

## Servers and Security

*Servers and Security* focuses on the software skills needed to manage a network. Students will learn and practice the skills necessary to perform in the role of a network administrator. They will be able to accomplish fundamental network management tasks on a server such as set up of computer network services, create users and appropriate login scripts, develop groups, set the server remotely, set up security, backup/restore the server and setup/maintain clients.

- DOE Code: 5257
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: Computer Tech Support
- Credits: 1-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

### Application of Content

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences.

### Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in Business Professional of America, DECA, or Future Business Leaders of America, the CTSOs for this area.

## Content Standards

### Domain – Client Operating System

**Core Standard 1** Students install and/or upgrade the network client operating system.

#### Standards

- SS-1.1 Perform a clean installation of operating system
- SS-1.2 Perform an upgrade installation of operating system

**Core Standard 2** Students deploy a network client system image in order to setup network clients.

#### Standards

- SS-2.1 Capture and prepare client system image for deployment
- SS-2.2 Deploy system image and troubleshoot problems that occur

### Domain – Client Hardware and Software Applications

**Core Standard 3** Students configure network client hardware and software applications.

#### Standards

- SS-3.1 Configure hardware compatibility for the operating system including the installation and/or update of a device driver
- SS-3.2 Manage hardware components by using system utility programs
- SS-3.3 Configure an application's compatibility for the operating system

## **Domain – Client Connectivity**

**Core Standard 4** Students configure network client connectivity to establish a connection with a network.

### **Standards**

- SS-4.1 Configure IPv4 and IPv6 network settings
- SS-4.2 Troubleshoot TCP/IP protocols
- SS-4.3 Configure wired or wireless devices
- SS-4.4 Configure remote management tools

**Core Standard 5** Students configure network client access to resources available on a network.

### **Standards**

- SS-5.1 Configure shared resources such as disk storage devices and printers
- SS-5.2 Perform file management and maintain file/folder attributes
- SS-5.3 Create and maintain security by setting permissions

## **Domain – Monitoring and Maintaining Client Systems**

**Core Standard 6** Students monitor and maintain network client systems to sustain network operations.

### **Standards**

- SS-6.1 Install updates to client operating system
- SS-6.2 Manage disk volume, file system, and RAID
- SS-6.3 Configure client performance settings
- SS-6.4 Implement security policies including antivirus software and firewall

**Core Standard 7** Students configure network client backup and recovery options to safe guard data.

### **Standards**

- SS-7.1 Investigate and configure backup options
- SS-7.2 Evaluate and configure system recovery options

## **Domain – Server Operating System**

**Core Standard 8** Students install and/or upgrade the network server operating system.

### **Standards**

- SS-8.1 Perform a clean installation of operating system
- SS-8.2 Perform an upgrade installation of operating system
- SS-8.3 Install updates for operating system

## **Domain – Active Directory**

**Core Standard 9** Students configure the Active Directory Infrastructure.

### **Standards**

- SS-9.1 Plan the infrastructure of Active Directory
- SS-9.2 Install, configure, and maintain Active Directory

**Core Standard 10** Students configure the Active Directory roles and services

### **Standards**

- SS-10.1 Configure Active Directory Lightweight services
- SS-10.2 Configure Active Directory Rights Management services
- SS-10.3 Configure the read-only controller

SS-10.4 Configure Active Directory trust policies

**Core Standard 11** Students create and maintain Active Directory Objects.

**Standards**

SS-11.1 Create user accounts and maintain profiles

SS-11.2 Create and apply group policy objects

SS-11.3 Configure user rights by implementing security options

SS-11.4 Deploy and manage software by using group policy objects

SS-11.5 Determine and configure password with account lockout policies

SS-11.6 Configure audit policies by using group policy objects

**Core Standard 12** Students configure DNS for the Active Directory.

**Standards**

SS-12.1 Install the DNS server

SS-12.2 Configure DNS zones and settings

SS-12.3 Monitor and troubleshoot DNS

**Core Standard 13** Students maintain the Active Directory Environment.

**Standards**

SS-13.1 Configure server backup options and recovery options

SS-13.2 Perform offline maintenance such as defragmentation and compaction

SS-13.3 Monitor Active Directory

**Core Standard 14** Students configure the Active Directory Certificate Services.

**Standards**

SS-14.1 Install Active Directory certificate services

SS-14.2 Manage certificate templates and revocations

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