EDUCORP
Training & Consulting

TCP/IP: Introduction and Advanced

Course Specifications

Course number: 079520
Course length: 3.0 day(s)

Course Description

TCP/IP: Introduction and Advanced provides a basic understanding of the configuration, communication, and management of one of the most widely used internetworking protocols and the backbone of today's Internet.

Prerequisites: If you have a basic understanding of data communications and you understand networking principals, this course is for you. If you are not comfortable with the basics of data communications and have no theoretical or practical network experience, you will want to take *Introduction to Data Communications* as a prerequisite.

Delivery Method: Instructor led, group-paced, classroom-delivery learning model with structured hands-on activities.

Performance-based Objectives

Upon successful completion of this course, students will be able to:

- Describe how and why the TCP/IP protocol suite was invented.
- Define the similarities and the differences between the OSI model and the TCP/IP model.
- Describe how TCP/IP addresses are structured.
- Describe the format of TCP/IP headers.
- Describe the functions of the prevalent TCP/IP protocols, ports, and sockets.
- Define the concept of subnetting and why it is used.
- Describe the functions of the TCP/IP routing protocols.
- Describe how Classless InterDomain Routing (CIDR) or supernetting helps conserve addresses.
- Define how multicasting works and the future of TCP/IP Ipv6.

Course Content

Lesson 1: Introduction to TCP/IP

Topic 1A: Overview of the History of TCP/IP
Topic 1B: Overview of TCP/IP Architecture
Topic 1C: Supporting the Internet
Topic 1D: OSI Reference Model

Lesson 2: The TCP/IP Model vs. the OSI Model

Topic 2A: OSI Model versus the TCP/IP Model
Topic 2B: The OSI and TCP/IP Layers

Lesson 3: IP Addressing

Topic 3A: Fundamentals of IP Addresses
Topic 3B: Allocation of IP Addresses for Private Networks
Topic 3C: Address Resolution Protocol
Topic 3D: BOOTP
Topic 3E: DNS and Domain Structure

Lesson 4: IP Protocol, UDP and TCP Packets, Ports and Sockets

Topic 4A: The IP Protocol
Topic 4B: Ports and Sockets
Topic 4C: TCP
Topic 4D: How TCP Handles Connections
Topic 4E: UDP

Lesson 5: TCP and UDP Protocols, Ports, and Sockets

Topic 5A: Overview of TCP and UDP
Topic 5B: TCP Applications
Topic 5C: UDP Applications
Topic 5D: ICMP Overview

Lesson 6: Subnetworks (Subnets)

Topic 6A: Why Subnets Are Used
Topic 6B: Subnet Masks
Topic 6C: Logical AND for Subnets
Topic 6D: Subnetting Scenarios

Lesson 7: IP Routing

Topic 7A: Routing Basics
Topic 7B: Distance-vector Routing
Topic 7C: Link-state Routing

Lesson 8: CIDR/Supernetting

Topic 8A: CIDR, or Supernetting
Topic 8B: EGP and BGP-4
Topic 8C: NAT
Topic 8D: VPN

Lesson 9: IP Multicasting and IPv6

Topic 9A: Overview of IP Multicasting
Topic 9B: Overview of IPv6