CAMEL Intelligent Networking

~~Course Length~~: 3 days

~~Description~~: Customized Applications for Mobile network Enhanced Logic (CAMEL) is a standard for intelligent GSM-based mobile networks. Deployed worldwide, CAMEL enables mobile network operators to offer value-added services quickly and efficiently whether in their home network or roaming. CAMEL is defined by the 3GPP in four different phases.

~~Course Outline~~:

- **GSM Overview**
  - ✓ Worldwide GSM deployment
  - ✓ GSM family technologies
  - ✓ Trends in GSM mobile telecommunications
  - ✓ GSM network components – BTS, BSC, MSC, VLR, HLR, EIR, SM-SC
  - ✓ GSM identities – MSISDN, IMSI, TMSI, IMEI, MSRN
  - ✓ GSM & CAMEL 3GPP Standards

- **GSM Signaling & Intelligent Networking**
  - ✓ Protocol architecture
  - ✓ Protocol layers
  - ✓ GSM Interfaces
  - ✓ SS7 MTP – Data Link, Link, Network
  - ✓ SS7 SCCP – Connectionless & connection-oriented messages, GTT
  - ✓ SS7 ITU-T TCAP
    - ➢ Supporting Documentation
    - ➢ Structure of ITU-T TCAP
    - ➢ TCAP Services
    - ➢ TCAP Forms
  - ✓ Local and Global Reference
  - ✓ Intelligent Networking (IN) overview
  - ✓ Principles of IN – INCM, SSF, SCF
  - ✓ PICs and DPs
  - ✓ Triggers
  - ✓ Basic Call State Model (BCSM)

- **CAMEL Phase 1**
  - ✓ 3GPP Specifications
  - ✓ Architecture
  - ✓ Phase 1 Services
  - ✓ CAMEL Phase 1 Procedures
  - ✓ Basic Call State Model – Originating & Terminating
  - ✓ Subscription Information (O-CSI & T-CSI)
  - ✓ Detection Points
  - ✓ Phase 1 Features & Information Flows (IF)
  - ✓ Protocols – CAMEL Application Part (CAP)
  - ✓ Operations and Information Elements (IE)

- **CAMEL Phase 2**
  - ✓ 3GPP Phase 2 Specifications
  - ✓ Architecture
  - ✓ CAMEL Subscription Data (O-CSI, T-CSI, U-CSI, SS-CSI, TIF-CSI)
  - ✓ Phase 2 Services
  - ✓ Basic Call State Model – Originating & Terminating
  - ✓ New Detections Points
  - ✓ Protocols – CAMEL Application Part (CAP)
  - ✓ Phase 2 services & GSM Supplementary Services

- **CAMEL Phase 3**
  - ✓ 3GPP Phase 3 Specifications
  - ✓ GSM UMTS Architecture
  - ✓ CAMEL Subscription Information (O-CSI, T-CSI, D-CSI, VT-CSI, N-CSI, TIF-CSI)
  - ✓ Phase 3 Features
  - ✓ BCSM – PIC and DP Additions
  - ✓ Phase 3 Procedures – CS, GPRS, SMS, USSD, SS, MM,
  - ✓ Phase 3 and GPRS
  - ✓ BCSM – Originating and Terminating
  - ✓ Phase 3 Information Flows)
  - ✓ Short Message Service (SMS)
  - ✓ Phase 3 CAMEL Application Part (CAP)

- **CAMEL Phase 4**
  - ✓ Phase 4 Features
  - ✓ Release 5, 6 and 7 Enhancements
  - ✓ Call Control
  - ✓ GPRS Control
  - ✓ Number Portability
  - ✓ Phase 4 and IP Multimedia Calls

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.

What You Will Learn: This course will examine the key concepts and terms of Intelligent Networking (IN) in general and CAMEL in particular. The course starts with an overview of GSM followed by GSM signaling. From there we will define Intelligent Networking and the various phases of CAMEL. Emphasis is placed on the standards that define CAMEL and the messages. There is opportunity throughout the class to further understand the material through practical exercises.

Who Will Benefit From This Course: This course is designed for individuals responsible for or involved with network planning, switch maintenance, central office engineering, interconnection, technical support or network operations. Though this course is designed for wireless providers, those involved in the wireline interconnect area might also find it beneficial.

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.*