

Virginia Western Community College

ITN 107

Personal Computer Hardware and Troubleshooting

Prerequisites

None

VCCS 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

Required Materials

Textbook

All reading material is located on labsimapp.testout.com

Other Required Materials:

None

VCCS COURSE OUTCOMES

- 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.

Note to Instructors

- All instructors are to use the CompTIA TestOut PC Pro
- Assignments consist of labs, quizzes, chapter tests, skills based exams/quizzes, and a final exam

TOPICAL DESCRIPTIONS

1. 1.0 Course Introduction

○ 1.1 Course Introduction

- 1.1.1 PC Pro Introduction (5:38)
- 1.1.2 Computing Basics (10:52)
- 1.1.3 Computing Facts
- 1.1.4 Use the Simulator (12:12)
- 1.1.5 Explore the Lab Interface
- 1.1.6 Set Up a Computer
- 1.1.7 Internal Components (3:10)
- 1.1.8 Work with Internal Components (9:30)
- 1.1.9 Connect Internal Components
- 1.1.10 Work with Network and Server Cabinets (6:32)
- 1.1.11 Networking Rack Facts
- 1.1.12 Practice Questions

2. 2.0 PC Technician Responsibilities

○ 2.1 Protection and Safety

- 2.1.1 Safety (4:54)
- 2.1.2 Safety Measures
- 2.1.3 Electrostatic Discharge (5:15)
- 2.1.4 ESD Protection (4:11)
- 2.1.5 ESD Facts
- 2.1.6 Practice Questions

○ 2.2 Environmental Controls

- 2.2.1 Environmental Concerns (6:46)
- 2.2.2 Environmental Facts
- 2.2.3 Power Concerns (9:22)
- 2.2.4 Configure UPS Settings (9:48)
- 2.2.5 Power Concern Facts
- 2.2.6 Install a UPS
- 2.2.7 Practice Questions

○ 2.3 Professionalism

- 2.3.1 Professionalism (4:37)
- 2.3.2 Professionalism Facts

- 2.3.3 Practice Questions
- **2.4 Change Management**
 - 2.4.1 Change Management Overview (4:17)
 - 2.4.2 Change Management Facts
 - 2.4.3 Practice Questions
- **2.5 PC Maintenance**
 - 2.5.1 PC Maintenance Best Practices (3:23)
 - 2.5.2 PC Maintenance Facts
 - 2.5.3 Practice Questions
- **2.6 PC and Networking Tools**
 - 2.6.1 PC and Networking Tools (5:22)
 - 2.6.2 PC and Networking Tools Facts
 - 2.6.3 Practice Questions
- **2.7 Troubleshooting Process Overview**
 - 2.7.1 Troubleshooting Process (4:38)
 - 2.7.2 Troubleshooting Process Facts
 - 2.7.3 Practice Questions
- **2.8 Support Systems**
 - 2.8.1 Ticketing Systems (4:24)
 - 2.8.2 Ticketing Systems Facts
 - 2.8.3 Create and Close Tickets (5:13)
 - 2.8.4 Ticketing System Settings (3:48)
 - 2.8.5 Create a Ticket
 - 2.8.6 Close a Ticket
 - 2.8.7 Asset Management (4:16)
 - 2.8.8 Asset Management Facts
 - 2.8.9 Explore Asset Tracking Systems (4:00)
 - 2.8.10 View Warranty Information (4:58)
 - 2.8.11 Practice Questions
- **2.9 Documentation**
 - 2.9.1 Documentation Types (4:08)
 - 2.9.2 Documentation Types Facts
 - 2.9.3 Onboarding and Offboarding Checklists (4:59)
 - 2.9.4 Onboarding and Offboarding Checklists Facts
 - 2.9.5 Practice Questions
- 3. 3.0 Hardware**
 - **3.1 Network Media**
 - 3.1.1 Network Cables
 - 3.1.2 Coaxial Cable Facts
 - 3.1.3 Twisted Pair Cable Facts
 - 3.1.4 Twisted Pair Connector Facts
 - 3.1.5 Fiber Optic Cable Facts
 - 3.1.6 Practice Questions
 - **3.2 Cables and Connectors**

- 3.2.1 External Connectors (5:51)
- 3.2.2 Universal Serial Bus (7:59)
- 3.2.3 USB Facts
- 3.2.4 Install USB Devices
- 3.2.5 Peripheral and Video Cables (12:24)
- 3.2.6 Peripheral and Video Cables Facts
- 3.2.7 Hard Drive Cables (10:25)
- 3.2.8 Hard Drive Cable Facts
- 3.2.9 Adapter and Converter Facts
- 3.2.10 Practice Questions
- **3.3 Cases and Motherboards**
 - 3.3.1 Cases and Form Factors (6:23)
 - 3.3.2 Cases and Form Factor Facts
 - 3.3.3 Motherboard Components (4:20)
 - 3.3.4 Motherboard Facts
 - 3.3.5 Install a Motherboard (6:19)
 - 3.3.6 Motherboard Installation Facts
 - 3.3.7 Choose and Install a Motherboard
 - 3.3.8 Practice Questions
- **3.4 Motherboard Troubleshooting**
 - 3.4.1 Motherboard Troubleshooting (8:20)
 - 3.4.2 Motherboard Troubleshooting Facts
 - 3.4.3 Troubleshoot System Power
 - 3.4.4 Troubleshoot Power Supply Problems
 - 3.4.5 Practice Questions
- **3.5 Memory**
 - 3.5.1 DRAM Types (10:46)
 - 3.5.2 Random Access Memory (RAM) Facts
 - 3.5.3 Multi-Channel Memory Architecture Facts
 - 3.5.4 Practice Questions
- **3.6 Memory Installation**
 - 3.6.1 Memory Characteristics (14:08)
 - 3.6.2 Memory Facts
 - 3.6.3 Select Memory by Sight
 - 3.6.4 Select the Correct Memory Module (5:57)
 - 3.6.5 Install Memory (7:09)
 - 3.6.6 Memory Installation Facts
 - 3.6.7 Install Triple Channel Memory
 - 3.6.8 Practice Questions
- **3.7 Memory Troubleshooting**
 - 3.7.1 Memory Troubleshooting (6:37)
 - 3.7.2 Test Memory (4:25)
 - 3.7.3 Memory Troubleshooting Facts
 - 3.7.4 Troubleshoot Memory 1

- 3.7.5 Troubleshoot Memory 2
- 3.7.6 Practice Questions
- **3.8 BIOS/UEFI**
 - 3.8.1 BIOS/UEFI (12:05)
 - 3.8.2 PC Boot Process (4:07)
 - 3.8.3 BIOS/UEFI Facts
 - 3.8.4 Edit BIOS/UEFI Settings (11:03)
 - 3.8.5 Use Built-in System Diagnostics (2:09)
 - 3.8.6 Flash the BIOS (2:38)
 - 3.8.7 Find BIOS/UEFI Settings
 - 3.8.8 BIOS/UEFI Security (7:41)
 - 3.8.9 Configure BIOS/UEFI Security Settings (7:50)
 - 3.8.10 BIOS/UEFI Security Facts
 - 3.8.11 Configure BIOS/UEFI Security
 - 3.8.12 Practice Questions
- **3.9 Processors**
 - 3.9.1 Processor Concepts (11:33)
 - 3.9.2 CPU Facts
 - 3.9.3 CPU Performance Facts
 - 3.9.4 CPU Socket Facts
 - 3.9.5 Install a Processor (5:50)
 - 3.9.6 CPU Installation Facts
 - 3.9.7 Select and Install a Processor
 - 3.9.8 Practice Questions
- **3.10 Processor Troubleshooting**
 - 3.10.1 Processor Troubleshooting (6:19)
 - 3.10.2 Processor Troubleshooting Facts
 - 3.10.3 Troubleshoot Processor Installation 1
 - 3.10.4 Troubleshoot Processor Installation 2
 - 3.10.5 Practice Questions
- **3.11 Video and Expansion Cards**
 - 3.11.1 Expansion Buses and Slots (4:31)
 - 3.11.2 Expansion Bus Types
 - 3.11.3 Install an Expansion Card (4:19)
 - 3.11.4 Install Expansion Cards
 - 3.11.5 Video Cards (5:28)
 - 3.11.6 Video and Capture Card Facts
 - 3.11.7 Install a Video Card (6:02)
 - 3.11.8 Configure Capture Card (5:58)
 - 3.11.9 Video Card Installation Facts
 - 3.11.10 Upgrade a Video Card
 - 3.11.11 Practice Questions
- **3.12 Audio**
 - 3.12.1 Digital Audio (8:12)

- 3.12.2 Sound Cards (3:14)
 - 3.12.3 Sound Card Facts
 - 3.12.4 Manage Audio Devices (8:50)
 - 3.12.5 Sound Card Installation Facts
 - 3.12.6 Sound Card Connectors
 - 3.12.7 Select and Install a Sound Card
 - 3.12.8 Practice Questions
- **3.13 Cooling**
 - 3.13.1 System Cooling (7:56)
 - 3.13.2 System Cooling Facts
 - 3.13.3 Practice Questions
- **3.14 Power Supplies**
 - 3.14.1 Power Supplies (4:17)
 - 3.14.2 Power Supply Facts
 - 3.14.3 Identify Power Supply Components (5:54)
 - 3.14.4 Change the Power Supply (7:17)
 - 3.14.5 Install a Power Supply
 - 3.14.6 Practice Questions
- 4. 4.0 Operating Systems Basics**
 - **4.1 Operating System**
 - 4.1.1 Workstation Operating Systems (5:36)
 - 4.1.2 Workstation Operating System Facts
 - 4.1.3 Practice Questions
 - **4.2 Windows Basics**
 - 4.2.1 Windows Operating Systems (5:13)
 - 4.2.2 Windows Operating System Facts
 - 4.2.3 Windows 10 Editions (3:30)
 - 4.2.4 Windows 11 Editions (3:50)
 - 4.2.5 Windows Editions Facts
 - 4.2.6 Windows Features (6:11)
 - 4.2.7 Windows Features Facts
 - 4.2.8 Use the Windows 10 Interface (7:20)
 - 4.2.9 Use the Windows 11 Interface (6:33)
 - 4.2.10 Windows Interface Facts
 - 4.2.11 Windows Upgrade (6:04)
 - 4.2.12 Windows Upgrade Facts
 - 4.2.13 Practice Questions
 - **4.3 Linux Basics**
 - 4.3.1 Linux Operating Systems (6:17)
 - 4.3.2 Navigate Linux in the GUI (3:52)
 - 4.3.3 Linux Facts
 - 4.3.4 Practice Questions
 - **4.4 macOS Basics**
 - 4.4.1 macOS Introduction (9:05)

- 4.4.2 Installing and Uninstalling Apps (3:21)
- 4.4.3 macOS Interface System Preferences (8:49)
- 4.4.4 macOS Features and Settings (7:12)
- 4.4.5 macOS Facts
- 4.4.6 Practice Questions

5. 5.0 Storage

- **5.1 Storage Devices**
 - 5.1.1 Storage Devices (8:40)
 - 5.1.2 Storage Device Facts
 - 5.1.3 Practice Questions
- **5.2 SATA**
 - 5.2.1 SATA (6:45)
 - 5.2.2 Install a SATA Device (5:50)
 - 5.2.3 SATA Installation Facts
 - 5.2.4 Install SATA Devices
 - 5.2.5 Practice Questions
- **5.3 Optical Media**
 - 5.3.1 CD Drives (5:26)
 - 5.3.2 DVD Drives (5:33)
 - 5.3.3 Blu-ray (3:50)
 - 5.3.4 Optical Media Facts
 - 5.3.5 Practice Questions
- **5.4 RAID**
 - 5.4.1 RAID (8:40)
 - 5.4.2 RAID Facts
 - 5.4.3 Configure a RAID Array (7:16)
 - 5.4.4 RAID Configuration Facts
 - 5.4.5 Create RAID Arrays
 - 5.4.6 Implement a RAID Solution
 - 5.4.7 Practice Questions
- **5.5 File Systems**
 - 5.5.1 Partitions, Volumes, and File Systems (3:59)
 - 5.5.2 View File System Components (8:39)
 - 5.5.3 File System Facts
 - 5.5.4 MBR Partitioning (14:44)
 - 5.5.5 MBR Partitioning Facts
 - 5.5.6 GPT Partitioning (4:05)
 - 5.5.7 GPT Partitioning Facts
 - 5.5.8 Create Volumes with Disk Management (12:41)
 - 5.5.9 Create Volumes with Diskpart (6:38)
 - 5.5.10 Convert Volumes (4:59)
 - 5.5.11 Create Volumes
 - 5.5.12 Format Drives
 - 5.5.13 Disk Status Facts

- 5.5.14 Practice Questions
- **5.6 Storage Management**
 - 5.6.1 Add Storage (6:31)
 - 5.6.2 Create Mount Points and Extending Volumes (8:52)
 - 5.6.3 Shrink and Split Partitions (3:34)
 - 5.6.4 Storage Management Facts
 - 5.6.5 Add Space to Existing Volumes
 - 5.6.6 Practice Questions
- **5.7 Storage Spaces**
 - 5.7.1 Storage Spaces (9:32)
 - 5.7.2 Create Storage Spaces (10:06)
 - 5.7.3 Storage Space Facts
 - 5.7.4 Implement Storage Spaces
 - 5.7.5 Practice Questions
- **5.8 Disk Optimization**
 - 5.8.1 Storage Optimization (12:48)
 - 5.8.2 Optimize Disks in Windows (9:50)
 - 5.8.3 Optimize Disks in Linux (5:37)
 - 5.8.4 Optimize Disks in macOS (4:52)
 - 5.8.5 Disk Optimization Facts
 - 5.8.6 Perform Disk Maintenance
 - 5.8.7 Practice Questions
- **5.9 Storage and RAID Troubleshooting**
 - 5.9.1 Storage and RAID Troubleshooting (7:58)
 - 5.9.2 Storage and RAID Troubleshooting Facts
 - 5.9.3 SSD Storage Issues (4:27)
 - 5.9.4 SSD Maintenance Facts
 - 5.9.5 Troubleshoot SATA Devices
 - 5.9.6 Practice Questions
- 6. 6.0 System Implementation**
 - **6.1 Windows Pre-Installation**
 - 6.1.1 Pre-Installation Planning (3:26)
 - 6.1.2 Installation Planning Facts
 - 6.1.3 Verify System Compatibility (3:17)
 - 6.1.4 Practice Questions
 - **6.2 Windows Installation**
 - 6.2.1 Windows Installation (11:20)
 - 6.2.2 Prepare Disks for Installation (8:09)
 - 6.2.3 Prepare Disks for Installation
 - 6.2.4 Create Bootable Media (4:29)
 - 6.2.5 Configure Workstation for Network Boot (4:26)
 - 6.2.6 Install a Workstation Image Using PXE
 - 6.2.7 Install Windows (4:30)
 - 6.2.8 Installation Facts

- 6.2.9 Post-Installation (4:14)
 - 6.2.10 Post-Installation Facts
 - 6.2.11 Practice Questions
 - **6.3 Cloud Computing**
 - 6.3.1 Cloud Computing Overview (12:42)
 - 6.3.2 Cloud Computing Facts
 - 6.3.3 Practice Questions
 - **6.4 Virtualization**
 - 6.4.1 Virtualization Overview (8:23)
 - 6.4.2 Virtualization Facts
 - 6.4.3 Use VMWare Player (4:42)
 - 6.4.4 Use Hyper-V (5:42)
 - 6.4.5 Hyper-V Facts
 - 6.4.6 Create Virtual Machines
 - 6.4.7 Create Virtual Hard Disks
 - 6.4.8 Practice Questions
- 7. 7.0 System Management 1**
- **7.1 Windows System Tools**
 - 7.1.1 Use Task Manager (11:21)
 - 7.1.2 Task Manager Facts
 - 7.1.3 Use Control Panel (7:20)
 - 7.1.4 Control Panel Facts
 - 7.1.5 Use Management Consoles (6:27)
 - 7.1.6 Management Consoles Facts
 - 7.1.7 View System Information (6:06)
 - 7.1.8 System Configuration (5:36)
 - 7.1.9 Use Regedit (5:12)
 - 7.1.10 Use Event Viewer (7:49)
 - 7.1.11 Windows System Tool Facts
 - 7.1.12 Explore System Commands (5:24)
 - 7.1.13 System Command Facts
 - 7.1.14 Use System Commands
 - 7.1.15 Practice Questions
 - **7.2 Windows Settings**
 - 7.2.1 Personalize Windows (4:20)
 - 7.2.2 Configure Region and Language Options (2:46)
 - 7.2.3 Index Files (4:31)
 - 7.2.4 Settings Facts
 - 7.2.5 Practice Questions
 - **7.3 Performance Monitoring**
 - 7.3.1 Performance Monitoring (6:23)
 - 7.3.2 Monitor System Performance (6:44)
 - 7.3.3 Performance Monitoring Facts
 - 7.3.4 Practice Questions

- **7.4 Windows Application Management**
 - 7.4.1 Windows Application Installation (7:18)
 - 7.4.2 Manage Windows Applications (4:01)
 - 7.4.3 Desktop Application Management Facts
 - 7.4.4 Configure Application Compatibility (6:17)
 - 7.4.5 Application Compatibility Facts
 - 7.4.6 Schedule Tasks (4:42)
 - 7.4.7 Manage Microsoft Store Apps (3:09)
 - 7.4.8 Microsoft Store Applications Facts
 - 7.4.9 Manage Applications
 - 7.4.10 Repair Programs
 - 7.4.11 Practice Questions
- **7.5 Linux Application Management**
 - 7.5.1 Install Linux Software (4:49)
 - 7.5.2 Manage Apps on Linux (2:05)
 - 7.5.3 Manage Processes on Linux (5:18)
 - 7.5.4 Linux Application Management Facts
 - 7.5.5 Manage Linux Processes
 - 7.5.6 Practice Questions
- **7.6 Digital Content Management**
 - 7.6.1 Software Licensing (6:09)
 - 7.6.2 Digital Rights Management (DRM) (5:26)
 - 7.6.3 Digital Content Management Facts
 - 7.6.4 Practice Questions
- **7.7 Virtual Memory**
 - 7.7.1 Windows Virtual Memory (5:48)
 - 7.7.2 Manage Virtual Ram (3:30)
 - 7.7.3 Virtual Memory Facts
 - 7.7.4 Configure Virtual Memory
 - 7.7.5 Practice Questions
- **7.8 Windows and Application Troubleshooting**
 - 7.8.1 Troubleshooting Windows Part 1 (9:07)
 - 7.8.2 Troubleshooting Windows Facts Part 1
 - 7.8.3 Troubleshooting Windows Part 2 (5:59)
 - 7.8.4 Troubleshooting Windows Facts Part 2
 - 7.8.5 Troubleshoot Windows Applications (6:41)
 - 7.8.6 Troubleshoot Windows Services (5:27)
 - 7.8.7 Practice Questions
- **7.9 Scripting Basics**
 - 7.9.1 Scripting (5:57)
 - 7.9.2 Scripting Types (5:25)
 - 7.9.3 Scripting Uses (2:54)
 - 7.9.4 Scripting Facts
 - 7.9.5 Practice Questions

8. 8.0 System Management 2

○ 8.1 Active Directory

- 8.1.1 Workgroup vs. Domain Setup (3:15)
- 8.1.2 Active Directory Overview (3:30)
- 8.1.3 Join a Domain (8:44)
- 8.1.4 Join a Workstation to a Domain
- 8.1.5 Manage Active Directory Objects (9:21)
- 8.1.6 Active Directory Facts
- 8.1.7 Create User Accounts
- 8.1.8 Create OUs
- 8.1.9 Delete OUs
- 8.1.10 Group Policy (3:18)
- 8.1.11 Use Group Policy (6:08)
- 8.1.12 Group Policy Facts
- 8.1.13 Practice Questions

○ 8.2 Users and Groups

- 8.2.1 Users and Groups (5:10)
- 8.2.2 User and Group Facts
- 8.2.3 Login Options (3:44)
- 8.2.4 Login Option Facts
- 8.2.5 Manage Local Users and Groups (7:25)
- 8.2.6 Authenticate with Online User Accounts (3:49)
- 8.2.7 Online Authentication Facts
- 8.2.8 Manage Users and Groups
- 8.2.9 Manage UAC Settings (7:15)
- 8.2.10 UAC Facts
- 8.2.11 Practice Questions

○ 8.3 Remote Services

- 8.3.1 Remote Access Technologies (4:29)
- 8.3.2 Remote Access Technologies Facts
- 8.3.3 Remote Desktop (2:26)
- 8.3.4 Use Remote Desktop (4:06)
- 8.3.5 Remote Desktop Facts
- 8.3.6 Remote Assistance (3:19)
- 8.3.7 Remote Assistance Facts
- 8.3.8 Use Remote Assistance (2:36)
- 8.3.9 Configure Remote Services
- 8.3.10 Screen Sharing Facts
- 8.3.11 Use Video Conferencing Software (2:57)
- 8.3.12 Practice Questions

○ 8.4 VPN

- 8.4.1 Virtual Private Networks (VPN) (9:01)
- 8.4.2 Set Up a VPN Connection (3:36)
- 8.4.3 VPN Facts

- 8.4.4 Configure a VPN Connection
- 8.4.5 Practice Questions
- **8.5 Updates**
 - 8.5.1 Updates (3:46)
 - 8.5.2 Use Windows Update (2:08)
 - 8.5.3 Update Facts
 - 8.5.4 Configure Windows Update
 - 8.5.5 Update Linux (3:50)
 - 8.5.6 Update macOS (2:04)
 - 8.5.7 Practice Questions
- **8.6 System Backup**
 - 8.6.1 System Backup (4:32)
 - 8.6.2 Backup Facts
 - 8.6.3 Create Backups in Windows (2:48)
 - 8.6.4 Create Backups in Linux (3:50)
 - 8.6.5 Restore Data on Linux (3:22)
 - 8.6.6 Use Time Machine on macOS (4:26)
 - 8.6.7 Restore Data on macOS (4:13)
 - 8.6.8 Back Up the Computer
 - 8.6.9 Configure File History
 - 8.6.10 Restore Data from File History
 - 8.6.11 Practice Questions
- **8.7 System Recovery**
 - 8.7.1 Windows System Recovery (4:00)
 - 8.7.2 Use Restore Points (4:25)
 - 8.7.3 Create a Restore Point
 - 8.7.4 Use Windows System Recovery Tools (6:28)
 - 8.7.5 Boot into the Windows Recovery Environment
 - 8.7.6 Use File Recovery Tools (3:19)
 - 8.7.7 System Recovery Facts
 - 8.7.8 Practice Questions
- **8.8 Windows Boot Errors**
 - 8.8.1 Windows Boot Process (4:59)
 - 8.8.2 Boot Process Facts
 - 8.8.3 Modify the Boot Order (6:58)
 - 8.8.4 Configure the Boot Order
 - 8.8.5 Use Advanced Boot Options (6:56)
 - 8.8.6 Windows Boot Options
 - 8.8.7 Use the bootrec Command (4:24)
 - 8.8.8 Startup Error Facts
 - 8.8.9 Troubleshoot System Startup 1
 - 8.8.10 Troubleshoot System Startup 2
 - 8.8.11 Troubleshoot System Startup 3
 - 8.8.12 Troubleshoot System Startup 4

- 8.8.13 Practice Questions

9. 9.0 File Management

- **9.1 Manage Files on Windows**
 - 9.1.1 Windows File and Folder Properties (4:02)
 - 9.1.2 System File Locations (6:05)
 - 9.1.3 File Management Facts
 - 9.1.4 Manage Files on Windows (5:08)
 - 9.1.5 Manage Files
 - 9.1.6 Manage Directories from the Command Prompt (6:47)
 - 9.1.7 Manage Files from the Command Prompt (10:44)
 - 9.1.8 File Management Commands
 - 9.1.9 Manage Files and Folders
 - 9.1.10 Practice Questions
- **9.2 NTFS and Share Permissions**
 - 9.2.1 NTFS and Share Permissions (6:58)
 - 9.2.2 NTFS and Share Permissions Facts
 - 9.2.3 Configure Basic Folder Sharing on Windows (6:28)
 - 9.2.4 Configure Advanced Folder Sharing on Windows (10:13)
 - 9.2.5 Configure Share and NTFS Permissions (3:35)
 - 9.2.6 Configure NTFS Permissions (10:17)
 - 9.2.7 Share and Secure Folders
 - 9.2.8 Configure NTFS Permissions
 - 9.2.9 Practice Questions
- **9.3 File Encryption**
 - 9.3.1 File Encryption (4:29)
 - 9.3.2 File Encryption Facts
 - 9.3.3 Encrypt Files (7:58)
 - 9.3.4 Configure File Encryption
 - 9.3.5 BitLocker (5:45)
 - 9.3.6 Use BitLocker (4:56)
 - 9.3.7 Use Bitlocker To Go (4:48)
 - 9.3.8 BitLocker Facts
 - 9.3.9 Practice Questions
- **9.4 Linux File Management**
 - 9.4.1 Use Linux Shell Commands (11:04)
 - 9.4.2 Linux Shell Facts
 - 9.4.3 Use Shell Commands
 - 9.4.4 Manage the Linux File System (10:44)
 - 9.4.5 View File Contents (7:16)
 - 9.4.6 Edit File Contents (10:04)
 - 9.4.7 Manage Ownership and Permissions (6:20)
 - 9.4.8 Linux File Management Facts
 - 9.4.9 Manage the Linux File System
 - 9.4.10 Manage Linux File Ownership

- 9.4.11 Practice Questions

10. 10.0 Peripheral Devices

- **10.1 Peripheral Devices**
 - 10.1.1 Peripheral Devices (3:27)
 - 10.1.2 Peripheral Device Facts
 - 10.1.3 Practice Questions
- **10.2 Display Devices**
 - 10.2.1 Configure Display Settings in Windows (5:32)
 - 10.2.2 Configure Advanced Display Settings in Windows (8:24)
 - 10.2.3 Select and Configure Dual Monitors
 - 10.2.4 Configure Display Settings in Linux (1:36)
 - 10.2.5 Configure Display Settings in macOS (5:08)
 - 10.2.6 Display Device Facts
 - 10.2.7 Practice Questions
- **10.3 Display, Video, and Projector Troubleshooting**
 - 10.3.1 Video Troubleshooting (8:53)
 - 10.3.2 Video Troubleshooting Facts
 - 10.3.3 Projector Troubleshooting (3:46)
 - 10.3.4 Projector Troubleshooting Facts
 - 10.3.5 Practice Questions
- **10.4 Device Driver Management**
 - 10.4.1 Device Installation (4:21)
 - 10.4.2 Install and Manage Device Drivers on Windows (11:26)
 - 10.4.3 Manage Devices on Linux (5:09)
 - 10.4.4 Manage Devices on macOS (3:08)
 - 10.4.5 Hardware Device Facts
 - 10.4.6 Device Driver Installation Facts
 - 10.4.7 Manage Devices
 - 10.4.8 Practice Questions
- **10.5 Device Driver Troubleshooting**
 - 10.5.1 Device Driver Troubleshooting (4:58)
 - 10.5.2 Troubleshoot Devices (3:13)
 - 10.5.3 Work with Legacy Devices and Drivers (3:02)
 - 10.5.4 Device Troubleshooting Facts
 - 10.5.5 Manage Devices 1
 - 10.5.6 Manage Devices 2
 - 10.5.7 Practice Questions

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