

## Course Outline

---

### 6420- Fundamentals of Windows Server 2008 Network and Applications Infrastructure



**Duration:** 5 day (30 hours)

**Target Audience:**

This course is intended for new IT employees or Desktop Support workers moving into server support. The information in this course allows them acquire a fundamental understanding of Windows networks to pursue advanced topics. This course is also useful for those migrating from competitive platforms to Windows Server 2008.

**Prerequisites:**

Before attending this course, students must have:

- A+, Server+, hardware portion of Net+, and familiarity with Windows (client side)
- Working knowledge of networking technologies

**Topics Covered:**

➤ Module 1: Fundamentals of Network Infrastructure

- Network Communication Standards
- Physical Network Infrastructure
- Logical Network Organization
- Overview of Active Directory
- Server Roles
  - Lab: Identifying Network Components
    - Exercise 1: Creating a Network Diagram
    - Exercise 2: Expanding the Network Diagram

After completing this module, students will be able to:

- Describe the purpose of network communication standards and the OSI model.
- Describe the components of physical network infrastructure.
- Describe the logical organization of networks.
- Describe the characteristics of Active Directory components.
- Describe server roles and how they are categorized.

➤ Module 2: IT Professionals in the Enterprise

- IT Professional Roles
- IT Management and Processes
- Professional Development for IT Professionals
  - Lab: Developing a Training Plan
    - Exercise 1: Reviewing Information about Microsoft Learning Resources
    - Exercise 2: Creating a Training Plan

After completing this module, students will be able to:

- Describe the IT professional roles.
- Describe IT management and processes.
- Describe options for the professional development of IT professionals.

➤ Module 3: Configuring Basic TCP/IPv4

- Overview of the TCP/IP Protocol Suite
- Overview of TCP/IP Addressing
- Name Resolution
- Dynamic IP Addressing
- TCP/IPv4 Tools
  - Lab: Configuring Basic TCP/IPv4 Settings and Validating TCP/IPv4 Connectivity
    - Exercise 1: Configuring a Dynamic IP Address
    - Exercise 2: Configuring a Static IP Address
    - Exercise 3: Testing DNS Configuration
    - Exercise 4: Connecting to a Web Application

After completing this module, students will be able to:

- Describe the TCP/IP protocol suite and the individual protocols that are part of it.
- Describe the components of IPv4 addressing.
- Describe NetBIOS and DNS name resolution.
- Describe how IPv4 addresses can be assigned dynamically.
- Describe tools that can be used to manage and monitor IPv4.

➤ Module 4: Fundamentals of Communication Technologies

- Network Content Types
- Packet Delivery Methods

After completing this module, students will be able to:

- Describe static, dynamic, and streaming content.
- Describe unicast, broadcast, and multicast packet delivery.

➤ Module 5: Creating IPv4 Address Spaces

- Overview of IP Communication
- Subnetting Overview
- Subnetting for Complex Networks
  - Lab: Creating IPv4 Address Spaces
    - Exercise 1: Defining the Subnet Mask for a WAN
    - Exercise 2: Defining the Hosts for a Network

After completing this module, students will be able to:

- Describe the IPv4 communication process between computers.
- Describe the concept of subnetting.
- Create IPv4 networks by performing subnetting.

➤ Module 6: IPv6 Fundamentals

- Introduction to IPv6
- Unicast IPv6 Addresses
- Configuring IPv6
  - Lab: Configuring IPv6
    - Exercise 1: Defining IPv6 Networks for Internal Use
    - Exercise 2: Configuring a Static IPv6 Address on a Server

After completing this module, students will be able to:

- Describe the characteristics of IPv6.
- Describe the characteristics of IPv6 unicast addresses.

- Describe how IPv6 can be configured automatically and statically.
- Module 7: Fundamentals of Administering Windows Server 2008
  - Using Windows Server 2008 Administrative Tools
  - Monitoring Performance
  - Monitoring Events
  - Using Remote Desktop for Administration
  - Configuring Security for Server Administration
    - Lab: Administering Windows Server 2008
      - Exercise 1: Joining a Server to the Domain
      - Exercise 2: Configuring Remote Desktop for Administration
      - Exercise 3: Centralizing Event Logging
      - Exercise 4: Resolving a Performance Issue by Using Reliability and Performance Monitor

After completing this module, students will be able to:

- Describe common Windows Server 2008 Administrative Tools.
- Describe how to monitor performance.
- Describe how to monitor events.
- Describe how to use Remote Desktop for administration.
- Describe how to configure security for server administration.

- Module 8: Security Fundamentals
  - Defense-in-Depth
  - Securing Access to Web Content
  - Securing Access to Files
  - Data Encryption
    - Lab: Configuring Data Security
      - Exercise 1: Creating a Simple Share
      - Exercise 2: Creating an Advanced Share
      - Exercise 3: Configuring Web Content for Anonymous Access
      - Exercise 4: Securing Web Content

After completing this module, students will be able to:

- Describe how Defense in Depth is used to secure computers.
- Describe how to secure access to Web content.
- Describe how to secure access to files.
- Describe data encryption and how it is used to protect data on disk.

- Module 9: Fundamentals of Securing Network Communication
  - Public Key Infrastructure
  - Using Certificates
    - Lab: Securing a Web Site by using SSL
      - Exercise 1: Verifying the Trusted Root CA
      - Exercise 2: Securing a Web site by using SSL

After completing this module, students will be able to:

- Describe public key infrastructure components and certificates.
- Describe methods for securing network communication by using certificates.

- Module 10: Windows Firewall and Caching Fundamentals
  - Overview of Perimeter Security
  - Windows Firewall Overview
  - Creating Windows Firewall Rules
  - Monitoring and Troubleshooting Windows Firewall

- Lab: Using Windows Firewall
  - Exercise 1: Limiting Access to a Web Application
  - Exercise 2: Distributing Windows Firewall Rules by Using Group Policy

After completing this module, students will be able to:

- Describe firewall and proxy server characteristics.
- Describe Windows Firewall and how to perform basic administration.
- Describe how to create Windows Firewall rules.
- Describe how to monitor and troubleshoot Windows Firewall.

➤ Module 11: Remote Access Fundamentals

- Remote Access Overview
- RADIUS Overview
- Network Policy Server
- Troubleshooting Remote Access
  - Lab: Implementing Remote Access
    - Exercise 1: Implementing a VPN server
    - Exercise 2: Implementing a RADIUS server
    - Exercise 3: Implementing a RADIUS proxy

After completing this module, students will be able to:

- Describe the characteristics of remote access methods.
- Describe how RADIUS is used.
- Describe how to implement network policies on a Network Policy Server.
- Describe how to troubleshoot remote access.

➤ Module 12: Routing Fundamentals

- Routing Overview
- Configuring Routing and Remote Access as a Router
- Quality of Service
  - Lab: Configuring Routing
    - Exercise 1: Configuring a LAN Router
    - Exercise 2: Implementing RIPv2
    - Exercise 3: Configuring a Demand-dial Router
    - Exercise 4: Configuring QoS

After completing this module, students will be able to:

- Describe routing protocols and routing tables.
- Describe how to configure RRAS as a LAN router.
- Describe Quality of Service (QoS) and how to implement it.

➤ Module 13: Network Load Balancing Fundamentals

- Server Availability and Scalability Overview
- Network Load Balancing
- Configuring Windows NLB
  - Lab: Implementing Network Load Balancing
    - Exercise 1: Preparing Web Servers for NLB
    - Exercise 2: Creating an NLB Cluster for Failover
    - Exercise 3: Configuring an NLB Cluster for Load Balancing

After completing this module, students will be able to:

- Describe server availability and scalability options.
- Describe Windows Network Load Balancing.
- Describe how to configure Windows Network Load Balancing.

➤ Module 14: Configuring Print Resources and Printing Pools

- Printing Overview
- Configuring Network Printers
- Using Print Management
- Managing Printers
- Troubleshooting Network Printing
  - Lab: Implementing Printing
    - Exercise 1: Creating an XPS document
    - Exercise 2: Adding a Printer by Using Control Panel
    - Exercise 3: Using Print Management
    - Exercise 4: Deploying Printers by Using Group Policy
    - Exercise 5: Migrating a Printer to a New Server

After completing this module, students will be able to:

- Describe the printing process.
- Describe how to configure network printers.
- Describe how to manage servers by using Print Management.
- Describe how to manage printers by using Print Management.
- Describe how to troubleshoot network printing.

➤ Module 15: Server Virtualization Overview

- Overview of Server Virtualization
  - Overview of Windows Server Virtualization
  - Creating a Virtual Environment
- 
- Describe benefits and characteristics of server virtualization.
  - Describe benefits and characteristics of Windows Server Virtualization.
  - Describe how to configure and manage a virtual environment.