents
  - ✓ GPRS channels

Exercises are provided throughout the course, reinforcing a practical understanding of the material. This gives the student practice in analyzing the protocol and understanding how the data being sent and received is used.

**Course Prerequisites:** A basic knowledge of mobile telephony and signaling would be helpful, but not essential.

**Instructors:** All of our instructors have years of experience developing and teaching technical courses at Telcordia Technologies (Bellcore) Learning Services in Lisle, IL.. They are all SS7 certified and CompTIA CTT+ Certified Professionals.

*\* This course is provided through special agreement with Telecom Training Associates, Inc.*