



## VoIP Fundamentals

**Course Length:** 2 days

**Description:** Voice over Internet Protocol (VoIP) is currently the topic of choice in today's telecommunication networks. *VoIP Fundamentals* will give you the knowledge necessary to more effectively understand today's evolving telecommunications network. The course starts with an overview of basic terms and concepts of both the circuit-switched and packet-based networks. From there, it covers the architectures and protocols required to successfully implement VoIP.

### **Course Outline:**

- **Overview and Architecture**
  - ✓ Today's PSTN circuit-switched network
  - ✓ Packet and Data Networks
  - ✓ Internets and the Internet
  - ✓ Signaling networks and databases
  - ✓ What is Voice over IP?
  - ✓ VoIP equipment and topologies
  - ✓ Telephone numbers and IP addresses
  
- **How Voice is Transported over IP**
  - ✓ IP basics
  - ✓ Standards
  - ✓ Internet Protocol (IP)
  - ✓ Transmission Control Protocol (TCP)
  - ✓ User Datagram Protocol (UDP)
  - ✓ Real-Time Transport Protocol (RTP)
  - ✓ RTP Control Protocol (RTCP)
  
- **VoIP Using H.323**
  - ✓ H.323 Network elements
    - Terminals, Gatekeepers, Gateways, MCUs
  - ✓ H.323 protocol suite
  - ✓ Call set-up signaling
    - RAS
    - H.225
    - H.245
  - ✓ Sample call scenarios

- **VoIP Using Session Initiation Protocol (SIP)**
  - ✓ SIP network elements
  - ✓ Advantages of SIP
  - ✓ SIP message structure
  - ✓ SIP messaging
  - ✓ SIP addressing
  - ✓ Session Description Protocol (SDP)
  - ✓ SDP format
  - ✓ SIP and SDP
  
- **Gateways, Gatekeepers and Softswitches**
  - ✓ Media Gateway Control Protocol (MGCP)
  - ✓ MGCP commands
  - ✓ MEGACO
  - ✓ Softswitch Architecture
  
- **PSTN Interworking**
  - ✓ CCS Architecture
  - ✓ SS7 Protocol
  - ✓ H.323 and SS7
  - ✓ SIP and SS7

Exercises are provided throughout the course, reinforcing a practical understanding of the material.

**What You Will Learn:** You will learn the concepts of how voice, along with data and video can be transported using a common protocol – Internet Protocol (IP). Emphasis is placed on architectures and protocols needed in a VoIP network. We will also see how interconnection between today's signaling protocols and the protocols used in VoIP is accomplished.

**Who Will Benefit From This Course:** As networks migrate toward VoIP, this course will be valuable for those individuals responsible for planning, designing, marketing, managing or supporting almost any area of telecommunications.

**Course Prerequisites:** A basic knowledge of telephony, IP 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.*