


Internetworking with TCP/IP

OVERVIEW

Cable operators are converting their technology from traditional RF, FDM systems to Internet Protocol (IP) transportation to enable a greater number and variety of services. Technicians called upon to support this conversion will be required to understand how IP and related protocols work together to enable video, data and voice services in the new IP-based networks.

The Internetworking with TCP/IP course introduces networking protocols, including transmission control protocol (TCP), HTTP, TFTP and FTP and outlines how to test and troubleshoot Internetworked communications systems. It also instructs how to recognize, describe and implement TCP/IP application services so the student is capable of providing support for voice, video and data-related services in digital networks.

Delivery Options:

 Learning is a combination of online and textbook activities.

Completion Time:

Varies based on the student's self-study pace, however, the maximum time allowed is six months from enrollment.

BENEFITS

Upon completion students will:

- » understand how to install, test and troubleshoot IP-based communication systems
- » effectively design and implement systems to support email, remote terminal access, networks, web access and other TCP/IP services
- » successfully support voice, video and data services in IP networks
- » receive an industry-recognized Jones/NCTI™ certificate of graduation
- » earn a \$15 voucher toward SCTE membership and certification enrollment fees
- » earn three hours of college credit
- » use this course to help prepare for SCTE's Broadband Telecom Center Specialist Data endorsement

Ideal for:

Technical personnel supporting Internet-based services, including:

- » broadband technicians
- » network technicians
- » headend technicians
- » access bandwidth technicians
- » system technicians

COURSE OBJECTIVES

Upon completing this course, students will be able to:

1. recognize TCP/IP layers, components and functions and map them to the Open System Interconnection (OSI) model

(Continued)

RELATED COURSES

Students completing this course should then enroll in:

- » Understanding Voice and Data Networks
- » Computers and Broadband Modems

TRAINING FEATURES

- » Knowledge-based, broadband and job-specific content
- » Highly illustrated and easy to read course materials
- » Curriculum advising
- » 24/7 lesson feedback and progress monitoring at www.jonesncti.com
- » Online testing

Visit www.jonesncti.com/coursepolicy.htm for important information on computer hardware/software requirements and student-to-student transfer and extension limitations



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COURSE OBJECTIVES *(Continued)*

2. describe and implement TCP/IP application services that support email, remote terminal access, network management, web access and file transport across routed networks
3. explain TCP/IP protocols used to transport data over intranets, extranets and the Internet
4. identify and use Internet navigation and search tools, such as web browsers and hypertext transfer protocol (HTTP), as well as file transfer services, such as file transfer protocol (FTP) and trivial file transfer protocol (TFTP)
5. design and implement subnetworks
6. choose a routing protocol based on network size and service requirements, including quality of service/type of service (QoS/ToS) routing, variable-length subnet mask (VLSM) and link redundancy
7. describe TCP/IP support services, including domain name service (DNS) and dynamic host configuration protocol (DHCP)
8. use TCP/IP tools to troubleshoot and isolate Internetwork communication failures
9. explain how TCP/IP supports converged voice and data networks

COURSE OUTLINE

1. TCP/IP Structure Addressing

Open system interconnection (OSI) model review, Internet protocol suite, internet addressing and Internetworking devices

2. Overview of TCP/IP Applications

Summary of transmission control protocol/Internet protocol (TCP/IP) applications, web browsers and servers, telnet, file transfer protocol (FTP) and email

3. TCP/IP Addressing and Subnets

Number conversion and subnetting fundamentals

4. TCP/IP Protocols

IP, address resolution, user datagram protocol (UDP), TCP and connection establishment and moving information across the network

5. TCP/IP Services

Domain name service (DNS), dynamic host configuration protocol (DHCP) and network address translation (NAT)

6. Routing TCP/IP

IP Routing

7. Troubleshooting a TCP/IP Network

Troubleshooting principles, winipcfg, packet Internet groper (Ping) and tracert



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