



Course: A+ (1001 & 1002)

Contact Hours: 72

Pre-requisite: Fundamentals of Computer Repairs or equivalent

Abstract

This course covers the fundamentals of computer technology, installation and configuration of PCs, laptops and related hardware, basic networking, install and configure PC operating systems, as well as configuring common features (e.g. network connectivity and email) for mobile operating systems Android and Apple IOS.

Target Audience

- Technicians
- Network/Server Administrators
- System Administrators
- Help desk technician

Learning Outcomes

On completion of this course, learners will be able to:

1. Install and Configure OS
2. Install and configure PC Hardware
3. Install and configure laptop hardware
4. Install and configure printers
5. Configure and troubleshoot a basic network
6. Configure main features of the apple IOS and Google Android
7. Security
8. Troubleshoot
9. Set up Operational Procedures

Course Content

1. Install and Configure OS

- Compare and contrast the features and requirements of various Microsoft Operating Systems
- Given a scenario, install, and configure the operating system using the most appropriate method.
- Given a scenario, use appropriate command line tools.
- Given a scenario, use appropriate operating system features and tools.
- Given a scenario, use Control Panel utilities
- Given a scenario install and configure Windows networking on a client/desktop
- Perform preventive maintenance procedures using appropriate tools.
- Explain the differences among basic OS security settings.
- Explain the basics of client-side virtualization.
- Identify basic cloud concepts
- Summarize the properties and purpose of services provided by network hosts

2. Install and configure PC Hardware

- Configure and apply BIOS settings.
- Differentiate between motherboard components, their purposes, and properties.
- Compare and contrast RAM types and features.
- Install and configure PC expansion cards.
- Install and configure storage devices and use appropriate media.
- Differentiate among various CPU types and features and select the appropriate cooling method.
- Compare and contrast various PC connection interfaces and explain their purpose.
- Install an appropriate power supply based on a given scenario.
- Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs.
- Install and configure various peripheral devices.
- Compare and contrast types of display devices and their features
- Identify common PC connector types and associated cables

3. Install and configure laptop hardware

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

4. Install and configure printers

- Install SOHO multifunction device/printers and configure appropriate settings.
- Explain the differences between the various printer types and summarize the associated imaging process.
- Given a scenario, perform printer maintenance

5. Configure and troubleshoot a basic network

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

6. Configure main features of the apple IOS and Google Android

- Explain the basic features of mobile operating systems.
- Establish basic mobile device network connectivity and configure email.
- Summarize methods and data related to mobile device synchronization
- Compare and contrast methods for securing mobile devices.

7. Security

- Identify common security threats and vulnerabilities
- Compare and contrast common prevention methods
- Compare and contrast differences of basic Windows OS security setting
- Implement security best practices to secure a workstation.
- Given a scenario deploy and enforce security best practices to secure a workstation
- Given a scenario, use the appropriate data destruction/disposal method.
- Given a scenario secure SOHO wireless and wired networks

8. Troubleshoot

- Given a scenario, explain the troubleshooting theory
- 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 common mobile device issues while adhering to the appropriate procedures.
- 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.

9. Set up 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

Assessment Criteria

In order to achieve Learning Outcome...	The Learner must...
1. Install and Configure OS	Install the Windows OS Create and manage user accounts Configure options in the control panel Use Windows utilities e.g. regedit etc.
2. Install and configure PC Hardware	Install pc hardware e.g. motherboard, hard drive, cpu, ram etc. Configure the motherboard BIOS
3. Install and configure laptop hardware	Install and configure laptop hardware and components Compare and contrast the components within the display of a laptop Compare and contrast laptop features
4. Install and configure printers	Explain the differences between the various printer types and summarize the associated imaging process Given a scenario, install, and configure printers Given a scenario, perform printer maintenance
5. Configure and troubleshoot a basic network	Identify types of network cables and connectors Categorize characteristics of connectors and cabling Explain properties and characteristics of TCP/IP Explain common TCP and UDP ports, protocols, and their purpose Compare and contrast wireless networking standards and encryption types Install, configure, and deploy a SOHO wireless/wired router using appropriate settings

<p>6. Configure main features of the apple IOS and Google Android</p>	<p>Explain the basic features of mobile operating systems Establish basic network connectivity and configure email Compare and contrast methods for securing mobile devices Compare and contrast hardware differences in regards to tablets and laptops</p>
<p>7. Troubleshooting</p>	<p>Given a scenario, troubleshoot common problems related to motherboards, RAM, CPU, hard drives, video cards and power supplies with appropriate tools Given a scenario, troubleshoot operating system problems with appropriate tools</p>
<p>8. Security</p>	<p>Apply and use common prevention methods Compare and contrast common security Threats Implement security best practices to secure a workstation Given a scenario, use the appropriate data destruction/disposal method Given a scenario, secure a SOHO wireless network</p>
<p>9. Set up operational procedures</p>	<p>Demonstrate safe techniques of lifting, transporting and moving equipment Demonstrate sound knowledge of environmental controls Explain usage and content of MSDS (Material Safety Data Sheet) Demonstrate and identify methods of professional conduct and client service Identify the concept of a Code of Ethics Identify techniques for dealing with suspicious activity and licensed as well as protected content</p>

Essential Learning Resources:

Textbook

CompTIA A+Core 1 (220-1001) and Core 2 (220-1002) Exam Cram (2nd Edition) 2nd Edition

Websites

<http://www.comptia.org>

<http://www.sbc.edu.tt/>