

Virginia Western Community College
ITN 107
Personal Computer Hardware and Troubleshooting

Prerequisites

none

Course Description

Includes specially designed instruction to give a student a basic knowledge of hardware and software configurations. Includes the installation of various peripheral devices as well as basic system hardware components.

Semester Credits: 3 Lecture Hours: 3 Lab/Clinical/Internship Hours: 0

Required Materials**Textbook:**

All reading material is located on netacad.com

Other Required Materials:

Packet Tracer Software (available from the class website)

Course Outcomes

At the completion of this course, the student should be able to:

- Select the appropriate computer components to build, repair, or upgrade personal computers.
- Install components to build, repair, or upgrade personal computers.
- Install and configure components to upgrade a computer.
- Perform Troubleshooting on personal computers.
- Explain how computers communicate on a network.
- Configure devices to communicate on a network.
- Explain how to troubleshoot Laptops and other Mobile Devices.
- Install a printer to meet requirements.
- Describe virtualization and cloud computing.
- Install Windows operating systems.
- Perform management and maintenance of Windows operating systems.
- Explain how to configure, secure, and troubleshoot mobile, Mac, and Linux operating systems.
- Implement basic host, data, and network security.
- Explain the roles and responsibilities of the IT Professional.

Topical Description

Chapter /Section	Goals/Objectives
Chapter 1. Introduction to Personal Computer Hardware	Select the appropriate computer components to build, repair, or upgrade personal computers.
1.1 Personal Computers	Explain how personal computer components work together.
1.2 PC Components	Explain the Features and Functions of components.
1.3 Computer Disassembly	Disassemble a PC.
Chapter 2. PC Assembly	Install components to build, repair, or upgrade personal computers.
2.1 Assemble the Computer	Build a computer.
Chapter 3. Advanced Computer Hardware	Install and configure components to upgrade a computer.
3.1 Boot the Computer	Explain how to verify BIOS and UEFI settings.
3.2 Electrical Power	Explain electrical power.
3.3 Advanced Computer Functionality	Explain computer functionality.
3.4 Computer Configuration	Select components to upgrade a computer to meet requirements
3.5 Protecting the Environment	Explain the necessary procedures to protect the environment
Chapter 4. Preventive Maintenance and Troubleshooting	Perform Troubleshooting on personal computers.
4.1 Preventive Maintenance	Explain why preventive maintenance must be performed on personal computers.
4.2 Troubleshooting Process	Troubleshoot problems with PC and Peripheral devices

Chapter 5. Networking Concepts	Explain how computers communicate on a network.
5.1 Network Components and Types	Explain the components and types of computer networks.
5.2 Networking Protocols, Standards, and Services	Explain networking protocols, standards and services.
5.3 Network Devices	Explain the purpose of devices on a network.
5.4 Network Cables	Build a network cable.
Chapter 6. Applied Networking	Configure devices to communicate on a network.
6.1 Device to Network Connection	Configure devices for wired and wireless networks.
6.2 Basic Troubleshooting Process for Networks	Troubleshoot problems and solutions related to networks.
Chapter 7. Laptops and Other Mobile Devices	Explain how to troubleshoot Laptops and other Mobile Devices.
7.1 Characteristics of Laptops and Other Mobile Devices	Explain the features and functions of laptops and other mobile devices.
7.2 Laptop Configuration	Explain how to configure laptop power settings and wireless settings.
7.3 Laptop Hardware and Component Installation and Configuration	Explain how to remove and install laptop components.
7.4 Other Mobile Device Hardware Overview	Explain the purpose and characteristics of other mobile devices.
7.5 Network Connectivity and Email	Explain how to configure network connectivity and email on mobile devices.
7.6 Preventive Maintenance for Laptops and Other Mobile Devices.	Use common preventive maintenance techniques for Laptops and other Mobile Devices.
7.7 Basic Troubleshooting Process for Laptops and other Mobile Devices	Explain how to troubleshoot Laptops and other Mobile Devices.
Chapter 8. Printers	Install a printer to meet requirements.

8.1 Common Printer Features	Explain the purpose and characteristics of different types of printers.
8.2 Printer Type Comparison	Compare Different Types of Printers
8.3 Installing and Configuring Printers	Install a printer.
8.4 Sharing Printers	Configure printer sharing.
8.5 Maintaining and Troubleshooting Printers	Explain how to improve printer availability.
Chapter 9. Virtualization and Cloud Computing	Describe virtualization and cloud computing.
9.1 Virtualization	Explain Cloud and Virtualization..
9.2 Cloud Computing	Compare and contrast cloud computing concepts
Chapter 10. Windows Installation	Install Windows operating systems.
10.1 Modern Operating Systems	Explain operating system requirements.
10.2 Disk Management	Create a partition in Windows using the Disk Management Utility.
10.3 Installation and Boot Sequence	Install a Windows Operating System
Chapter 11. Windows Configuration	Perform management and maintenance of Windows operating systems.
11.1 Windows Desktop and File Explorer	Configure the Windows Desktop and File Explorer.
11.2 Configure Windows using Control Panels	Configuring Windows with Control Panels.
11.3 System Administration	Use Windows tools and utilities to manage Windows system.
11.4 Command- Line Tools	Use Microsoft Windows command line tools.

11.5 Windows Networking	Configure a Windows computer to work on a network.
11.6 Common Preventive Maintenance Techniques for Operating Systems	Use common preventive maintenance on a computer using Microsoft Windows tools.
11.7 Basic Troubleshooting Process for Windows Operating System	Explain how to troubleshoot Microsoft Windows operating system.
Chapter 12. Mobile, Linux, and OSX Operating Systems	Explain how to configure, secure, and troubleshoot mobile, Mac, and Linux operating systems.
12.1 Mobile Operating Systems	Explain the purpose and characteristics of mobile operating systems.
12.2 Methods for Securing Mobile Devices	Explain methods for securing mobile devices.
12.3 Linux and macOS Operating Systems	Explain the purpose and characteristics of macOS and Linux operating systems.
12.4 Basic Troubleshooting Process for Mobile, Linux, and macOS Operating Systems	Explain how to troubleshoot other operating systems.
Chapter 13. Security	Implement basic host, data, and network security.
13.1 Security Threats	Explain Security Threats
13.2 Security Procedures	Explain Security Procedures
13.3 Securing Windows Workstations	Configure basic security settings and policies for end devices.
13.4 Wireless Security	Configure wireless security
13.5 Basic Troubleshooting Process for Security	Explain the six steps of the troubleshooting process for security.
Chapter 14. The IT Professional	Explain the roles and responsibilities of the IT Professional.
14.1 Communication Skills and the IT Professional	Explain why good communication skills are a critical part of IT work.
14.2 Operational Procedures	Explain how to manage change and unplanned disruptions in a business environment.

14.3 Ethical and Legal Considerations	Explain appropriate behavior when faced with the legal and ethical issues that arise in the IT industry.
14.4 Call Center Technicians	Explain the call center environment and technician responsibilities.

Notes to Instructors

- All instructors are to use a combination of Packet Tracer and hands on labs (via classroom equipment or the Netlab+ online lab server)
- Assignments consist of labs, quizzes, chapter tests, skills based exam, and a final exam