CompTIA A+ Essentials & Practical Application Certification Training Course

Course Number:	#MDTS-3
Course Length:	6 days
Number of Exams:	2
Certifications:	CompTIA A+ Essentials CompTIA A+ Practical Application

CompTIA A+ 220-801

The CompTIA A+ 220-801 examination measures necessary competencies for an entry-level IT professional with the equivalent knowledge of at least 12 months of hands-on experience in the lab or field. Successful candidates will have the knowledge required to assemble components based on customer requirements, install, configure and maintain devices, PCs and software for end users, understand the basics of networking and security/forensics, properly and safely diagnose, resolve and document common hardware and software issues while applying troubleshooting skills. Successful candidates will also provide appropriate customer support; understand the basics of virtualization, desktop imaging, and deployment.

Course Outline

1.0 PC Hardware

1.1 Configure and apply BIOS settings.

- Install firmware upgrades - flash BIOS
- BIOS component information
- BIOS configurations
- BIOS security (passwords, drive encryption: TPM, lo-jack)
- Use built-in diagnostics
- Monitoring

1.2 Differentiate between motherboard components, their purposes, and properties.

- Sizes
- Expansion slots
- RAM slots

- CPU sockets
- Chipsets
- Jumpers
- Power connections and types
- Fan connectors
- Front panel connectors
- Bus speeds

1.3 Compare and contrast RAM types and features.

- Types
- Single channel vs. dual channel vs. triple channel
- RAM compatibility and speed

1.4 Install and configure expansion cards.

- Sound cards
- Video cards
- Network cards
- Serial and parallel cards
- USB cards
- Firewire cards
- Storage cards
- Modem cards
- Wireless/cellular cards
- TV tuner cards
- Video capture cards
- Riser cards

1.5 Install and configure storage devices and use appropriate media.

- Optical drives
- Combo drives and burners
- Connection types
- USB
- Firewire
- eSATA
- Ethernet
- IDE configuration and setup (Master, Slave, Cable Select)
- SCSI IDs (0 - 15)
- Hard drives
- Solid state/flash drives
- RAID types
- Floppy drive
- Tape drive
- Media capacity

1.6 Differentiate among various CPU types and features and select the appropriate cooling method.

- Socket types
- Characteristics

- Cooling

1.7 Compare and contrast various connection interfaces and explain their purpose.

- Physical connections
- Connector types: A, B, mini, micro
- Serial
- Parallel
- VGA
- HDMI
- DVI
- Audio
- RJ-45
- RJ-11
- VGA vs. HDMI
- Speeds, distances and frequencies of wireless device connections

1.8 Install an appropriate power supply based on a given scenario.

- Connector types and their voltages
- Specifications
- Dual voltage options

1.9 Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs.

- Graphic / CAD / CAM design workstation
- Audio/Video editing workstation
- Virtualization workstation
- Gaming PC
- Home Theater PC
- Standard thick client
- Thin client
- Home Server PC

1.10 Given a scenario, evaluate types and features of display devices.

- Types
- Refresh rates
- Resolution
- Native resolution
- Brightness/lumens
- Analog vs. digital
- Privacy/antiglare filters
- Multiple displays

1.11 Identify connector types and associated cables.

- Display connector types
- Display cable types
- Device connectors and pin arrangements

- IDE
- EIDE
- Device cable types
- 68pin vs. 50pin vs. 25pin

1.12 Install and configure various peripheral devices.

- Input devices
- Multimedia devices
- Output devices

2.0 Networking

2.1 Identify types of network cables and connectors.

- Fiber
- Twisted Pair
- Coaxial

2.2 Categorize characteristics of connectors and cabling.

- Fiber
- Twisted pair
- Coaxial

2.3 Explain properties and characteristics of TCP/IP.

- IP class
- IPv4 vs. IPv6
- Public vs. private vs. APIPA
- Static vs. dynamic
- Client-side DNS
- DHCP
- Subnet mask
- Gateway

2.4 Explain common TCP and UDP ports, protocols, and their purpose.

- Ports
- Protocols
- TCP vs. UDP

2.5 Compare and contrast wireless networking standards and encryption types.

- Standards
- Encryption types

2.6 Install, configure, and deploy a SOHO wireless/wired router using appropriate settings.

- MAC filtering
- Channels (1 - 11)

- Port forwarding, port triggering
- SSID broadcast (on/off)
- Wireless encryption
- Firewall
- DHCP (on/off)
- DMZ
- NAT
- WPS
- Basic QoS

2.7 Compare and contrast Internet connection types and features.

- Cable
- DSL
- Dial-up
- Fiber
- Satellite
- ISDN
- Cellular (mobile hotspot)
- Line of sight wireless internet service
- WiMAX

2.8 Identify various types of networks.

- LAN
- WAN
- PAN
- MAN
- Topologies

2.9 Compare and contrast network devices, their functions, and features.

- Hub
- Switch
- Router
- Access point
- Bridge
- Modem
- NAS
- Firewall
- VoIP phones
- Internet appliance

2.10 Given a scenario, use appropriate networking tools.

- Crimper
- Multimeter
- Toner probe
- Cable tester
- Loopback plug
- Punchdown tool

3.0 Laptops

3.1 Install and configure laptop hardware and components.

- Expansion options
- Hardware/device replacement

3.2 Compare and contrast the components within the display of a laptop.

- Types
- Wi-Fi antenna connector/placement
- Inverter and its function
- Backlight

3.3 Compare and contrast laptop features.

- Special function keys
- Docking station vs. port replicator
- Physical laptop lock and cable lock

4.0 Printers

4.1 Explain the differences between the various printer types and summarize the associated imaging process.

- Laser
- Inkjet
- Thermal
- Impact

4.2 Given a scenario, install, and configure printers.

- Use appropriate printer drivers for a given operating system
- Print device sharing
- USB
- Parallel
- Serial
- Ethernet
- Bluetooth
- 802.11x
- Infrared (IR)
- Printer sharing

4.3 Given a scenario, perform printer maintenance.

- Laser
- Thermal
- Impact

5.0 Operational Procedures

5.1 Given a scenario, use appropriate safety procedures.

- ESD straps
- ESD mats
- Self-grounding
- Equipment grounding
- Personal safety
- Compliance with local government regulations

5.2 Explain environmental impacts and the purpose of environmental controls.

- MSDS documentation for handling and disposal
- Temperature, humidity level awareness and proper ventilation
- Power surges, brownouts, blackouts
- Protection from airborne particles
- Dust and debris
- Component handling and protection
- Compliance to local government regulations

5.3 Given a scenario, demonstrate proper communication and professionalism.

- Use proper language - avoid jargon, acronyms, slang when applicable
- Maintain a positive attitude
- Listen and do not interrupt the customer
- Be culturally sensitive
- Be on time (if late contact the customer)
- Avoid distractions
- Dealing with difficult customer or situation
- Set and meet expectations/timeline and communicate status with the customer
- Deal appropriately with customers confidential materials

5.4 Explain the fundamentals of dealing with prohibited content/activity.

- First response
- Use of documentation/documentation changes

Chain of custody