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**Western Technical College**

# 10150192  Windows Server Administration 1
## Course Outcome Summary

## Course Information

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|---|---|
| **Description** | Provides hands-on experience in the installation and management of microcomputer networks. Topics covered include installing the network operating system, setting up workstations, creating and managing user accounts, network printing, network security, and backup. |
| **Career Cluster** | Information Technology |
| **Instructional Level** | Associate Degree Courses |
| **Total Credits** | 3 |
| **Total Hours** | 72 |

## Pre/Corequisites

Prerequisite          10150110 Cisco 1: Networking Fundamentals

## Textbooks

*MCSA Guide to Installation, Storage, and Compute with Windows Server 2016, Exam 70-740*. 1st Edition. Copyright 2018. Tomsho, Greg. Publisher: Cengage Learning. **ISBN-13:** 978-1-337-40068-8. Required.

*MCSA Guide to Networking with Windows Server 2016, Exam 70-741.* 1st Edition. Copyright 2018. Tomsho, Greg. Publisher: Cengage Learning. **ISBN-13:** 978-1-337-40080-0. Required.

*MCSA Guide to Identify with Windows Server 2016, Exam 70-742.* 1st Edition. Copyright 2018. Tomsho, Greg. Publisher: Cengage Learning. **ISBN-13:** 978-1-337-40091-6. Required.

## Program Outcomes

1. Identify security strategies

2. Implement secure infrastructures

3. Analyze security data

4. Mitigate risk

5. Develop security documentation

## Course Competencies

**1. Value working with others.**

**Assessment Strategies**
1.1. Lab Assignment

**Criteria**

*You will know you are successful when*

1.1. you join in group discussions.
1.2. you participate in team activities.
1.3. you share ideas with others.
1.4. you listen to ideas of others.
1.5. you display mature attitudes towards others.
1.6. you accept responsibility for completing assigned tasks.
1.7. you encourage other members of the team to participate.
1.8. you arrive at meeting place on time and with required materials.

**Learning Objectives**
1.a. Work successfully in groups
1.b. Appreciate individual differences
1.c. Accept responsibility for completing tasks

**2. Determine hardware requirements of network server.**

**Assessment Strategies**
2.1. Lab Activity
2.2. Written Objective Test

**Criteria**

*You will know you are successful when*

2.1. you explain function of file server and application server.
2.2. you define bottleneck and multiprocessing.
2.3. you list and compare microprocessors and bus architectures.
2.4. you define throughput and access speed.
2.5. you compare IDE and SCSI hard drives.
2.6. you state the amount of disk space needed for server installation of software applications.
2.7. you explain RAID levels 0, 1, and 5.
2.8. you explain RAID 5 parity and how it is stored on a drive.
2.9. you define caching.
2.10. you list and describe types of RAM.
2.11. you estimate the amount of RAM required for a server.
2.12. you explain functions of network interface card (NIC).
2.13. you check vendor's hardware compatibility list.

**Learning Objectives**
2.a. Explain role of server
2.b. Compare hardware requirements of a file server and an application server.
2.c. Select server hardware
2.d. Verify hardware is compatible with network operating system

**3. Install Windows network operating system.**

**Assessment Strategies**
3.1.    Lab Assignment
3.2.    Skill Demonstration

**Criteria**

*You will know you are successful when*

3.1.    you verify hardware is on Microsoft Hardware Compatibility List (HCL).
3.2.    you create a Hardware List document.
3.3.    you create disk partitions.
3.4.    you differentiate between FAT and NTFS file systems.
3.5.    you describe network protocols.
3.6.    you explain the three server types (roles).
3.7.    you select a valid server and domain name.
3.8.    you compare Per Server and Per Seat licensing.
3.9.    you explain purpose of emergency boot disk.
3.10.   you work with group/team to successfully install Windows 2000 server.

**Learning Objectives**
3.a.    Describe steps involved in performing professional and server installation
3.b.    Document operating system installation and customization
3.c.    Compare FAT and NTFS file systems
3.d.    Apply service packs to operating system installation
3.e.    Plan for Windows 2000 installation
3.f.    Differentiate between workstation, standalone server, and domain server installations

**4.    Configure workstations to connect to the network.**

**Assessment Strategies**
4.1.    Skill Demonstration

**Criteria**

*You will know you are successful when*

4.1.    you install the network interface card (NIC).
4.2.    you explain function of the NIC driver.
4.3.    you list and describe network protocols.
4.4.    you log on to a Microsoft Network.
4.5.    you list three or more types of Microsoft network clients.
4.6.    you log into a workgroup and domain.
4.7.    you input and identify the impact of the ip address, gateway, and subnet mask.

**Learning Objectives**
4.a.    Identify  the correct network to add the workstation to
4.b.    Identify and describe hardware and software components that are needed to connect a computer to the network
4.c.    Set up a Windows client to connect to the network

**5.    Compare benefits of workgroup versus domain networks.**

**Assessment Strategies**
5.1.    Written Objective Test

**Criteria**

*You will know you are successful when*

5.1.    you verify all hardware is compliant for participating in a domain.
5.2.    you add the server to a domain.
5.3.    you log into the domain successfully.
5.4.    you set security for administrative purposes.
5.5.    you set up access for users in the domain.
5.6.    you work with other users and servers to share files in both workgroups and domains.
5.7.    you differentiate between local and domain logins.
5.8.    you list reasons for conversion from workgroup to domain.

5.9.    you document conversion from workgroup to domain based server.

**Learning Objectives**
5.a.    Describe reasons for being a member of a domain
5.b.    Participate as a member of a workgroup and domain
5.c.    Identify benefits of workgroups and domains
5.d.    Set up required security and administration for server access to a domain
5.e.    Plan conversion from a standalone server to a domain based server

## 6.    Install Windows 2008 Active Directory Structure.

**Assessment Strategies**
6.1.    Lab Assignment

**Criteria**

*You will know you are successful when*

6.1.    you install Active Directory on Windows 2000 server.
6.2.    you list and describe benefits of Active Directory installation.
6.3.    you explain function of Active Directory installation.
6.4.    you list and explain three types of scopes involved with an active directory object.
6.5.    you explain contents of Active Directory Database.
6.6.    you set up security for administration of Active Directory.

**Learning Objectives**
6.a.    Explain the advantages of server based versus peer-to-peer network
6.b.    Plan for the scope of the Active Directory Service
6.c.    Identify objects contained in the Active Directory
6.d.    Perform and document Active Directory Service installation

## 7.    Develop a network management plan.

**Assessment Strategies**
7.1.    Oral Test

**Criteria**

*You will know you are successful when*

7.1.    you value use of network standards.
7.2.    you choose a meaningful naming convention for users and system resources.
7.3.    you explain password security policies.
7.4.    you describe group management and its advantages.
7.5.    you design directory structure for a server.
7.6.    you list and explain network security policies.
7.7.    you explain software license policies and disaster planning.

**Learning Objectives**
7.a.    Plan for consistency and ease of management of network users and software
7.b.    Plan for security
7.c.    Plan for backup and recovery

## 8.    Plan and create user and group accounts.

**Assessment Strategies**
8.1.    Lab Assignment
8.2.    Skill Demonstration
8.3.    Hands on Skills Test

**Criteria**

*You will know you are successful when*

8.1.    you describe duties of network administrator.
8.2.    you use administrative tools to manage user and group accounts.
8.3.    you define home directory.
8.4.    you create, customize, and delete the user account.
8.5.    you list advantages of using groups accounts.

8.6.      you differentiate between local, global, and universal groups.
8.7.      you create groups accounts.
8.8.      you explain functions of the login script.
8.9.      you explain, delete, and create user profile.
8.10.     you create and successfully test a login script.

**Learning Objectives**
8.a.      List duties of network administrator
8.b.      Create user and group accounts
8.c.      Customize user and group accounts
8.d.      Differentiate between local, global, and universal groups
8.e.      Explain the scope of groups and accounts

## 9.      Apply security account policy and system policy features of Windows server.

**Assessment Strategies**
9.1.      Lab Assignment
9.2.      Written Objective Test

**Criteria**

*You will know you are successful when*

9.1.      you apply security setting on a file and directory.
9.2.      you explain the different levels of security permission.
9.3.      you explain the difference between share and security permissions.
9.4.      you set up a shared directory.
9.5.      you explain inherited rights.
9.6.      you set permission propagation on a directory structure.
9.7.      you set folder and file permissions.
9.8.      you set share permissions.
9.9.      you create directory structure and apply share and security settings to allow other users to access the files.

**Learning Objectives**
9.a.      List and describe the differences of security as applied to FAT versus NTFS
9.b.      List and describe Windows permission
9.c.      Differentiate permissions as applied to security and shares

## 10.     Plan and implement network file system security.

**Assessment Strategies**
10.1.     Lab Assignment
10.2.     Hands on Skills Test
10.3.     Written Objective Test

**Criteria**

*You will know you are successful when*

10.1.     you list and explain features of NTFS.
10.2.     you choose the best file system to use for a given scenario.
10.3.     you convert a FAT partition to NTFS successfully.
10.4.     you explain procedure for sharing folders and assigning permissions.
10.5.     you summarize results of combining share permissions and NTFS permissions.
10.6.     you implement and test file system security.
10.7.     you list guidelines for sharing folders and assigning permissions.
10.8.     you define Class C2 security.
10.9.     you list and explain features of the FAT file system.
10.10.    you list advantages and disadvantages of FAT and NTFS.
10.11.    you list and explain the four levels of share permissions.

**Learning Objectives**
10.a.     Differentiate between FAT file system and NTFS
10.b.     Describe levels of share permissions
10.c.     List guidelines for assigning permissions

10.d.   Plan and implement folder and file security
10.e.   Describe Class C2 security
10.f.   Describe NTFS folder and file permissions

## 11.   Analyze Windows network services.

**Assessment Strategies**
11.1.   Lab Assignment

**Criteria**

*You will know you are successful when*

11.1.   you explain function of DHCP.
11.2.   you list requirements for using DHCP.
11.3.   you explain how DHCP assigns an IP address.
11.4.   you define a DHCP scope.
11.5.   you configure a client workstation to obtain an IP address from a DHSP server.
11.6.   you explain function of WINS.
11.7.   you list server and client requirements for implementing WINS.
11.8.   you configures a WINS client.
11.9.   you explain function of DNS and its components.
11.10.  you explain the name resolution process.
11.11.  you configure a DNS client.
11.12.  you describe the domain naming guidelines.

**Learning Objectives**
11.a.   Explain purpose of Windows Internet Naming Service (WINS)
11.b.   Explain function of Dynamic Host configuration Protocol (DHCP) service
11.c.   Describe WINS server and client configuration
11.d.   Describe requirements of DHCP server and clients
11.e.   Explain the function of Domain Name System (DNS)
11.f.   Describe DNS server and client configuration

## 12.   Install software applications on the server.

**Assessment Strategies**
12.1.   Lab Assignment

**Criteria**

*You will know you are successful when*

12.1.   you determine if software is network compatible.
12.2.   you determine software license requirements.
12.3.   you differentiate among single-user, multiple-user, and multiuser software applications.
12.4.   you describe functions of network metering software.
12.5.   you determine location for installed files - server, workstation, or both.
12.6.   you work with group/team to successfully install application software.
12.7.   you set up access rights needed by users to work with software.
12.8.   you log in as a user and tests software for successful operation.

**Learning Objectives**
12.a.   List and describe features of network compatible software
12.b.   Explain software licensing methods
12.c.   Install application software
12.d.   Ensure users have necessary access right to software
12.e.   Explain testing of software in network environment

## 13.   Set up network printing.

**Assessment Strategies**
13.1.   Lab Assignment
13.2.   Hands on Skills Test

**Criteria**

*You will know you are successful when*

13.1.    you identify and describe a network printer.
13.2.    you evaluate printer locations based on network printing needs.
13.3.    you set permissions on a network printer.
13.4.    you explain levels of access to network printers.
13.5.    you explain print spooling and print pooling.
13.6.    you install a printer and printer driver.
13.7.    you share a network printer.
13.8.    you use printer management screen to view, pause, cancel, and resume print jobs.

**Learning Objectives**

13.a.    Determine physical location of printer
13.b.    Explain steps in configuring a Windows shared network printer
13.c.    Describe how to manage print jobs

## 14.    Plan a backup and restore strategy.

**Assessment Strategies**

14.1.    Lab Assignment
14.2.    Written Objective Test

**Criteria**

*You will know you are successful when*

14.1.    you explain importance of contingency planning.
14.2.    you compare backup media.
14.3.    you list and describe tape-backup strategies.
14.4.    you differentiate between onsite and offsite storage.
14.5.    you plan a backup schedule.

**Learning Objectives**

14.a.    Plan for a recovery in the case of a disaster
14.b.    Choose a backup media
14.c.    Explain the benefits of the different levels of backups
14.d.    Set up a backup schedule