

## Advanced Enterprise TCP/IP

### Course Summary

#### Description

This course teaches the critical skills necessary to design, implement and troubleshoot TCP/IP networks. This is a detailed course discussing the operation, interoperation and behaviors of communications protocols. This is not a UNIX or Windows NT installation course.

#### Objectives

At the completion of this course, the student will be able to:

- Configure and install TCP/IP
- Implement TCP/IP over a WAN and LAN network structure
- Troubleshoot TCP/IP Connectivity issues
- Handle TCP/IP security implementation and troubleshooting
- Create and manage IP subnetting

#### Topics

- Underlying Technologies
- Internet Protocol (IP)
- Domain Name System
- Planning and Subnetting
- SuperNetting
- Network Security
- Troubleshooting

#### Audience

This course is designed for network administrators or technicians and those who are going to be managing TCP/IP networks.

#### Prerequisites

The student should have attended an introductory TCP/IP course or have equivalent knowledge. This course assumes that the student has a good understanding of TCP/IP and it's configuration and a working knowledge of LAN and WAN networking.

#### Duration

Two Days

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### Course Outline

- I. Overview and Introduction**
  - A. Instructor introduction
  - B. Student introduction
  - C. Introduction of course material
  - D. Course objectives
  - E. Course overview
- II. TCP/IP Overview Review**
  - A. Overview of TCP/IP Classes
  - B. Standards Review
  - C. TCP/IP Versions
- III. Underlying Technologies**
  - A. Transmission Media
  - B. Switching
  - C. Wide Area Networking
  - D. Local Area Networking
  - E. Connecting Devices
- IV. Internet Protocol**
  - A. Fragmentation
  - B. IP Packet Design
  - C. CheckSum
  - D. Error Control
  - E. TCP/IP Timers
- V. Domain Name System**
  - A. Name Space
  - B. Distribution of Name Space
  - C. Name Resolution
  - D. Configuring the Named & Resolver
- VI. Planning and Subnetting**
  - A. Weaknesses in IP addressing
  - B. Special Address Conventions
  - C. Network and Host Byte Order
  - D. Subnet Addressing
  - E. Maintaining Subnet Masks
  - F. Examples
- VII. SuperNetting**
  - A. SuperNetting
  - B. CIDR Address blocks
  - C. Variable-Length Subnets
  - D. Examples
- VIII. Network Security**
  - A. Security Pre Planning
  - B. Access Control
  - C. Firewalls (IPSec)
  - D. Packet Level Filtering
  - E. Proxy Access
  - F. Encryption
- IX. Troubleshooting**
  - A. SNMP and MIB
  - B. Types of Errors
  - C. Troubleshooting Protocols
  - D. Troubleshooting Router Interfaces
  - E. Diagnostic Tools and Uses