Training: CompTIA
CompTIA A+ Prep Course

TRAINING GOALS:

The CompTIA A+ certification, broken into a Core 1 exam and a Core 2 exam, is a foundational-level certification designed for professionals with 12 months hands-on experience in a help desk support technician, desk support technician, or field service technician job role.

This course can benefit you in two ways. If you intend to pass the CompTIA A+ Core 1 and Core 2 (Exams 220-1201 and 220-1202) exams to receive an A+ certification, this course can be a significant part of your preparation. However, certification is not the only key to professional success in the field of IT support. Today's job market demands individuals have demonstrable skills, and the information and activities in this course can help you build your skill set so that you can confidently perform your duties in any entry-level IT support role.

The course content is broken down to cover both Core 1 and Core 2 objectives.

Upon course completion, you will be able to:

- Define the role of an IT Specialist
- Install Motherboards and Connectors
- Install System Devices
- Troubleshoot PC Hardware
- Compare Local Networking Hardware
- Configure Network Addressing and Internet
- Support Network Services
- Summarize Virtualization and Cloud Concepts
- Support Mobile Devices
- Support Print Devices
- Manage Support Procedures
- Configure Windows
- Manage Windows

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- Support Windows
- Secure Windows
- Install Operating Systems
- Support Other OS
- Configure SOHO Network Security
- Manage Security Settings
- Support Mobile Software
- Use Data Security
- Implement Operational Procedures

Skills you'll learn

- Install, configure, and maintain hardware components and devices effectively.
- Diagnose and resolve issues with PCs, mobile devices, and software applications.
- Understand networking basics and configure wired/wireless SOHO networks.
- Apply basic cybersecurity methods to mitigate threats and secure systems.
- Install and support multiple operating systems, including Windows, Linux, and macOS.
- Explain virtualization and cloud computing concepts and their applications.
- Follow best practices for safety, environmental impacts, and effective communication.
- Provide customer support using appropriate troubleshooting and communication skills.
- Gain a respected certification that validates your foundation in tech and prepares you for success in your career.

Job roles that benefit from A+ skills

- Help Desk Tech
- Desktop Support Specialist
- Field Service Technician
- Help Desk Technician
- Associate Network Engineer
- System Support Technician
- Junior Systems Administrator

Each participant in an authorized training CompTIA A+ Prep Course held in Compendium CE will receive a free 220-1201 (Core 1) and 220-1202 (Core 2) v15 CompTIA A+ Certification Exam

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vouchers.

CONSPECT:

- What Does an IT Specialist Do?
  - The Hero of Problem Solving
    - Role of an IT Specialist
    - Skills and Abilities
  - The Troubleshooting Methodology
    - Best Practice Methodology
    - Identify the Problem
    - Establish and Test a Theory
    - Question the Obvious
    - Establish a New Theory or Escalate
    - Implement a Plan of Action
    - Verify and Document
  - Additional Resources
    - Troubleshooting Methodology
- Installing Motherboards and Connectors
  - Cables and Connectors
    - Personal Computers
    - Lab: Explore the Lab Interface
    - Peripheral Devices
    - Universal Serial Bus Cables
    - USB Standards
    - USB Cables and Standards
    - Lab: Install USB Devices
    - Display Types
    - Display Components
    - HDMI and DisplayPort Video Cables
    - Thunderbolt Interface
    - Lightning Interface
    - Serial Advanced Technology Attachment Interface
    - Molex Power Connectors
    - External SATA
    - Lab: Set Up a Desktop Computer
  - Motherboards

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- Motherboard Functions
- Electrical Safety and ESD
- Motherboard CPU and System Memory Connectors
- Motherboard Storage Connectors
- Peripheral Component Interconnect Express Interface
- Peripheral Component Interconnect Interface
- Motherboard Form Factors
- Motherboard Installation
- Install a Motherboard
- Motherboard Headers and Power Connectors
- Lab: Choose and Install a Motherboard
- Video Cards
- Lab: Upgrade a Video Card
- Capture Cards
- Sound Cards
- Network Interface Cards
- Installing & Configuring Motherboards, CPUs & Add-on Cards

- Legacy Cables
  - DVI and VGA Video Cables
  - Lab: Select and Configure Dual Monitors
  - Serial Cables
  - Adapter Cables
- Lab: Set up an A/V Workstation
- Additional Resources
  - Cable Types
  - Motherboards
  - Exercise: History of Cables
  - Exercise: Motherboard Diagram Creation
  - Exercise: Legacy Cables Timeline
  - Exercise: Build a Cable Chart Capstone

- Installing System Devices
  - Power Supplies and Cooling
    - Power Supply Units
    - Lab: Install a Power Supply
    - Wattage Rating
    - Power Supply Connectors

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- 20-pin to 24-pin Motherboard Adapter
- Modular Power Supplies
- Redundant Power Supplies
- Change the Power Supply
- Lab: Troubleshoot Power Supply Problems
- Fan Cooling Systems
- Heat Sinks and Thermal Paste
- Fans
- Liquid Cooling Systems
- Lesson Review

- Storage Devices
  - Storage Devices
  - Mass Storage Devices
  - Solid-State Drives
  - Hard Disk Drives
  - Redundant Array of Independent Disks
  - RAID 0 and RAID 1
  - RAID 5 and RAID 10
  - RAID 6 (Striping with Double Parity)
  - RAID Types
  - Removable Storage Drives
  - Optical Drives
  - Lab: Install SATA Devices
- System Memory
  - System RAM and Virtual Memory
  - RAM Types
  - Memory Modules
  - Lab: Select Memory by Sight
  - Multi-channel System Memory
  - Memory Troubleshooting
  - Lab: Install Triple Channel Memory
  - ECC RAM
- CPUs
  - CPU Architecture
  - x86 CPU Architecture
  - x64 CPU Architecture

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        - ARM CPU Architecture
        - CPU Features
        - CPU Socket Types
        - CPU Types and Motherboard Compatibility
        - Install a Processor
    - Challenge Lab: Troubleshoot Memory
    - Additional Resources
        - System Memory
        - Matching Computer Components
        - Exercise: Cooling System Infographic
        - Exercise: Memory Performance Experiment
        - Exercise: Evolution of Storage Devices
        - Exercise: Create a CPU Architecture Diagram
        - Exercise: CPU Performance Experiment Capstone
- Troubleshooting PC Hardware
    - BIOS and UEFI
        - BIOS and UEFI
        - Lab: Find BIOS/UEFI Settings
        - Boot and Device Options
        - USB Permissions
        - Fan Considerations
        - Boot Passwords and Secure Boot
        - Activity: Secure Boot Feedback
        - Trusted Platform Modules
        - Activity: TPM Hash Comparison
        - Lab: Configure BIOS/UEFI Security
    - Power and Disk Issues
        - Troubleshoot Power Issues
        - Lab: Troubleshoot System Power
        - Troubleshoot POST Issues
        - Lab: Troubleshoot System Startup
        - Troubleshoot Boot Issues
        - Lab: Troubleshoot Boot Issues
        - Troubleshoot Boot Sector Issues
        - Troubleshoot OS Errors and Crash Screens
        - Troubleshoot Drive Availability

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- Lab: Troubleshoot Drive Availability
- Troubleshoot Drive Reliability and Performance
- Troubleshoot RAID Failure
- Troubleshooting Problems with Storage Drives & RAID Arrays

- System and Display Issues
  - Troubleshoot Component Issues
  - Overheating
  - Physical Damage
  - Troubleshoot Performance Issues
  - Troubleshoot Inaccurate System Date/Time
  - Troubleshoot Missing Video Issues
  - Troubleshoot Video Quality Issues
  - Troubleshooting Video, Projector & Display Issues
  - Lab: Troubleshoot GPU
- Lab: Resolve PC Hardware Support Tickets
- Lab: Troubleshoot a Malfunctioning Computer
- Additional Resources
  - BIOS and UEFI
  - Troubleshooting Example: Video Issues
  - Exercise: Boot Process Walkthrough
  - Exercise: Hard Drive Health Monitoring
  - Exercise: Create a Troubleshooting Checklist
  - Exercise: Power Supply Wattage Calculation Capstone

- Comparing Local Networking Hardware
  - Network Types
    - LANs and WANs
    - SOHO and Enterprise Networks
    - Datacenters
    - SOHO, Enterprise, and Personal Area Networks
  - Networking Hardware
    - Network Interface Cards
    - Lab: Select and Install a Network Adapter
    - Patch Panels
    - Wiring a Patch Panel
    - Lab: Connect Patch Panel Cables
    - Switches

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- How Does an Access Switch Forward Data?
- Lab: Connect Computers with a Switch
- Unmanaged and Managed Switches
- Power over Ethernet

- Network Cable Types
  - Unshielded Twisted Pair
  - Shielded Twisted Pair
  - Activity: Identify Unshielded and Shielded Twisted Pair
  - Cat Standards
  - Copper Cabling Connectors
  - Activity: Identify Copper Connectors
  - Copper Cabling Installation Tools
  - Copper Cabling Test Tools
  - Network Taps
  - Copper Cabling Installation Considerations
  - Optical Cabling
  - Activity: Identify Fiber Optic Connectors
  - Coaxial Cabling
- Wireless Networking Types
  - Access Points
  - Frequency Bands
  - IEEE 802.11a
  - IEEE 802.11b/g
  - 802.11n
  - Identify IEEE 802.11 Standards
  - Wi-Fi 5 and Wi-Fi 6
  - Wi-Fi 7 (802.11be)
  - Wireless LAN Installation Considerations
  - Wi-Fi Analyzers
  - Long-Range Fixed Wireless
  - Bluetooth, RFID, and NFC
  - Lab: Secure a Small Wireless Network
  - Lab: SOHO Wi-Fi Configuration Settings
- Additional Resources
  - Network Switches
  - Building Wireless Networks

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- Exercise: Network Design Challenge
- Exercise: Hardware Comparison Chart
- Exercise: Network Cable Infographic
- Exercise: Wireless Networking Timeline
- Exercise: Create a Network Infographic Capstone

- Configuring Network Addressing and Internet Connections
  - Internet Connection Types
    - Internet Connection Types and Modems
    - Digital Subscriber Line Modems
    - Cable Modems
    - Lab: Connect a Cable Modem
    - Fiber to the Curb and Fiber to the Premises
    - Lab: Connect Fiber Optic Cables
    - Fixed Wireless Internet Access
    - Cellular Radio Internet Connections
    - Routers
    - Firewalls
  - TCP/IP Concepts
    - TCP/IP
    - Link or Network Interface layer
    - Internet Layer
    - Transport Layer
    - Application Layer
    - IPv4 Addressing
    - Lab: Configure IP Addresses
    - Network Prefixes
    - IPv4 Forwarding
    - Public and Private Addressing
    - IPv4 Host Address Configuration
    - Static Versus Dynamic Host Address Configuration
    - Static vs Dynamic
    - SOHO Router Configuration
    - IPv6 Addressing
  - Network Communications
    - Protocols and Ports
    - Transmission Control Protocol

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- Network Packets
- User Datagram Protocol
- Wireshark
- Well-Known Ports

- Network Configuration Concepts
  - DHCP Functions
  - Domain Name System
  - DNS Queries
  - DNS Record Types
  - DNS Spam Management Records
  - Virtual LANs
  - Virtual Private Networks
- Challenge Lab: Install a SOHO Network
- Additional Resources
  - Ports and Protocols
  - DHCP and DNS Services
  - Exercise: Internet Connection History Timeline
  - Exercise: Create a TCP/IP Infographic
  - Exercise: Protocol Poster Project
  - Exercise: Visualizing the DHCP Process
  - Exercise: Protocol Timeline Capstone

- Supporting Network Services
  - Networked Host Services
    - File/Print Servers
    - Database Servers
    - Web Servers
    - Hypertext Transfer Protocol Secure
    - Mail Servers
    - Mailbox Servers
    - Navigate a Mailbox Server
    - Directory and Authentication Servers
    - Remote Terminal Access Servers
    - Time Servers
    - Network Monitoring Servers
  - Internet and Embedded Appliances
    - Proxy Servers

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- Lab: Use a Proxy Server
- Spam Gateways and Unified Threat Management
- Load Balancers
- Legacy Systems
- Embedded Systems and SCADA
- Internet of Things Devices

- Troubleshoot Networks
  - Troubleshoot Wired Connectivity
  - Troubleshoot Network Speed Issues
  - Lab: Fix a Network Connection
  - Troubleshoot Wireless Issues
  - Troubleshoot VoIP Issues
  - Troubleshoot Limited Connectivity
- Lab: Troubleshoot a Network Issue
- Additional Resources
  - Client Server Relationship
  - Troubleshooting Networks
  - Exercise: Server Comparison Project
  - Exercise: Exploring Everyday Embedded Systems
  - Exercise: Troubleshooting with Command-Line Tools
  - Exercise: Build a Smart Home Device Capstone

- Summarizing Virtualization and Cloud Concepts
  - Client-Side Virtualization
    - Hypervisors
    - Uses for Virtualization
    - Lab: Explore Virtualization
    - Virtualization Resource Requirements
    - Virtualization Security Requirements
    - Lab: Create Virtual Hard Disks
  - Cloud Concepts
    - Cloud Characteristics
    - Cloud Deployment
    - Common Cloud Deployment Models
    - Use the Azure Interface
    - Common Cloud Service Models
    - Manage IaaS Virtual Machines (VMs) in Azure That Run Windows Server

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- Cloud File Storage
- Content Delivery Networks (CDNs)

- Additional Resources
  - Virtualization
  - Cloud Service Models
  - Exercise: Exploring Hypervisors
  - Exercise: Cloud Service Model Exploration
  - Exercise: Exploring Cloud Provider Services Capstone

- Supporting Mobile Devices
  - Mobile Devices and Peripherals
    - Mobile Device Accessories
    - Mobile Device Wired Connection Methods
    - Port Replicators and Docking Stations
    - Lab: Manage Mobile Devices
    - Wi-Fi Networking
    - Connect to a Wireless Network
    - Cellular Data Networking
    - Mobile Hotspots and Tethering
    - Bluetooth Wireless Connections
    - Near-Field Communication Wireless Connections
    - Configure a Laptop Dock and External Peripherals
  - Mobile Apps and Data
    - Mobile Apps
    - Account Setup
    - Types of Data to Synchronize
    - Email Configuration Options
    - Synchronization Methods
    - Enterprise Mobility Management
    - Location Services
  - Laptop Hardware
    - Laptop Disassembly Processes
    - Battery Replacement
    - RAM and Adapter Replacement
    - Disk Upgrades and Replacement
    - Keyboard and Security Component Replacement
  - Troubleshoot Mobile Devices

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- Power and Battery Issues
- Hardware Failure Issues
- Activity: Hardware Failure Issues
- Screen and Calibration Issues
- Connectivity Issues
- Malware Issues

- Challenge Lab: Mobile Hardware Support
- Additional Resources
  - Troubleshooting Mobile Devices
  - Exercise: Peripheral History Timeline
  - Exercise: App Exploration and Categorization
  - Exercise: Laptop Hardware Budgeting Activity
  - Exercise: Troubleshooting Flowchart Creation
  - Exercise: Peripheral Design Challenge Capstone

- Supporting Print Devices
  - Printers and Multifunction Devices
    - Printer Unboxing and Setup Location
    - Firmware Management in MFDs and Printers
    - Print Device Connectivity
    - Lab: Select and Install a Printer
    - Printer Drivers and Page Description Languages
    - Printer Properties
    - Printing Preferences
    - Printer Sharing
    - Connect to a Printer
    - Lab: Configure Network Printing
    - Printer Security
    - Activity: Security Print and Badging
    - Scanner Configuration
  - Print Device Maintenance
    - Laser Printer Imaging Process
    - Laser Printer Maintenance
    - Inkjet Printer Imaging Process
    - Inkjet Printer Maintenance
    - Thermal Printer Maintenance
    - Impact Printer Maintenance

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- Printer Basics
- Replace a Printer Fuser
- Replace a Printer Toner
- Clear a Paper Jam in a Printer

- Troubleshoot Print Devices
  - Printer Connectivity Issues
  - Print Feed Issues
  - Print Quality Issues
  - Finishing Issues
  - Print Job Issues
  - Activity: Character Encoding Explorer
- Lab: Resolve Print Services Support Tickets
- Additional Resources
  - Connecting Printers
  - Printer Troubleshooting
  - Exercise: Compare Printer Types and Maintenance Practices
  - Exercise: Printer Maintenance Best Practices
  - Exercise: Troubleshooting Common Printer Problems
  - Exercise: Printer Troubleshooting Flowchart Capstone

- Managing Support Procedures
  - Documentation
    - Standard Operating Procedure
    - Service Level Agreements
    - Incident and Ticketing Systems
    - Categories and Severity
    - Ticket Management
    - Activity: Escalation Levels
    - Support Documentation and Knowledge Base Articles
    - Lessons Learned
    - Clear Written Communication
    - Knowledge Base
    - Knowledge Base Articles
    - Policy Documentation
    - Lab: Create a Ticket
    - Lab: Close a Ticket
    - Lab: Use Help Desk System

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- Live Lab: Explore the VM Lab Environment
- Professional Communication
  - Professional Support Processes
  - Professional Support Delivery
  - Professional Appearance
  - Professional Communications
  - Clarifying and Questioning Techniques
  - Difficult Situations
  - Dealing with Difficult Customers
  - Do Not Post Experiences on Social Media
- Types of Operating Systems
  - Windows and macOS
  - UNIX, Linux, and Chrome OS
  - iOS and Android
  - Windows File System Types
  - Linux and macOS File System Types
  - OS Compatibility Issues
  - Vendor Life-cycle Limitations
  - Applied Live Lab: Manage a Support Ticket
- Challenge Live Lab: Resolve Help Desk Tickets
- Additional Resources
  - Operating System Types
  - Documentation Policies and Procedures
  - Exercise: Incident Lifecycle Mapping
  - Exercise: Elevator Pitch Practice
  - Exercise: Operating System History Timeline
  - Exercise: Incident Response Plan Capstone

- Configuring Windows
  - Windows User Settings
    - Windows Interfaces
    - Windows Settings and Control Panel
    - Lab: Explore Windows Settings
    - Accounts Settings
    - Using the Windows Desktop Interface
    - Privacy Settings
    - Desktop Settings

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- Lab: Require a Screen Saver Password
- Ease of Access Settings
- File Explorer
- File Explorer Options
- Indexing Options
- Applied Live Lab: Configure Desktop Settings

- Windows System Settings
  - System Settings
  - Update and Security Settings
  - Lab: Configure Windows Update
  - Device Settings
  - Display and Sound Settings
  - Power Options
  - Lab: Edit Power Options
  - Apps, Programs, and Features
  - Apps Settings
  - Network Settings
  - Administrative Tools
  - Management Shortcuts
- Install and Configure Applications
  - System Requirements for Applications
  - OS Requirements for Applications
  - Distribution Methods
  - Other Considerations
  - Applied Live Lab: Configure Windows Apps
- Cloud-Based Applications
  - Email Systems
  - Storage
  - Collaboration Tools
  - User Licensing
  - Identity Synchronization
  - Lab: Create Azure Storage Account
- Additional Resources
  - Windows Utilities
  - Windows Network Settings
  - Exercise: Exploring the Purpose of Different Windows Utilities

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- Exercise: System Settings Hands-On Practice
- Exercise: Hands-On Installation Practice
- Exercise: Cloud-Based Applications
- Exercise: Cloud Comparison Activity Capstone

- Managing Windows
  - Use Management Consoles
    - Device Manager
    - Disk Management Console
    - Disk Maintenance Tools
    - Lab: Disk Management
    - Task Scheduler
    - Local Users and Groups Console
    - Lab: Users and Groups
    - Certificate Manager
    - Group Policy Editor
    - Registry Editor
    - Custom Microsoft Management Consoles
    - Applied Live Lab: Manage User Accounts
  - Command-Line Tools
    - Command Prompt
    - Navigation Commands
    - File Management Commands
    - Lab: Manage Files and Folders
    - Disk Management Commands
    - System Management Commands
    - Use System Management Commands
    - Applied Live Lab: Configure File Storage
  - Windows Networking
    - Windows Network Connection Types
    - IP Addressing Schemes
    - Windows Client Configuration
    - Network Location
    - Windows Defender Firewall Configuration
    - VPN and WWAN Connection Types
    - Lab: Configure a VPN Connection
    - Proxy Settings

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- Lab: Local Firewall Settings
- Lab: Configure TCP/IP Settings on Windows 10
- Lab: Configure TCP/IP Settings on Windows 11
- Applied Live Lab: Manage Network and Security Settings

- Challenge Live Lab: Manage Windows Workstations
- Challenge Live Lab: Set Up Windows Workstations
- Additional Resources
  - Windows Management Consoles
  - The Command-Line Interface
  - Exercise: Research and Document Snap-Ins
  - Exercise: Command Documentation
  - Exercise: Research Firewall Basics
  - Exercise: Create a Custom MMC Console Capstone

- Supporting Windows
  - Troubleshoot Windows Networking
    - Troubleshoot IP Configuration
    - Lab: Assisted Troubleshooting
    - Troubleshoot Local Network Connectivity
    - Lab: Troubleshoot Physical Connectivity
    - Troubleshoot Remote Network Connectivity
    - Troubleshoot Name Resolution
    - Troubleshoot Network Ports
    - Lab: Connectivity
  - Remote Access Technologies
    - Remote Desktop Tools
    - RDP Server and Security Settings
    - Microsoft Remote Assistance
    - Lab: Configure Remote Services
    - WinRM
    - Secure Shell
    - Desktop Management and Remote Monitoring Tools
    - Simple Protocol for Independent Computing Environments (SPICE)
    - Other Remote Access Tools
    - Applied Live Lab: Provide Remote Support
  - Performance and Troubleshooting Tools
    - System Information

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- Event Viewer
- Task Manager Process Monitoring
- Task Manager Performance Monitoring
- CPU and GPU Monitoring
- Memory Monitoring
- Disk and Network Monitoring
- Task Manager User Monitoring
- Startup Processes and Services Console
- Lab: Manage Applications
- Resource Monitor and Performance Monitor
- Performance Counters
- System Configuration Utility

- Troubleshoot Windows OS Problems
  - Boot Process
  - Boot Recovery Tools
  - Lab: Boot into the Windows Recovery Environment
  - System Restore
  - Lab: Create a Restore Point
  - Update and Driver Roll Back
  - System Repair, Reinstall, and Reimage
  - Troubleshoot Boot Issues
  - Lab: Configure the Boot Order
  - Troubleshoot Profile Issues
  - Troubleshoot Performance Issues
  - Troubleshoot System Fault Issues
  - Troubleshoot Application and Service Fault Issues
  - Applied Live Lab: Support Windows OS
- Challenge Live Lab: Resolve Troubleshooting Tickets
- Challenge Live Lab: Resolve Network Troubleshooting Tickets
- Additional Resources
  - Networking Command-Line Tools
  - Remote Access
  - Exercise: Mastering Diagnostic Tools
  - Exercise: Research and Compare Remote Access Tools
  - Exercise: Performance Monitor Activity
  - Exercise: Windows Tool Guide Capstone

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- Securing Windows
  - Logical Security Concepts
    - Logical Security Controls
    - Information Security
    - Hashing and Encryption Concepts
    - Asymmetric Encryption
    - Digital Signatures and Key Exchange
    - User and Group Accounts
    - User Account Control
    - Lab: Create User Accounts
    - Authentication Methods
    - Authentication
    - Lesson Review
  - Windows Security Settings
    - Windows Login Options
    - Windows Domains and Active Directory
    - Lab: Create OUs
    - Group Policy and Login Scripts
    - Lab: Use System Commands
    - Lab: Group Policy Management
    - Lesson Review
  - Windows Shares
    - Workgroup Setup
    - File Share Configuration
    - Network Browsing and Mapping Drives
    - Printer Sharing
    - NTFS versus Share Permissions
    - Lab: Configure NTFS Permissions
    - Permissions Inheritance
    - Domain Setup
    - Home Folders
    - Roaming Profiles and Folder Redirection
    - Lab: Support AD Domain Networking
    - Lesson Review
  - Challenge Live Lab: Manage Domain Accounts
  - Additional Resources

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- Authentication and Login in Windows
- Windows Security Settings
- Exercise: Create A Security Policy
- Exercise: Research Windows Security Features
- Exercise: Windows Shares Research Assignment
- Exercise: Windows Security Infographic Capstone

- Installing Operating Systems
  - Windows Editions
    - Windows Versions
    - Windows Home Edition
    - Work and Education Features
    - Windows Pro and Enterprise Editions
    - Windows Upgrade Paths and Feature Updates
    - Lab: Windows 11 Features/Desktop
  - OS Installations and Upgrades
    - Installation and Upgrade Considerations
    - Unattended Installations
    - Boot Devices
    - Disk Configuration
    - Repair Installation
    - Applied Live Lab: Perform a Remote Network Installation
  - Challenge Live Lab: Support Windows Installation and Upgrade Issues
  - Additional Resources
    - Windows Editions
    - OS Installs and Upgrades
    - Exercise: Research and Compare Windows Editions
    - Exercise: Step-By-Step OS Installation Guide
    - Exercise: Compare OS Installation Methods Capstone

- Supporting Other OS
  - Linux Features
    - Shells, Terminals, and Consoles
    - Command Interface
    - Navigation Commands
    - Search Commands
    - Filesystem Management
    - File Management Commands

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- Lab: File Management
- User Account Management
- File Permissions Commands
- Lab: Manage Linux File Ownership
- Applied Live Lab: Report Linux Configuration Settings

- Package and Network Management
  - Package Management Commands
  - Process Monitoring Commands
  - Network Management Commands
  - Lab: Informational and Network Tools
  - Backup and Scheduling Commands
  - Lab: Configure Linux
  - Applied Live Lab: Manage Linux Apps and Files
- macOS Features
  - Interface Features
  - System Folders and Finder
  - System Settings
  - Security and User Management
  - iCloud and Continuity
  - App Installation and Management
  - OS and App Updates
  - Network and Device Settings
  - Time Machine Backup
  - Troubleshoot Crashes and Boot Issues
- Challenge Live Lab: Install and Support Linux OS
- Additional Resources
  - Linux versus Windows
  - Linux User Accounts
  - Exercise: Exploring Key Features of Linux
  - Exercise: Linux Package Search and Information
  - Exploring the macOS Interface
  - Exercise: Linux Distribution Exploration Capstone

- Configuring SOHO Network Security
  - Attacks, Threats, and Vulnerabilities
    - Vulnerabilities
    - Social Engineering

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- Lab: Respond to Social Engineering Exploits
- Phishing and Evil Twins
- Threat Types
- Password Attacks
- Cross-site Scripting Attacks
- SQL Injection Attacks
- Lab: Explore SQL Injection Flaws

- Wireless Security Protocols
  - Wi-Fi Protected Access
  - Wi-Fi Authentication Methods
  - Enterprise Authentication Protocols
  - Authentication Methods
  - RADIUS, TACACS+, and Kerberos
- SOHO Router Security
  - Home Router Setup
  - Lab: SOHO Router Configuration
  - Firmware Update
  - Home Router LAN and WLAN Configuration
  - Home Router Firewall Configuration
  - Home Router Port Forwarding Configuration
  - Universal Plug-and-Play
  - Screened Subnets
  - Secure a Small Wireless Network
- Additional Security Measures
  - Physical Access Control
  - Lab: Implement Physical Security
  - Lock Types
  - Alarms and Surveillance
- Challenge Live Lab: Resolve SOHO Network Issues
- Additional Resources
  - Understanding Social Engineering
  - Wireless Security Protocols
  - Exercise: Threat Analysis Report
  - Exercise: Wireless Protocol Comparison Chart
  - Exercise: SOHO Security Best Practices Infographic
  - Exercise: Physical Access Research and Presentation

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- Exercise: Cyber Attacks Case Studies Capstone

- Managing Security Settings
  - Account Security
    - Password Best Practices
    - Lab: Enforce Password Settings
    - End User Best Practices
    - Restrict User Permissions
    - Change Default Administrator Account and Password
    - Disable Guest Account
    - Account Policies
    - Unused Services
    - Lab: User Policy Management
    - Applied Live Lab: Configure Domain Account Security
  - Workstation Security
    - Execution Control
    - Trusted/Untrusted Software Sources
    - AutoRun and AutoPlay
    - Windows Defender Antivirus
    - Windows Defender Antivirus Updated Definitions
    - Activating and Deactivating Windows Defender Antivirus
    - Lab: Configure Microsoft Defender Antivirus
    - Windows Defender Firewall
    - Windows Defender
    - Encrypting File System
    - Lab: Encrypt Files with EFS
    - Windows BitLocker and BitLocker To Go
    - Lab: Configure BitLocker with a TPM
    - Applied Live Lab: Analyze Workstation Security Settings
  - Browser Security
    - Browser Selection and Installation
    - Lab: Practice Installing & Removing Browser Software
    - Browser Settings
    - Lab: Safe Browsing Best Practices
    - Browser Extensions and Plug-ins
    - Browser Patching
    - Secure Connections and Valid Certificates

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- Browser Privacy Settings
- Clear Browser History
- Applied Live Lab: Configure Browser Security

- Troubleshoot Workstation Security
  - Malware Vectors
  - Malware Payloads
  - Ransomware and Cryptominers
  - Troubleshoot PC Security Symptoms
  - Desktop Alerts and Notifications
  - Endpoint Monitoring Solutions
  - Troubleshoot Browser Symptoms
  - Best Practices for Malware Removal
  - Check for Anti-Malware on a Machine
  - Infected Systems Quarantine
  - Malware Removal Tools and Methods
  - Malware Infection Prevention
- Challenge Lab: Resolve Security Tickets
- Additional Resources
  - Malware Types
  - Malware Symptoms, Removal, and Prevention for SOHO Environments
  - Exercise: Security Breach Research and Presentation
  - Exercise: Windows Security Configuration Checklist
  - Exercise: Research on Browser Vulnerabilities
  - Exercise: Malware Removal Tools Research and Presentation
  - Exercise: Research on Malware Trends Capstone

- Supporting Mobile Software
  - Mobile OS Security
    - Screen Locks
    - Mobile Security Software
    - Enterprise Mobility Management
    - Mobile Device Management
    - Two-factor Authentication
    - Mobile Data Security
    - Locator Apps and Remote Wipe
    - Lab: Configure Remote Wipe
  - Troubleshoot Mobile OS and App Software

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- Mobile Device Troubleshooting Tools
- Mobile Device Troubleshooting
- Troubleshoot Device and OS Issues
- Troubleshoot App Issues
- Troubleshoot Connectivity Issues
- Lab: Connect to WiFi

- Troubleshoot Mobile OS and App Security
  - Root Access Security Concerns
  - Mobile App Source Security Concerns
  - Mobile Security Symptoms
- Additional Resources
  - Mobile Applications and Connectivity
  - Exercise: Mobile OS Security Research and Analysis
  - Exercise: Mobile Device Scenario-Based Troubleshooting
  - Exercise: Mobile Device Scenario-Based Learning
  - Exercise: Mobile OS Current Event and Trends Capstone

- Using Data Security
  - Data Backup and Recovery
    - Backup Operations
    - Backup Methods
    - Lab: Back Up the Computer
    - Backup Media Requirements
    - Backup Testing and Recovery Best Practices
    - Lab: Restore Data from File History
    - Applied Live Lab: Support Backup and Restore Operations
  - Data Handling Best Practices
    - Regulated Data Classification
    - Prohibited Content and Licensing Issues
    - Incident Response
    - Data Integrity and Preservation
    - Data Destruction Methods
    - Disposal and Recycling Outsourcing Concepts
  - Artificial Intelligence
    - Application Integration
    - Policy
    - Limitations

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- Private vs. Public
- Challenge Live Lab: Resolve Incident Response Tickets
- Additional Resources
  - Computer Data Backup
  - Data Best Practices
  - Exercise: Backup Hands-On Practice
  - Exercise: Creating a Data Handling Policy
  - Exercise: Hands-On AI Experimentation
  - Exercise: Data Backup Scenario-Based Problem Solving Capstone
- Implementing Operational Procedures
  - Change and Inventory Management
    - Change Requests
    - Risk Analysis
    - Change Board Approvals
    - Implementation and Acceptance
    - Asset Management
    - Warranty and Licensing
  - Common Safety and Environmental Procedures
    - Compliance with Regulations
    - Electrical Safety
    - Other Safety Hazard Mitigations
    - Environmental Impacts
    - Electrostatic Discharge Mitigation
    - Building Power Issues and Mitigations
    - Materials Handling and Responsible Disposal
    - Lab: Install a UPS
  - Scripting Basics
    - Shell Scripts
    - Bash Command Syntax
    - Basic Script Constructs
    - Conditionals
    - Windows Scripts
    - JavaScript and Python
    - Lab: JavaScript
    - Use Cases for Scripting
    - Scripting Best Practices and Considerations

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- Live Lab: Implement a PowerShell Script
- Live Lab: Implement a Bash Script

- Additional Resources
  - Asset and Change Management
  - Basics of Scripting
  - Exercise: Creating a Change Management Plan
  - Exercise: Environmental Impact Assessment
  - Exercise: Research and Compare Scripting Languages
  - Exercise: Safety Checklist Creation Capstone

REQUIREMENTS:

Recommended experience: 12 months of hands-on experience in an IT support specialist job role.

Difficulty level



CERTIFICATE:

The participants will obtain certificates signed by CompTIA (course completion). This course will help prepare you for the CompTIA A+ certification exams, which is available through the Pearson VUE test centers.

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