



## Lionfish Cyber Security Course Syllabus:

### CompTIA A+ Core 2019 (220-1001/220-1002)

Interactive and entertaining format presented by industry leading experts.

- 100+ hours of virtual training, practice exams, labs, and study.
- Receive a Certificate of completion
- Presented by highly qualified, industry leading experts
- 12 Months Access (*Unless indicated otherwise*)



[www.LionfishCyberSecurity.com](http://www.LionfishCyberSecurity.com)  
877-732-6772 or [info@lionfishcybersecurity.com](mailto:info@lionfishcybersecurity.com)  
101 West Ohio Street, Suite 2000, Indianapolis, In 462041



## **Description**

The CompTIA A+ exam will help students demonstrate basic security skills, configuration for a variety of operating systems, troubleshooting, IT infrastructure and networking, the configuration of hardware, and data backup and recovery methods.

## **Curriculum Overview**

The CompTIA IT Fundamentals Certification is an entry level certification designed to introduce users to basic computer principles. It covers basic IT literacy and ensures one understands the different terminology and the various concepts involved in the IT industry. It also serves as a great starting point if you are just getting started in computers and is designed to be the first step on your way to pursuing the CompTIA A+ certification or others similar. Topics covered include hardware basics, troubleshooting, software installation, security and networking.

## **Objectives**

- Support operating systems.
- Install, configure, and maintain operating systems.
- Maintain and troubleshoot Microsoft Windows.
- Configure and troubleshoot network connections.
- Manage users, workstations, and shared resources.
- Implement client virtualization.



## **Prerequisites**

- Recognize the main components of a PC as well as storage media such as USB drives and DVD.
- Start the computer and navigate the operating system desktop.
- Use Windows Explorer to create directories and subdirectories and manage files.
- Use a web browser to view websites.

## **Target Audience**

- who has basic computer skills
- who desires to obtain a job as an entry-level IT technician.

## **Syllabus**

Course Information		Est Minutes	Hrs
<b>Lesson 1: Installing Motherboards and Connectors   11 Tasks   140 Knowledge Points</b>			
<b>Topic 1A: Explain Cable Types and Connectors</b>			
1 - Overview-Video		5	
18 - Network Cables-Video		28	
19 - Peripheral and Video Cables-Video		22	
complete. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes		30	
Welcome to CertMaster Learn for A+ Core 1 and Core 2 Video is attached			
Using CertMaster Learn			
Introduction: Explain Cable Types and Connectors			
Personal Computers			
Peripheral Devices			
Universal Serial Bus Cables			
HDMI and DisplayPort Video Cables			
Thunderbolt and Lightning Cables			
SATA Hard Drive Cables			
Review Activity: Cable Types and Connectors			
complete. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes		15	
Virtual Workbench Lab: Upgrade/Install GPU and Daisy-Chain Monitors			
complete. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
<b>Topic 1B: Install and Configure Motherboards</b>			
23 - Motherboards-Video		20	
25 - Processors-Video		19	
34 - Troubleshooting Storage-Video		17	
complete. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes		15	
Introduction: Install and Configure Motherboards			
Motherboard Functions			
Electrical Safety and ESD			
Motherboard CPU and System Memory Connectors			
Motherboard Storage Connectors			
Motherboard Adapter Connectors			
Motherboard Form Factors			
Motherboard Headers and Power Connectors			
Video Cards and Capture Cards			
Sound Cards			
Network Interface Cards			
Review Activity: Motherboards			
complete. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes		15	
PBQ: Installing and Configuring PC Components			
complete. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes		15	
Virtual Workbench Lab: Install a Motherboard			
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
<b>Topic 1C: Explain Legacy Cable Types</b>			
complete. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes		15	
Introduction: Explain Legacy Cable Types Video is attached			
DVI and VGA Video Cables			
Small Computer System Interface			
Integrated Drive Electronics Interface			
Serial Cables			
Adapter Cables			
Review Activity: Legacy Cable Types			
complete. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes		15	
Lesson 1: Practice Questions			
complete. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes		60	
Lesson 1 Summary			
complete. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes		15	
<b>Lesson Total Time</b>		<b>366</b>	<b>6.1</b>
<b>Lesson 2: Installing System Devices   16 Tasks   204 Knowledge Points</b>			

Course Information	Est Minutes	Hrs
<b>Topic 2A: Install and Configure Power Supplies and Cooling</b>		
<b>27 - Power Supplies-Video</b>	14	
complete. 13 knowledge points. Estimated time to complete: Less Than 15 Minutes.13 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Install and Configure Power Supplies and Cooling Video is attached		
Power Supply Units		
Wattage Rating		
Power Supply Connectors		
Fan Cooling Systems		
Liquid Cooling Systems		
Review Activity: Power Supplies and Cooling		
complete. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Installing, Configuring, and Troubleshooting Internal System Components</b>		
complete. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Virtual Workbench Lab: Install Power Supplies and Cooling</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 2B: Select and Install Storage Devices</b>		
<b>20 - Storage Device Cables-Video</b>	15	
<b>22 - Storage Devices-Video</b>	29	
complete. 18 knowledge points. Estimated time to complete: 15-30 Minutes.18 Knowledge Points   15-30 Minutes	30	
Introduction: Select and Install Storage Devices		
Mass Storage Devices Video is attached		
Solid-State Drives		
Hard Disk Drives		
Redundant Array of Independent Disks		
RAID 0 and RAID 1		
RAID 5 and RAID 10		
Removable Storage Drives		
Optical Drives		
Review Activity: Storage Devices		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Installing, Configuring, and Troubleshooting Storage Devices</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Virtual Workbench Lab: Install and Configure SSD Storage</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 2C: Install and Configure System Memory</b>		
<b>21 - Random-access Memory-Video</b>	28	
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Install and Configure System Memory		
System RAM and Virtual Memory		
RAM Types		
Memory Modules		
Multi-channel System Memory		
ECC RAM		
Review Activity: System Memory		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Virtual Workbench Lab: Install RAM</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 2D: Install and Configure CPUs</b>		
. 18 knowledge points. Estimated time to complete: 15-30 Minutes.18 Knowledge Points   15-30 Minutes	30	
Introduction: Configure CPU and a Cooler Lab is attached		
CPU Architecture		
CPU Features		
CPU Socket Types		
CPU Types and Motherboard Compatibility Video is attached		
Review Activity: CPUs		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Virtual Workbench Lab: Install a CPU and Cooler</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	

Course Information	Est Minutes	Hrs
<b>Lesson 2: Practice Questions</b>		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
<b>Lesson 2 Summary</b>		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>461</b>	<b>7.68</b>
<b>Lesson 3: Troubleshooting PC Hardware   12 Tasks   154 Knowledge Points</b>		
<b>Topic 3A: Apply Troubleshooting Methodology</b>		
<b>32: Troubleshooting Methodology</b>	19	
. 16 knowledge points. Estimated time to complete: 15-30 Minutes.16 Knowledge Points   15-30 Minutes	30	
Introduction: Apply Troubleshooting Methodology Video is attached		
Best Practice Methodology		
Identify the Problem		
Establish and Test a Theory		
Establish a New Theory or Escalate		
Implement a Plan of Action		
Verify and Document		
Review Activity: Troubleshooting Methodology		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 3B: Configure BIOS/UEFI</b>		
<b>24 - BIOS and UEFI-Video</b>	11	
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Configure BIOS/UEFI		
BIOS and UEFI		
Boot and Device Options		
Boot Passwords and Secure Boot		
Trusted Platform Modules		
Review Activity: BIOS/UEFI		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 3C: Troubleshoot Power and Disk Issues</b>		
<b>33 - Troubleshooting PC Components-Video</b>	28	
<b>37: Troubleshooting Mobile Devices</b>	19	
. 25 knowledge points. Estimated time to complete: 15-30 Minutes.25 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Power and Disk Issues Video is attached		
Troubleshoot Power Issues		
Troubleshoot POST Issues Video is attached		
Troubleshoot Boot Issues		
Troubleshoot Drive Availability		
Troubleshoot Drive Reliability and Performance		
Troubleshoot RAID Failure Video is attached		
Review Activity: Power and Disk Issues		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Troubleshooting System Issues		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 3D: Troubleshoot System and Display Issues</b>		
<b>35 - Troubleshooting Display Issues-Video</b>	14	
. 17 knowledge points. Estimated time to complete: 15-30 Minutes.17 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot System and Display Issues Video is attached		
Troubleshoot Component Issues		
Troubleshoot Performance Issues		
Troubleshoot Inaccurate System Date/Time		
Troubleshoot Missing Video Issues		
Troubleshoot Video Quality Issues		
Review Activity: System and Display Issues		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Installing, Configuring, and Troubleshooting Display and Multimedia Devices		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Lesson 3: Practice Questions</b>		

Course Information	Est Minutes	Hrs
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
Lesson 3 Summary		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>361</b>	<b>6.02</b>
<b>Lesson 4: Comparing Local Networking Hardware   14 Tasks   176 Knowledge Points</b>		
<b>Topic 4A: Compare Network Types</b>		
<b>38 - Troubleshooting Networks-Video</b>	19	
. 4 knowledge points. Estimated time to complete: Less Than 15 Minutes.4 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Network Types		
LANs and WANs		
SOHO and Enterprise Networks		
Datacenters and Storage Area Networks		
Personal Area Networks		
Review Activity: Network Types		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Exploring the VM Lab Environment		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 4B: Compare Networking Hardware</b>		
<b>8 - Networking Hardware-Video</b>	16	
<b>17: Network Tools</b>	18	
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
Introduction: Compare Networking Hardware		
Network Interface Cards		
Patch Panels Video is attached		
Hubs		
Switches Video is attached		
Unmanaged and Managed Switches		
Power over Ethernet		
Review Activity: Networking Hardware		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Compare Networking Hardware		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 4C: Explain Network Cable Types</b>		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Explain Network Cable Types		
Unshielded Twisted Pair		
Shielded Twisted Pair		
Cat Standards		
Copper Cabling Connectors		
Copper Cabling Installation Tools		
Copper Cabling Test Tools		
Network Taps		
Copper Cabling Installation Considerations		
Optical Cabling		
Coaxial Cabling		
Review Activity: Network Cable Types		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Using Network Hardware and Tools		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 4D: Compare Wireless Networking Types</b>		
<b>9 - Wireless Protocols-Video</b>	18	
. 13 knowledge points. Estimated time to complete: Less Than 15 Minutes.13 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Wireless Networking Types		
Access Points		
802.11a and the 5 GHz Frequency Band		
802.11b/g and the 2.4 GHz Frequency Band		
802.11n		

Course Information	Est Minutes	Hrs
Wi-Fi 5 and Wi-Fi 6		
Wireless LAN Installation Considerations		
Wi-Fi Analyzers		
Long-Range Fixed Wireless		
Bluetooth, RFID, and NFC		
Review Activity: Wireless Networking Types		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Compare Wireless Network Technologies		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Lesson 4: Practice Questions		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
Lesson 4 Summary		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>386</b>	<b>6.43</b>
<b>Lesson 5: Configuring Network Addressing and Internet Connections   13 Tasks   130 Knowledge Points</b>		
<b>Topic 5A: Compare Internet Connection Types</b>		
<b>15 - Internet Connection Types-Video</b>	21	
. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Internet Connection Types		
Internet Connection Types and Modems		
Digital Subscriber Line Modems		
Cable Modems		
Fiber to the Curb and Fiber to the Premises		
Fixed Wireless Internet Access		
Cellular Radio Internet Connections		
Routers		
Firewalls		
Review Activity: Internet Connection Types		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Networking Infrastructure Concepts		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 5B: Use Basic TCP/IP Concepts</b>		
. 23 knowledge points. Estimated time to complete: 15-30 Minutes.23 Knowledge Points   15-30 Minutes	30	
Introduction: Use Basic TCP/IP Concepts		
TCP/IP		
IPv4 Addressing		
Network Prefixes		
IPv4 Forwarding		
Public and Private Addressing		
IPv4 Host Address Configuration		
Static Versus Dynamic Host Address Configuration		
SOHO Router Configuration Lab is attached		
IPv6 Addressing		
Review Activity: Basic TCP/IP Concepts		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Configuring and Troubleshooting Networks		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Configure a SOHO Router		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>13 - IP Address Format-Video</b>	28	
<b>14 - IP Address Configuration-Video</b>	12	
<b>16 - Network Types-Video</b>	12	
<b>Topic 5C: Compare Protocols and Ports</b>		
<b>7 - Ports and Protocols-Video</b>	22	
. 4 knowledge points. Estimated time to complete: Less Than 15 Minutes.4 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Protocols and Ports		



Course Information	Est Minutes	Hrs
Protocols and Ports		
Transmission Control Protocol		
User Datagram Protocol		
Well-Known Ports		
Review Activity: Protocols and Ports		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 5D: Compare Network Configuration Concepts</b>		
12 - Dynamic Host Configuration Protocol (DHCP)-Video	13	
11 - Domain Name System (DNS)-Video	14	
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Network Configuration Concepts		
Dynamic Host Configuration Protocol		
Domain Name System		
DNS Queries		
DNS Record Types		
DNS Spam Management Records		
Virtual LANs		
Virtual Private Networks		
Review Activity: Network Configuration Concepts		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Lesson 5: Practice Questions		
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
Lesson 5 Summary		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>362</b>	<b>6.03</b>
<b>Lesson 6: Supporting Network Services   13 Tasks   177 Knowledge Points</b>		
<b>Topic 6A: Summarize Services Provided by Networked Hosts</b>		
. 19 knowledge points. Estimated time to complete: 15-30 Minutes.19 Knowledge Points   15-30 Minutes	30	
Introduction: Summarize Services Provided by Networked Hosts Video is attached		
File/Print Servers		
Web Servers		
Hypertext Transfer Protocol Secure		
Mail Servers		
Mailbox Servers		
Directory and Authentication Servers		
Remote Terminal Access Servers		
Network Monitoring Servers		
Review Activity: Services Provided by Networked Hosts		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Compare Protocols and Ports		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
10 - Networked Hosts and Services-Video	19	
<b>Topic 6B: Compare Internet and Embedded Appliances</b>		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Internet and Embedded Appliances		
Proxy Servers		
Spam Gateways and Unified Threat Management		
Load Balancers		
Legacy Systems		
Embedded Systems and SCADA		
Internet of Things Devices		
Review Activity: Internet and Embedded Appliances		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 6C: Troubleshoot Networks</b>		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Troubleshoot Networks		
Troubleshoot Wired Connectivity Video is attached		

Course Information	Est Minutes	Hrs
Troubleshoot Network Speed Issues		
Troubleshoot Wireless Issues		
Troubleshoot VoIP Issues		
Troubleshoot Limited Connectivity		
Assisted Lab: Troubleshoot a Network Scenario #1		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Troubleshoot a Network Scenario #2		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
APPLIED Lab: Troubleshoot a Network Scenario #3		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
APPLIED Lab: Troubleshoot a Network Scenario #4		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Review Activity: Networks		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Lesson 6: Practice Questions		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes	60	
Lesson 6 Summary		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>349</b>	<b>5.82</b>
<b>Lesson 7: Summarizing Virtualization and Cloud Concepts   7 Tasks   62 Knowledge Points</b>		
<b>Topic 7A: Summarize Client-Side Virtualization</b>		
30 - Cloud Models and Services-Video	19	
31 - Virtualization-Video	29	
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Summarize Client-Side Virtualization		
Hypervisors		
Uses for Virtualization		
Virtualization Resource Requirements		
Virtualization Security Requirements		
Review Activity: Client-Side Virtualization		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 7B: Summarize Cloud Concepts</b>		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Summarize Cloud Concepts Video is attached		
Cloud Characteristics		
Common Cloud Deployment Models		
Common Cloud Service Models		
Desktop Virtualization		
Cloud File Storage		
Software-Defined Networking		
Review Activity: Cloud Concepts		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Implementing Client Virtualization and Cloud Computing		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Lesson 7: Practice Questions		
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
Lesson 7 Summary		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>168</b>	<b>2.8</b>
<b>Lesson 8: Supporting Mobile Devices   15 Tasks   219 Knowledge Points</b>		
<b>Topic 8A: Set Up Mobile Devices and Peripherals</b>		
05 - Mobile Device Network Connections-Video	18	
. 21 knowledge points. Estimated time to complete: 15-30 Minutes.21 Knowledge Points   15-30 Minutes	30	
Introduction: Set Up Mobile Devices and Peripherals		
Mobile Display Types		
Mobile Display Components		

Course Information	Est Minutes	Hrs
Mobile Device Accessories Video is attached		
Wi-Fi Networking		
Cellular Data Networking		
Mobile Hotspots and Tethering		
Mobile Device Wired Connection Methods		
Bluetooth Wireless Connections		
Near-Field Communication Wireless Connections		
Port Replicators and Docking Stations		
Review Activity: Mobile Devices and Peripherals		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 8B: Configure Mobile Device Apps</b>		
. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Configure Mobile Device Apps		
Mobile Apps		
Account Setup		
Types of Data to Synchronize		
Email Configuration Options		
Synchronization Methods		
Enterprise Mobility Management		
Two-factor Authentication		
Location Services		
Review Activity: Mobile Device Apps		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 8C: Install and Configure Laptop Hardware</b>		
2 - Laptop Hardware and Components-Video	20	
26 - Expansion Cards-Video	19	
. 18 knowledge points. Estimated time to complete: 15-30 Minutes.18 Knowledge Points   15-30 Minutes	30	
Introduction: Install and Configure Laptop Hardware Video is attached		
Laptop Disassembly Processes		
Battery Replacement		
RAM and Adapter Replacement		
Disk Upgrades and Replacement		
Keyboard and Security Component Replacement		
Review Activity: Laptop Hardware		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Supporting and Troubleshooting Laptops		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Virtual Workbench Lab: Configure Laptop Dock and External Peripherals		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Virtual Workbench Lab: Add Expansion SSD in a Laptop		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Virtual Workbench Lab: Upgrade Laptop RAM		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Virtual Workbench Lab: Replace Laptop Non-user Removable Battery		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 8D: Troubleshoot Mobile Device Issues</b>		
3 - Mobile Device Ports and Accessories-Video	19	
4 - Mobile Device Displays-Video	15	
6 - Mobile Device Application Support-Video	13	
. 27 knowledge points. Estimated time to complete: 15-30 Minutes.27 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Mobile Device Issues Video is attached		
Power and Battery Issues Video is attached		
Hardware Failure Issues		
Screen and Calibration Issues Video is attached		
Connectivity Issues Video is attached		
Malware Issues		
Review Activity: Mobile Device Issues		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	

Course Information	Est Minutes	Hrs
<b>Lesson 8: Practice Questions</b>		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
<b>Lesson 8 Summary</b>		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>479</b>	<b>7.98</b>
<b>Lesson 9: Supporting Print Devices   11 Tasks   174 Knowledge Points</b>		
<b>Topic 9A: Deploy Printer and Multifunction Devices</b>		
<b>28 - Printer Configuration-Video</b>	23	
. 22 knowledge points. Estimated time to complete: 15-30 Minutes.22 Knowledge Points   15-30 Minutes	30	
Introduction: Deploy Printer and Multifunction Devices Video is attached		
Printer Unboxing and Setup Location		
Print Device Connectivity Video is attached		
Printer Drivers and Page Description Languages		
Printer Properties		
Printing Preferences		
Printer Sharing		
Printer Security		
Scanner Configuration		
Review Activity: Printer and Multifunction Devices		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Deploy a Printer</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 9B: Replace Print Device Consumables</b>		
<b>29 - Printers-Video</b>	18	
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
Introduction: Replace Print Device Consumables		
Laser Printer Imaging Process		
Laser Printer Maintenance Video is attached		
Inkjet Printer Imaging Process		
Inkjet Printer Maintenance Video is attached		
Thermal Printer Maintenance		
Impact Printer Maintenance		
3-D Printer Maintenance		
Review Activity: Print Device Consumables		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 9C: Troubleshoot Print Device Issues</b>		
<b>36 - Troubleshooting Printers-Video</b>	20	
. 18 knowledge points. Estimated time to complete: 15-30 Minutes.18 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Print Device Issues		
Printer Connectivity Issues		
Print Feed Issues		
Print Quality Issues Video is attached		
Virtual Workbench Lab: Replace a Printer Toner		
Finishing Issues		
Print Job Issues		
Virtual Workbench Lab: Clear a Paper Jam in a Printer		
Review Activity: Print Device Issues		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Installing, Configuring, and Troubleshooting Print Devices</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Troubleshooting Print Devices and Services</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Lesson 9: Practice Questions</b>		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes	60	
<b>Lesson 9 Summary</b>		
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes	15	
<b>Lesson Total Time</b>	<b>361</b>	<b>6.02</b>

Course Information		Est Minutes	Hrs
<b>Final Assessment   1 Task   176 Knowledge Points</b>			
Core 1 Final Assessment			
. 176 knowledge points. Estimated time to complete: 60+ Minutes.176 Knowledge Points   60+ Minutes		60	
Next Steps: Become a CompTIA A+ Professional!   1 Task   1 Knowledge Point			
Next Steps: Become a CompTIA A+ Certified Professional!			
. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes		15	1.2
<b>CORE 1 Total Time</b>		<b>3,368</b>	<b>56.1</b>
<b>Lesson 10: Configuring Windows   10 Tasks   123 Knowledge Points</b>			
<b>Topic 10A: Configure Windows User Settings</b>			
15 - Using Microsoft Control Panel Utilities-Video		21	
38 - Privacy and Licensing Concepts-Video		11	
complete. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes		15	
Introduction: Configure Windows User Settings			
Windows Interfaces			
Windows Settings and Control Panel			
Accounts Settings Video is attached			
Privacy Settings			
Desktop Settings			
Ease of Access Settings			
File Explorer			
File Explorer Options and Indexing Options			
Review Activity: Windows User Settings			
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes		15	
Assisted Lab: Explore the VM Lab Environment			
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
Assisted Lab: Manage User Settings in Windows			
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
<b>Topic 10B: Configure Windows System Settings</b>			
complete. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes		15	
Introduction: Configure Windows System Settings			
System Settings			
Update and Security Settings			
Device Settings			
Display and Sound Settings			
Power Options			
Apps, Programs, and Features			
Apps Settings			
Network Settings			
Administrative Tools			
Management Shortcuts			
Review Activity: Windows System Settings			
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes		15	
PBQ: Configuring User Accounts and Desktop Settings			
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes		15	
Assisted Lab: Support Windows 11			
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
Assisted Lab: Configure Windows System Settings			
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes		30	
Lesson 10: Practice Questions			
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes		30	
<b>Lesson Total Time</b>		<b>257</b>	<b>4.28</b>
<b>Lesson 11: Managing Windows   13 Tasks   184 Knowledge Points</b>			
<b>Topic 11A: Use Management Consoles</b>			
complete. 17 knowledge points. Estimated time to complete: 15-30 Minutes.17 Knowledge Points   15-30 Minutes		30	
Introduction: Use Management Consoles			
Device Manager			
Disk Management Console			

Course Information	Est Minutes	Hrs
Disk Maintenance Tools		
Task Scheduler		
Local Users and Groups Console		
Certificate Manager		
Group Policy Editor		
Registry Editor Video is attached		
Custom Microsoft Management Consoles Video is attached		
Review Activity: Management Consoles		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Use Management Consoles		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 11B: Use Performance and Troubleshooting Tools</b>		
32 - Troubleshooting Methodology-Video	19	
11 - Using Microsoft System Utilities-Video	17	
complete. 16 knowledge points. Estimated time to complete: 15-30 Minutes.16 Knowledge Points   15-30 Minutes	30	
Introduction: Use Performance and Troubleshooting Tools Video is attached		
System Information		
Event Viewer		
Task Manager Process Monitoring		
Task Manager Performance Monitoring		
Task Manager User Monitoring		
Startup Processes and Services Console		
Resource Monitor and Performance Monitor		
Performance Counters		
System Configuration Utility		
Review Activity: Performance and Troubleshooting Tools		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Maintaining and Troubleshooting Microsoft Windows		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Use Task Manager		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Monitor Performance and Event Logs		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 11C: Use Command-line Tools</b>		
9 - Windows Command Line Tools-Video	24	
10 - Windows Network Commands-Video	22	
complete. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Use Command-line Tools		
Command Prompt Video is attached		
Navigation Commands		
File Management Commands		
Disk Management Commands		
System Management Commands		
Review Activity: Command-line Tools		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Use Command-line Tools		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
APPLIED Lab: Support Windows 10		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Lesson 11: Practice Questions		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes		
<b>Lesson Total Time</b>	<b>367</b>	<b>6.12</b>
<b>Lesson 12: Identifying OS Types and Features   6 Tasks   65 Knowledge Points</b>		
<b>Topic 12A: Explain OS Types</b>		
5 - OS Boot and Installation Methods-Video	16	
6 - Partitioning and File Systems-Video	19	
complete. 16 knowledge points. Estimated time to complete: 15-30 Minutes.16 Knowledge Points   15-30 Minutes	30	

Course Information	Est Minutes	Hrs
Introduction: Explain OS Types Video is attached		
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		
Review Activity: OS Types		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 12B: Compare Windows Editions</b>		
complete. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Windows Editions		
Windows Versions		
Windows Home Edition		
Work and Education Features		
Windows Pro and Enterprise Editions		
Windows Upgrade Paths and Feature Updates Video is attached		
Review Activity: Windows Editions		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Supporting Operating Systems		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Lesson 12: Practice Questions		
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
<b>Lesson Total Time</b>	<b>155</b>	<b>2.58</b>
<b>Lesson 13: Supporting Windows   14 Tasks   186 Knowledge Points</b>		
<b>Topic 13A: Perform OS Installations and Upgrades</b>		
4 - Installation Requirements-Video	19	
complete. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Introduction: Perform OS Installations and Upgrades		
Installation and Upgrade Considerations		
Unattended Installations Video is attached		
Boot Devices		
Disk Configuration		
Repair Installation		
Review Activity: OS Installations and Upgrades		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Perform Windows 10 OS Installation		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Perform Ubuntu Linux OS Installation		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 13B: Install and Configure Applications</b>		
7 - Post Installation Tasks-Video	20	
complete. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Install and Configure Applications Video is attached		
System Requirements for Applications		
OS Requirements for Applications		
Distribution Methods		
Other Considerations		
Review Activity: Applications		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Supporting OS/App Installations		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Install and Configure an Application		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 13C: Troubleshoot Windows OS Problems</b>		
3 - Windows OS-Video	11	

Course Information	Est Minutes	Hrs
complete. 22 knowledge points. Estimated time to complete: 15-30 Minutes.22 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Windows OS Problems Video is attached		
Boot Process		
Boot Recovery Tools		
System Restore		
Update and Driver Roll Back		
System Repair, Reinstall, and Reimage		
Troubleshoot Boot Issues		
Troubleshoot Profile Issues		
Troubleshoot Performance Issues		
Troubleshoot System Fault Issues		
Troubleshoot Application and Service Fault Issues		
Review Activity: Windows OS Problems		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Troubleshooting Windows OS Problems		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Troubleshoot Systems and Services		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Troubleshoot a Windows OS Issue		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Lesson 13: Practice Questions		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>410</b>	<b>6.83</b>
<b>Lesson 14: Managing Windows Networking   13 Tasks   193 Knowledge Points</b>		
<b>Topic 14A: Manage Windows Networking</b>		
08: Windows Client Networking Configuration	26	
complete. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Manage Windows Networking		
Windows Network Connection Types		
IP Addressing Schemes		
Windows Client Configuration		
Network Location		
Windows Defender Firewall Configuration		
VPN and WWAN Connection Types		
Proxy Settings		
Review Activity: Windows Networking		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 14B: Troubleshoot Windows Networking</b>		
complete. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Windows Networking Video is attached		
Troubleshoot IP Configuration		
Troubleshoot Local Network Connectivity		
Troubleshoot Remote Network Connectivity		
Troubleshoot Name Resolution		
Troubleshoot Network Ports		
Review Activity: Windows Networking		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Configure Windows Networking		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 14C: Configure Windows Security Settings</b>		
29 - PC Security Issues-Video	22	
17 - Logical User Security Concepts-Video	22	
complete. 21 knowledge points. Estimated time to complete: 15-30 Minutes.21 Knowledge Points   15-30 Minutes	30	
Introduction: Configure Windows Security Settings		
Logical Security Controls		
User and Group Accounts Video is attached		
User Account Control		



Course Information	Est Minutes	Hrs
Authentication Methods		
Windows Login Options		
Windows Domains and Active Directory		
Group Policy and Login Scripts		
Mobile Device Management		
Review Activity: Windows Shares		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Review Activity: Windows Security Settings		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Securing Workstations and Data		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 14D: Manage Windows Shares</b>		
complete. 13 knowledge points. Estimated time to complete: Less Than 15 Minutes.13 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Manage Windows Shares		
Workgroup Setup		
File Share Configuration		
Network Browsing and Mapping Drives		
Printer Sharing		
NTFS versus Share Permissions		
Permissions Inheritance		
Domain Setup		
Home Folders Video is attached		
Roaming Profiles and Folder Redirection		
Assisted Lab: Configure Folder Sharing in a Workgroup		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Support Active Directory Networking		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Lesson 14: Practice Questions		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>385</b>	<b>6.42</b>
<b>Lesson 15: Managing Linux and macOS   9 Tasks   129 Knowledge Points</b>		
<b>Topic 15A: Identify Features of Linux</b>		
14 - Linux Commands-Video	20	
22 - Microsoft OS Security - Permissions-Video	20	
complete. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
Introduction: Identify Features of Linux		
Shells, Terminals, and Consoles		
Command Interface		
Navigation Commands		
Search Commands		
File Management Commands		
User Account Management		
File Permissions Commands		
Package Management Commands		
Process Monitoring Commands		
Network Management Commands		
Backup and Scheduling Commands		
Review Activity: Features of Linux		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Manage Linux using Command-line Tools		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Assisted Lab: Manage Files using Linux Command-line Tools		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 15B: Identify Features of macOS</b>		
13 - macOS Tools and Features-Video	16	
4 - Installation Requirements-Video	19	
complete. 17 knowledge points. Estimated time to complete: 15-30 Minutes.17 Knowledge Points   15-30 Minutes	30	

Course Information	Est Minutes	Hrs
Introduction: Identify Features of macOS Video is attached		
Interface Features		
System Preferences		
Security and User Management		
Finder and iCloud		
App Installation and Management		
OS and App Updates		
Network and Device Settings		
Time Machine Backup		
Troubleshoot Crashes and Boot Issues		
Review Activity: Features of macOS		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Installing, Configuring, and Maintaining Operating Systems</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>APPLIED Lab: Support and Troubleshoot Network Hosts</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Lesson 15: Practice Questions</b>		
. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
<b>Lesson Total Time</b>	<b>300</b>	<b>5</b>
<b>Lesson 16: Configuring SOHO Network Security   12 Tasks   147 Knowledge Points</b>		
<b>Topic 16A: Explain Attacks, Threats, and Vulnerabilities</b>		
18 - Logical Device and Network Security Concepts-Video	18	
21 - Social Engineering Techniques and Exploits-Video	26	
complete. 19 knowledge points. Estimated time to complete: 15-30 Minutes.19 Knowledge Points   15-30 Minutes	30	
Introduction: Explain Attacks, Threats, and Vulnerabilities		
Information Security		
Vulnerabilities		
Social Engineering		
Phishing and Evil Twins		
Threat Types		
Password Attacks		
Cross-site Scripting Attacks		
SQL Injection Attacks		
Hashing and Encryption Concepts		
Digital Signatures and Key Exchange		
Review Activity: Attacks, Threats, and Vulnerabilities		
. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 16B: Compare Wireless Security Protocols</b>		
complete. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Compare Wireless Security Protocols		
Wi-Fi Protected Access		
Wi-Fi Authentication Methods		
Enterprise Authentication Protocols		
RADIUS, TACACS+, and Kerberos		
Review Activity: Wireless Security Protocols		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 16C: Configure SOHO Router Security</b>		
19 - Wireless SOHO Security-Video	27	
complete. 16 knowledge points. Estimated time to complete: 15-30 Minutes.16 Knowledge Points   15-30 Minutes	30	
Introduction: Configure SOHO Router Security Video is attached		
Home Router Setup		
Firmware Update		
Home Router LAN and WLAN Configuration		
Home Router Firewall Configuration		
Home Router Port Forwarding Configuration		
Universal Plug-and-Play		
Screened Subnets		

Course Information	Est Minutes	Hrs
<b>Review Activity: SOHO Router Security</b>		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Configuring and Troubleshooting Networks</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Configure SOHO Router Security</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 16D: Summarize Security Measures</b>		
complete. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
22 - Microsoft OS Security - Permissions-Video	20	
23 - Microsoft OS Security Features-Video	18	
16 - Implementing Physical Security Measures-Video	16	
<b>Introduction: Summarize Security Measures</b>		
Physical Access Control		
Lock Types		
Alarms and Surveillance		
<b>Review Activity: Security Measures</b>		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Implementing Physical Security</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Lesson 16: Practice Questions</b>		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>395</b>	<b>6.58</b>
<b>Lesson 17: Managing Security Settings   12 Tasks   170 Knowledge Points</b>		
<b>Topic 17A: Configure Workstation Security</b>		
24 - Workstation Security Best Practices-Video	20	
37 - Environmental Variables and Controls-Video	13	
complete. 20 knowledge points. Estimated time to complete: 15-30 Minutes.20 Knowledge Points   15-30 Minutes	30	
<b>Introduction: Configure Workstation Security Video is attached</b>		
Password Best Practices		
End User Best Practices		
Account Management		
Account Policies		
Execution Control		
Windows Defender Antivirus		
Windows Defender Firewall		
Encrypting File System		
Windows BitLocker and BitLocker To Go		
<b>Review Activity: Workstation Security</b>		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Configure Workstation Security</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 17B: Configure Browser Security</b>		
26 - Securing Web Browsers-Video	22	
complete. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Introduction: Configure Browser Security</b>		
Browser Selection and Installation		
Browser Extensions and Plug-ins		
Browser Settings		
Secure Connections and Valid Certificates		
Browser Privacy Settings		
<b>Review Activity: Browser Security</b>		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Configure Browser Security</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 17C: Troubleshoot Workstation Security Issues</b>		
12 - Desktop Operating Systems-Video	21	
20 - Malware Types-Video	19	

Course Information	Est Minutes	Hrs
30 - Malware Removal Best Practices-Video	18	
complete. 19 knowledge points. Estimated time to complete: 15-30 Minutes.19 Knowledge Points   15-30 Minutes	30	
Introduction: Troubleshoot Workstation Security Issues		
Malware Vectors		
Malware Payloads		
Ransomware and Cryptominers		
Troubleshoot Desktop Symptoms		
Troubleshoot Browser Symptoms		
Best Practices for Malware Removal		
Infected Systems Quarantine		
Malware Removal Tools and Methods		
Malware Infection Prevention Video is attached		
Review Activity: Workstation Security Issues		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Troubleshooting Workstation Security Issues		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Troubleshoot Security Issues Scenario #1		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
APPLIED Lab: Troubleshoot Security Issues Scenario #2		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
Lesson 17: Practice Questions		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>428</b>	<b>7.13</b>
<b>Lesson 18: Supporting Mobile Software   8 Tasks   87 Knowledge Points</b>		
<b>Topic 18A: Configure Mobile OS Security</b>		
02: Mobile Operating Systems	16	
25 - Mobile Device Security Solutions-Video	20	
complete. 11 knowledge points. Estimated time to complete: Less Than 15 Minutes.11 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Configure Mobile OS Security		
Screen Locks		
Mobile Security Software		
Enterprise Mobility Management		
Mobile Data Security		
Locator Apps and Remote Wipe		
Internet of Things Security		
Review Activity: Mobile OS Security		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 18B: Troubleshoot Mobile OS and App Software</b>		
27 - Windows OS Issues-Video	28	
31 - Mobile OS and Application Issues-Video	21	
28 - Additional Windows OS Issues-Video	14	
complete. 14 knowledge points. Estimated time to complete: Less Than 15 Minutes.14 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Troubleshoot Mobile OS and App Software Video is attached		
Mobile Device Troubleshooting Tools		
Troubleshoot Device and OS Issues		
Troubleshoot App Issues		
Troubleshoot Connectivity Issues		
Review Activity: Mobile OS and App Software		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Supporting and Troubleshooting Mobile Devices		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 18C: Troubleshoot Mobile OS and App Security</b>		
32 - Mobile OS and Application Security Issues-Video	19	
complete. 7 knowledge points. Estimated time to complete: Less Than 15 Minutes.7 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Troubleshoot Mobile OS and App Security		
Root Access Security Concerns		
Mobile App Source Security Concerns		

Course Information	Est Minutes	Hrs
Mobile Security Symptoms		
Review Activity: Mobile OS and App Security		
. 6 knowledge points. Estimated time to complete: Less Than 15 Minutes.6 Knowledge Points   Less Than 15 Minutes	15	
Lesson 18: Practice Questions		
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>283</b>	<b>4.72</b>
<b>Lesson 19: Using Support and Scripting Tools   14 Tasks   197 Knowledge Points</b>		
<b>Topic 19A: Use Remote Access Technologies</b>		
42 - Implementing Remote Access Technologies-Video	18	
complete. 9 knowledge points. Estimated time to complete: Less Than 15 Minutes.9 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Use Remote Access Technologies		
Remote Desktop Tools		
RDP Server and Security Settings		
Microsoft Remote Assistance		
Secure Shell		
Desktop Management and Remote Monitoring Tools		
Other Remote Access Tools		
Review Activity: Remote Access Technologies		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Use Remote Access Technologies		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 19B: Implement Backup and Recovery</b>		
35 - Workstation Backup and Recovery Methods-Video	23	
complete. 17 knowledge points. Estimated time to complete: 15-30 Minutes.17 Knowledge Points   15-30 Minutes	30	
Introduction: Implement Backup and Recovery Video is attached		
Backup Operations Video is attached		
Backup Methods		
Backup Media Requirements		
Backup Testing and Recovery Best Practices		
Review Activity: Backup and Recovery		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
PBQ: Implementing Operational Procedures		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
Assisted Lab: Implement Backup and Recovery		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 19C: Explain Data Handling Best Practices</b>		
39 - Incident Response Policies and Procedures-Video	17	
complete. 13 knowledge points. Estimated time to complete: Less Than 15 Minutes.13 Knowledge Points   Less Than 15 Minutes	15	
Introduction: Explain 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		
Review Activity: Data Handling Best Practices		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 19D: Identify Basics of Scripting</b>		
41 - Introduction to Basic Scripting Techniques-Video	11	
complete. 17 knowledge points. Estimated time to complete: 15-30 Minutes.17 Knowledge Points   15-30 Minutes	30	
Introduction: Identify Basics of Scripting Video is attached		
Shell Scripts		
Basic Script Constructs		
Windows Scripts		
JavaScript and Python		
Use Cases for Scripting		
Scripting Best Practices and Considerations		

Course Information	Est Minutes	Hrs
<b>Review Activity: Basics of Scripting</b>		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Implement a PowerShell Script</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Assisted Lab: Implement Bash Script</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Lesson 19: Practice Questions</b>		
. 40 knowledge points. Estimated time to complete: 30-60 Minutes.40 Knowledge Points   30-60 Minutes	60	
<b>Lesson Total Time</b>	<b>414</b>	<b>6.9</b>
<b>Lesson 20: Implementing Operational Procedures   10 Tasks   140 Knowledge Points</b>		
<b>Topic 20A: Implement Best Practice Documentation</b>		
33 - Organizational Documentation-Video	13	
34 - Basic Change Management Best Practices-Video	13	
complete. 22 knowledge points. Estimated time to complete: 15-30 Minutes.22 Knowledge Points   15-30 Minutes	30	
<b>Introduction: Implement Best Practice Documentation Video is attached</b>		
Standard Operating Procedure		
Ticketing Systems		
Ticket Management		
Asset Identification and Inventory		
Asset Documentation		
Change Management Concepts		
Change Approval		
Policy Documentation		
<b>Review Activity: Best Practice Documentation</b>		
. 10 knowledge points. Estimated time to complete: Less Than 15 Minutes.10 Knowledge Points   Less Than 15 Minutes	15	
<b>Assisted Lab: Manage a Support Ticket</b>		
. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Topic 20B: Use Proper Communication Techniques</b>		
40 - Communication and Professionalism Techniques-Video	25	
complete. 18 knowledge points. Estimated time to complete: 15-30 Minutes.18 Knowledge Points   15-30 Minutes	30	
<b>Introduction: Use Proper Communication Techniques Video is attached</b>		
Professional Support Processes		
Professional Support Delivery		
Professional Appearance		
Professional Communications		
Difficult Situations		
<b>Review Activity: Proper Communication Techniques</b>		
. 8 knowledge points. Estimated time to complete: Less Than 15 Minutes.8 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Implementing Documentation and Communication Best Practices</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Topic 20C: Use Common Safety and Environmental Procedures</b>		
36 - Equipment and Personal Safety Procedures-Video	15	
complete. 15 knowledge points. Estimated time to complete: 15-30 Minutes.15 Knowledge Points   15-30 Minutes	30	
<b>Introduction: Use Common Safety and Environmental Procedures</b>		
Compliance with Regulations		
Electrical Safety		
Other Safety Hazard Mitigations		
Environmental Impacts		
Electrostatic Discharge Mitigation		
Building Power Issues and Mitigations		
Materials Handling and Responsible Disposal		
<b>Next Steps: Become a CompTIA A+ Certified Professional!</b>		
<b>Review Activity: Safety and Environmental Procedures</b>		
. 12 knowledge points. Estimated time to complete: Less Than 15 Minutes.12 Knowledge Points   Less Than 15 Minutes	15	
<b>PBQ: Using Common Safety Procedures</b>		
. 5 knowledge points. Estimated time to complete: Less Than 15 Minutes.5 Knowledge Points   Less Than 15 Minutes	15	
<b>Lesson 20: Practice Questions</b>		

Course Information		Est Minutes	Hrs
. 30 knowledge points. Estimated time to complete: 30-60 Minutes.30 Knowledge Points   30-60 Minutes		60	
<b>Lesson Total Time</b>		<b>321</b>	<b>5.35</b>
<b>Final Assessment   2 Tasks   350 Knowledge Points</b>			
<b>Core 1 Final Assessment</b>			
in-progress. 176 knowledge points. Estimated time to complete: 60+ Minutes.176 Knowledge Points   60+ Minutes		60	
<b>Core 2 Final Assessment</b>			
in-progress. 174 knowledge points. Estimated time to complete: 60+ Minutes.174 Knowledge Points   60+ Minutes		60	
<b>Next Steps: Become a CompTIA A+ Professional!   1 Task   1 Knowledge Point</b>			
<b>Next Steps: Become a CompTIA A+ Certified Professional!</b>			
complete. 1 knowledge point. Estimated time to complete: Less Than 15 Minutes.1 Knowledge Point   Less Than 15 Minutes		15	
<b>CORE 2 Lesson Total Time</b>		<b>3,850</b>	<b>64.2</b>
<b>Core 1 &amp; 2 CourseTotal Time</b>		<b>7,218</b>	<b>120</b>



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3815 River Crossing  
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101 West Ohio Street, Suite 2000, Indianapolis, In 462045