

# CIWv5 Foundations Series

## Network Technology Foundations v2.0



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

You will study the functions and features of internetworking server types, and learn about the benefits of implementing a Content Management System (CMS). You will also achieve competency in performing basic hardware and operating system maintenance procedures. In addition, you will learn about mobile computing devices and the importance of RFC documents.

You will also learn about the importance of routing, and will explore IP addressing, IP address classes and subnet masks. Finally, you will explore essential network security concepts, Internet-based challenges facing today's users, and methods you can use to secure networks and network transmissions, including authentication, encryption and firewalls.

### Topics

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#### Introduction to Networking

Overview of Networks and Protocols  
Telephony and Convergence  
    Networking  
Networking Evolution  
Client/Server Model  
Network Operations Center (NOC)  
Networking Categories  
Network Topologies  
Network Operating System  
Microsoft Windows Servers  
UNIX/Linux  
The Need for Protocols  
OSI Reference Model  
Data Encapsulation  
Packets  
OSI/RM Protocol Examples  
TCP/IP  
IPX/SPX  
Binding Protocols  
Local Area Network (LAN)  
Wide Area Network (WAN)  
Internet Exchange Point (IXP)  
Common Network Components  
Transmission Media  
Wireless Network Technologies  
Transmission Types  
IEEE LAN Standards  
T-Carrier System  
E-Carrier System  
SONET/SDH  
Downloading Files with BitTorrent  
Virtualization

#### 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 Servers  
Proxy Servers  
Mail Servers  
Instant Messaging (IM)  
Mailing List Servers  
Media Servers  
DNS Servers  
FTP Servers  
News Servers  
Certificate Servers  
Directory Servers  
Fax Servers  
Transaction Servers  
Choosing Web Server Products  
Content Management System (CMS)

#### Hardware and Operating System

**Maintenance**  
    Basic Hardware and System  
    Maintenance

Motherboard  
IRQs, I/O Addresses and DMA  
Mass Storage Device Interfaces  
Network Interface Card (NIC)  
Common Peripheral Ports  
Power Requirements  
Optical Discs  
TV Tuner Card  
HDMI Connections  
Mobile Computing  
Netbooks  
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 Personal Privacy Protection

Importance of Network Security  
Viruses and Worms  
Overview of Network Attack Types  
Defeating Attacks  
Authentication  
Encryption  
Firewalls  
Firewall Topologies  
Security Zones  
Virtual Private Network (VPN)  
Security Audit  
Uninterruptible Power Supply (UPS)  
Personal Privacy and the Internet  
Personal Protection and the Internet

## Target Audience

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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

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

## Prerequisites

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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](http://www.microsoft.com)) and IC<sup>3</sup> ([www.certipoint.net](http://www.certipoint.net)).