

Course Name: VoIP Installation & Maintenance

Course Overview:

This course provides an overview of VoIP technology, VoIP Equipment, and IP technology. Students will work through installation practices and verify VoIP readiness of existing networks. Students will learn how to ensure the highest Quality of Service (QoS) and how to maintain and troubleshoot VoIP services on a data network.

Course Length: 2 days

Who should attend?

- Field Service Technicians
- Field Engineers
- Managers/ Field Supervisors
- Design Engineers
- Electricians
- Managers or Supervisors

You will learn:

- VoIP fundamentals
- Differences in network types
- Troubleshooting with the OSI Model
- Packets, addressing, and design
- VoIP protocols, signaling, voice streaming, and CODEC's
- Effective troubleshooting and maintenance
- Network assessment and optimization
- VoIP readiness

Prerequisites: None

Customizable Course: Yes



Course Content:

VoIP Overview

- Data Plane
- Control Plane
- Layers
- Equipment
- Network Layouts

IP Primer

- Packets
- The OSI Model
- IP Addressing – IPv4 and IPv6
- Classes
- Dynamic vs. Static IP Addressing
- Subnet Masking
- Multicast
- MTU
- TCP and UDP Ports

Connectivity

- Transport Networks
- Ethernet
- Wi-Fi

Networking Equipment

- Network Interface
- HUB
- Switch
- Duplex
- Power over Ethernet
- Router
- Interfaces
- Connections

Addressing

- IP Addressing
- Subnet Mask
- Gateway
- DHCP
- Gateway Address
- DNS



VoIP Equipment

- Network Interface
- Gateway
- PBX / Softswitch
- VoIP telephones
- Softphone

IP Telephony

- Voice CODEC's
- Quality Scores
 - R Factor
 - Mean Opinion Score (MOS)
- Network Quality of Service

Protocols

- H.323
 - H.225
 - H.245
- SIP
- MGCP
- Gateway Architectures

VoIP Readiness

- Network Preparations
- Power-over-Ethernet
- VLAN
- Port Forwarding
- Firewalls
- VoIP and VPNs

Troubleshooting

- Packet Analysis
- Protocol Decode
- Call Playback
- Test Equipment
- Determining Quality Scores, Latency, and Throughput

Extensive Hands-on Scenarios

