



## Telecommunications (CCNT)

# Broadband Technologies

Broadband Technologies – discusses the need for transmitting more than one type of signal simultaneously by way of divided channel and then explores the technology of voice and data integration, frame relay, SONET, ATM/cell relay, SMDS, BISDN, ADSL, and VPN.

**Course Length:** 18-hours

**System requirements:** Intel486, Windows 95, 98, NT 4.0 & Windows 2000, 32MB RAM, 30MB of free HD space, 2x CD-ROM, IE 5.0 or Netscape 4.06 or later, 28.8kbps modem, video card w/1MB memory.

**Related Courseware:** Basic Data Communications, Basic Telecommunications, Computer-Telephony Integration (CTI) Essentials, Local Area Networks (LANs), Voice over IP (VoIP) Essentials

## What's in Broadband Technologies – Student Guide?

Broadband Technologies – Student Guide is a three-day instructor-led course that discusses the need for transmitting more than one type of signal simultaneously by way of divided channel, and then explore the technology of voice and data integration, frame relay, SONET, ATM/cell relay, SMDS, BISDN, ADSL, and VPN.

The CCNT certificate program is a powerful tool for gaining entry-level, interdisciplinary criteria for convergence. This program is job-role neutral, and is essential for individuals in a job role who require a baseline knowledge of convergence disciplines.

CCNT certificate testing is administered online at [www.TelecomPREP.com](http://www.TelecomPREP.com). Upon successfully passing the six module tests, the user earns a CCNT Certificate of Completion from the TIA and can then display the CCNT logo on business cards.

## Why do I need Broadband Technologies – Student Guide?

- CCNT certificate satisfies basic industry knowledge and vocabulary requirements. Building block for advanced vendor specific technology.
- When combined with the remaining CCNT courses, it satisfies the CCNT certificate sponsored by the TIA. This program is recognized as one of the industry standards for network telecommunications.
- Enhances on-the-job training. Provides one of the core essentials for network telecommunication. Applied learning may improve employee job understanding and performance.



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## Topics

### **Section I - Overview**

- What is Broadband?
- Time-Division Multiplexing
- Packet-Switching
- Network Topologies
- Applications and Computing Power
- Categories and Requirements
- LAN/WAN
- IP and Convergence

### **Section II – SONET**

- SONET Standards and Purpose
- SONET Rates
- SONET Transport Structure
- SONET Mapping
- SONET Network Elements
- SONET Switching
- SONET Ring Concepts
- SONET Operations
- BISDN
- Wave-Division Multiplexing

### **Section III – SS7**

- Broadband Backbone Networks
- Signal System 7
- Signal Points
- Signaling Links
- Signaling Units
- Protocol Stack
- SoftSwitches
- Media Gateway Components

### **Section IV – Frame Relay**

- Protocol and Speed
- Frame Relay and Voice
- Frame Relay Terminology
- Routers, Bridges, and Gateways

### **Section V – Cell Relay**

- What is Cell Relay?
- Cell Relay and ATM
- Cell Relay and SMDS

### **Section VI – SMDS**

- SMDS Overview
- SDMS and Voice
- Connection vs. Connectionless
- SMDS and Virtual LAN

### **Section VII – ATM**

- ATM Protocols and Speeds
- ATM and Voice
- ATM Terminology

### **Section VII – DSL**

- Local Broadband Access
- DSL History
- Classes of DSL Service
- DSL Access Multiplexer
- DSL and Voice
- What is ADSL?
- What is SDSL?

### **Section IX – Wireless Broadband**

- Generations of Wireless
- LMDS Basics
- MMDS Basics

### **Section X – VPN**

- VPN Overview
- VPN versus Traditional WAN
- VPN Components
- VPN Security Threats
- VPN Applications