

Hands-On

# Hands-On CompTIA A+ Essentials / Practical Application Certification



## Course Description

This course meets the NEW DoD Directive 8140 requirements.

Will Department of Defense (DoD) Directive 8140 replace DoDD 8570? Yes.

When will DoD 8140 take effect? It is already in effect.

Why Change from 8570 to 8140?

DoD 8140 is designed to be more flexible and inclusive than DoD 8570. DoD 8140 includes initiatives such as NIST NICE (National Initiative for Cybersecurity Education), which identifies critical KSAs (Knowledge, Skills, and Abilities) and places cybersecurity positions into 7 categories (1. Security Provision, 2. Operate & Maintain, 3. Protect & Defend, 4. Analyze, 5. Operate & Collect, 6. Oversight & Development, and 7. Investigate) consisting of 31 specialty areas.

A+ from CompTIA is the most recognized and trusted for entry-level service technicians.

CompTIA's A+ is the industry standard for validating the foundation skills needed by today's computer support technicians. This international vendor-neutral certification requires that you pass two exams CompTIA A+ Exams 220-901 and 220-902.

In this Hands-On course with a particular focus on CompTIA A+ certification exam preparation, you'll gain the needed knowledge of basic computer hardware and operating systems. You'll cover the essential principles of installing, building, upgrading, repairing, configuring, troubleshooting, optimizing, diagnosing, and preventive maintenance, and you'll learn elements of customer service and communication skills necessary to work with clients. Instructor-led practice exams and quizzes help reinforce course concepts and exam readiness.

This course meets the NEW DoD 8140 training requirements.

CompTIA A+ certification is an international, vendor-neutral certification that proves a technician's competency in installation, preventative maintenance, networking, security, and troubleshooting. CompTIA A+ certification also validates that technicians have excellent customer service and communication skills.

CompTIA A+ is part of specialized certification tracks for corporations such as Microsoft, Hewlett-Packard, Cisco, and Novell. Other technology companies, including CompuCom and Ricoh, have made CompTIA A+ certification mandatory for their service technicians.

This course is geared to give students Real-World Experience in networking hardware & software by providing Hands-On labs on these converging technologies throughout this training.

## Students Will Learn

- Prepare for the latest edition A+ certification
- Personal computer components
- Preventative maintenance
- Operating system technologies
- Communicate with customers in a professional manner
- Computer hardware and peripherals
- Network connections
- Laptop and portable computing device components
- Support printers and scanners
- Secure personal computers

## Target Audience

Computer / Technical / Help Desk Support personnel. This course is designed for individuals interested in learning the subjects that are necessary to prepare them for their certification testing.

## Prerequisites

Some end-user skills with Windows-based personal computers and basic knowledge of computing concepts would be helpful.

## Course Outline

CompTIA A+ 220-901 covers PC hardware and peripherals, mobile device hardware, networking and troubleshooting hardware and network connectivity issues.

### Module 1. Hardware

- Given a scenario, configure settings and use BIOS/UEFI tools on a PC.
- Explain the importance of motherboard components, their purpose and properties.
- Compare and contrast various RAM types and their features.
- Install and configure PC expansion cards.
- Install and configure storage devices and use appropriate media.
- Install various types of CPUs and apply the appropriate cooling methods.
- Compare and contrast various PC connection interfaces, their characteristics and purpose.
- Install a power supply based on given specifications.
- Given a scenario, select the appropriate components for a custom PC configuration to meet customer specifications or needs.
- Compare and contrast types of display devices and their features.

- Identify common PC connector types and associated cables.
- Install and configure common peripheral devices.
- Install SOHO multifunction device/printers and configure appropriate settings.
- Compare and contrast differences between the various print technologies and the associated imaging process.
- Given a scenario, perform appropriate printer maintenance.

#### Module 2. Networking

- Identify the various types of network cables and connectors.
- Compare and contrast the characteristics of connectors and cabling.
- Explain the properties and characteristics of TCP/IP.
- Explain common TCP and UDP ports, protocols and their purpose.
- Compare and contrast various WiFi networking standards and encryption types.
- Given a scenario, install and configure SOHO wireless/ wired router and apply appropriate settings.
- Compare and contrast Internet connection types, network types and their features.
- Compare and contrast network architecture devices, their functions and features.
- Given a scenario, use appropriate networking tools.

#### Module 3. Mobile Devices

- Install and configure laptop hardware and components.
- Explain the function of components within the display of a laptop.
- Given a scenario, use appropriate laptop features.
- Explain the characteristics of various types of other mobile devices.
- Compare and contrast accessories and ports of other mobile devices.

#### Module 4. Hardware and Network Troubleshooting

- Given a scenario, troubleshoot common problems related to motherboards, RAM, CPU and power with appropriate tools.
- Given a scenario, troubleshoot hard drives and RAID arrays with appropriate tools.
- Given a scenario, troubleshoot common video, projector and display issues.
- Given a scenario, troubleshoot wired and wireless networks with appropriate tools.
- Given a scenario, troubleshoot and repair common mobile device issues while adhering to the appropriate procedures.
- Given a scenario, troubleshoot printers with appropriate tools.

CompTIA A+ 220-902 covers installing and configuring operating systems including Windows, iOS, Android, Apple OS X and Linux. It also addresses security, the fundamentals of cloud computing and operational procedures.

#### Module 1. Windows Operating Systems

- Compare and contrast various features and requirements of Microsoft Operating Systems (Windows Vista, Windows 7, Windows 8, Windows 8.1).
- Given a scenario, install Windows PC operating systems using appropriate methods.
- Given a scenario, apply appropriate Microsoft command line tools.
- Given a scenario, use appropriate Microsoft operating system features and tools.
- Given a scenario, use Windows Control Panel utilities.
- Given a scenario, install and configure Windows networking on a client/desktop.

- Perform common preventive maintenance procedures using the appropriate Windows OS tools.

#### Module 2. Other Operating Systems and Technologies

- Identify common features and functionality of the Mac OS and Linux operating systems.
- Given a scenario, set up and use client-side virtualization.
- Identify basic cloud concepts.
- Summarize the properties and purpose of services provided by networked hosts.
- Identify basic features of mobile operating systems.
- Install and configure basic mobile device network connectivity and email.
- Summarize methods and data related to mobile device synchronization.

#### Module 3. Security

- Identify common security threats and vulnerabilities.
- Compare and contrast common prevention methods.
- Compare and contrast differences of basic Windows OS security settings.
- Given a scenario, deploy and enforce security best practices to secure a workstation.
- Compare and contrast various methods for securing mobile devices.
- Given a scenario, use appropriate data destruction and disposal methods.
- Given a scenario, secure SOHO wireless and wired networks.

#### Module 4. Software Troubleshooting

- Given a scenario, troubleshoot PC operating system problems with appropriate tools.
- Given a scenario, troubleshoot common PC security issues with appropriate tools and best practices.
- Given a scenario, troubleshoot common mobile OS and application issues with appropriate tools.
- Given a scenario, troubleshoot common mobile OS and application security issues with appropriate tools.

#### Module 5. Operational Procedures

- Given a scenario, use appropriate safety procedures.
- Given a scenario with potential environmental impacts, apply the appropriate controls.
- Summarize the process of addressing prohibited content/activity, and explain privacy, licensing and policy concepts.
- Demonstrate proper communication techniques and professionalism.
- Given a scenario, explain the troubleshooting theory.

## Notes

## Course Length

5

This course can be delivered as the standard A+ Certification Track over 5 days. Our BTS Accelerated course was developed per numerous companies and can be delivered in a shorter or longer day Accelerated format (to also include Network+ and Security+) depending on the experience level of the students attending, this format requires longer training days plus required study time and materials, available upon request.

## Delivery Method

Instructor led with numerous "Hands-On demonstrations and exercises.

## Equipment Requirements

**(This apply's to our hands-on courses only)**

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

## Course Length

5 Days