

CIWv5 Foundations Series

Network Technology Foundations



Network Technology Foundations teaches essential networking technologies and skills, including TCP/IP, stable network creation, wireless networking and network troubleshooting. Students will learn to use various network components and protocols that enable users to share data quickly and easily. Students will explore the different types of transmission media, and will learn how network architecture and topologies provide for efficient and secure communication. In addition, students will learn about the OSI reference model and its relationship to packet creation, and students will compare and contrast the OSI model with the Internet architecture model.

Students will study the functions and features of internetworking server types, and will achieve competency in performing basic hardware and operating system maintenance procedures. In addition, students will learn about the importance of RFCs and where to locate the most recent RFC documents. Students will also learn about the importance of routing, and will explore IP addressing, IP address classes and subnet masks. This course will also teach students essential network security concepts, including authentication, encryption and firewalls. Finally, students will explore career opportunities in the IT industry, and will discuss effective ways of communicating technical information.

Topics

Introduction to Networking

- Overview of Networks and Protocols
- Telephony Networking
- Networking Evolution
- Client/Server Model
- Network Operations Center (NOC)
- Networking Categories
- Network Topologies
- Network Operating System
- Microsoft Windows Servers
- UNIX
- Novell NetWare
- The Need for Protocols
- OSI Reference Model
- Packets
- OSI/RM Protocol Examples
- Major Networking Protocols
- TCP/IP
- IPX/SPX
- NetBEUI
- AppleTalk
- Choosing and Combining Protocols
- Local Area Network (LAN)
- Wide Area Network (WAN)
- Network Access Point (NAP)
- Common Network Components
- Transmission Media
- Wireless Network Technologies
- Transmission Types
- IEEE LAN Standards
- Additional LAN Standards
- WAN Standards
- T-Carrier System
- E-Carrier System
- SONET/SDH

TCP/IP Suite and Internet Addressing Introduction to TCP/IP

- Internet Architecture
- Requests for Comments (RFCs)
- Internet Protocols
- Demultiplexing
- Introduction to Routing
- Routing Protocols
- Port Numbers
- Internet Addressing
- Subnet Mask
- Internet Address Classes
- Internet Protocol Version 6 (IPv6)
- System Configuration and IP Addresses
- Diagnostic Tools for Internet Troubleshooting

Internetworking Servers

- Overview of Internetworking Servers
- File and Print Servers
- HTTP Server Essentials
- Database Server
- Proxy Server
- Mail Server
- Instant Messaging (IM)
- Mailing List Server
- Media Server
- DNS Server
- FTP Server
- News Server
- Certificate Server

- Directory Server
- Catalog Server
- Fax Server
- Transaction Server
- The Internet Daemon: inetd and xinetd
- Mirrored Server
- Choosing Web Server Products

Hardware and Operating System Maintenance

- Basic Hardware and System Maintenance
- Motherboard
- IRQs, I/O Addresses and DMA
- Mass Storage Device Interfaces
- Network Interface Card
- Common Peripheral Ports
- Power Requirements
- CD-ROM and DVD
- Client Operating System Management
- Software Licensing
- Partitions and Logical Drives
- File System Types
- File System Management Tools
- Troubleshooting Software
- Remote Management and Troubleshooting

Network Security and IT Career Opportunities

Importance of Network Security
Defining Security
Overview of Network Attack Types
Viruses and Worms
Defeating Attacks
Authentication

Encryption
Network-Level Protocols and Encryption
Virtual Private Network (VPN)
Remote Access Server (RAS)
Digital Certificate
Public Key Infrastructure (PKI)
Firewall

Security Zones
Firewall Topologies
Security Audit
Uninterruptible Power Supply (UPS)
IT Industry Career Opportunities
Technical Concepts and Training

Target Audience

All professionals required to use the Internet in their daily job functions. Information in this course is required for all levels of specialization in the CIW program.

Job Responsibilities

Understand the common core of Internet knowledge, and apply the foundation skills required for further specialization.

Prerequisites

No prior experience using the Internet, developing Web pages or configuring networks is necessary. However, students should be familiar with an operating system such as Microsoft Windows XP before taking this course. The CIW Foundations courseware does not provide entry-level computer literacy. Rather, it builds upon computer literacy training and certifications such as Microsoft Office Specialist (www.microsoft.com) and IC³ (www.certiport.net).