South Central College

COMP 1200 Hardware and Software Essentials

Course Outcome Summary

Course Information

Description This course presents an in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance, and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. In addition, an introduction to networking is included. This course helps students prepare for CompTIA's A+ certification.

Total Credits 4

Pre/Corequisites

(Skill) - Basic Windows navigation; Click, Double-click, etc.

(Skill) - Internet usage such as email, internet searching, etc.

(Skill) - Window Explorer, such as file organization, searches, etc.

Institutional Core Competencies

Civic Engagement and Social Responsibility - Students will be able to demonstrate the ability to engage in the social responsibilities expected of a community member.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. **Recognize system modules by sight or definition.**

   Learning Objectives
   Identify system modules characteristics.
   Define system modules characteristics.

2. **Perform basic procedures for adding and removing field replaceable modules for a desktop system.**

   Learning Objectives
   Identify field replaceable modules.
   Practice installation of field replaceable modules.

3. **Perform basic procedures for adding and removing field replaceable modules for portable**

systems.

Learning Objectives
Identify field replaceable modules.
Practice installation of field replaceable modules.

4. Install/Configure devices using IRQs, DMAs and i/O addresses settings or appropriate modifications.

Learning Objectives
Define terminology of devices.
Identify standard settings.

5. Recognize ports, cabling and connectors by sight.

Learning Objectives
Identify port types.
Discuss cable types.
Explain connector types and use.

6. Choose the appropriate installation or configuration of IDE devices.

Learning Objectives
Recognize IDE interface types.
Discuss RAID.
Explain Master/Slave.

7. Choose the appropriate installation or configuration of SCSI devices.

Learning Objectives
Recognize SCSI interface types.
Discuss RAID.
Discuss SCSI Ids.
Determine cabling of SCSI.

8. Install and configure common peripheral devices.

Learning Objectives
Identify proper procedures.
Choose appropriate installation.

9. Optimize PC operations.

Learning Objectives
Identify available choices.
Predict results.

10. Determine the issues that must be considered when upgrading a PC.

Learning Objectives
Discuss typical upgrade issues.
Identify components that can be upgraded.

11. Diagnose and troubleshoot hardware.

Learning Objectives
Recognize common problems associated with each module and their symptom.
Identify steps to isolate and troubleshoot the problem.

12. Verify problem with customer.

Learning Objectives
Elicit problem symptoms from customer.
Determine whether hardware or software.
Gather information from user.

13. Identify the various type of preventative maintenance measures, products and procedures.

Learning Objectives
Discuss scheduled maintenance.
Define characteristics of preventative maintenance.
Explain correct cleaning procedures.

14. Perform various safety measures and procedures.

Learning Objectives
Discuss ESD precautions and procedures.
Practice safety procedures.
Identify potential hazards.

15. Identify environmental protection measures and procedures.

Learning Objectives
Discuss special disposal procedures.
Identify hardware needing special disposal.

16. Distinguish between the popular CPU chips and terms of their basic characteristics.

Learning Objectives
Identify popular CPU chips.
Define speed, and characteristics.
Explain voltage types.

17. Determine banking and speed requirements of RAM.

Learning Objectives
Identify the types of RAM.
Identify form factors.
Discuss operational characteristics.

18. Identify the most popular types of motherboards, their components, and their architecture.

Learning Objectives
Identify types of motherboards.
Discuss the components of the motherboard.
Explore standard configurations.

19. Identify the purpose of CMOS.

Learning Objectives
Discuss what it contains.
Explore making changes to CMOS.
Explain the process of upgrading.

20. Identify printer technologies.

Learning Objectives
Compare the different technologies of printers.
Explore the interfaces available for printers.
Discuss upgrading printers.

21. Recognize common printer problems and techniques.

Learning Objectives
Identify cause of problem - hardware, software, or user.
Discuss safety precautions.
Explain environmental care and issues.

22. Identify the common types of network cables, their characteristics, and connectors.

Learning Objectives
Identify cable types.
Explain usage of the different type of connectors.
Build a cable with connectors.

23. Explain the basic networking concepts including how a network works.

Learning Objectives
Identify basic networking concepts.
Examine networking basic modules and structure.

24. Identify common technologies available for establishing Internet connectivity and their characteristics.

Learning Objectives
Discuss connectivity types.
Explain Internet connection, speed and connection.

25. Compare Windows operating systems.

Learning Objectives
Discuss major operating system components.
Work with desktop components.

26. Identify the names, locations, purposes and contents of major system files.

Learning Objectives
Identify and compare Windows system files.
Categorize system file functions.

27. Demonstrate the ability to use command-line functions and utilities to manage the operating system.

Learning Objectives
Explore command line functions.
Discuss command line syntax.

28. Manage disks, directories and files.

Learning Objectives
Setup disk for file system.
Create directory for file system.
Modify files on system data and security.

29. Identify the major operating system utilities, their purpose, location, and available switches.

Learning Objectives
Use utilities and commands in the following categories: System management; File management; Disk Management.
Perform file management task with appropriate tools.

30. Perform procedures for installing Windows and setup the operating system to a basic operational level.

Learning Objectives
Discuss installation methods.
Determine OS installation options.
Run appropriate set up utility.
Prepare disk.
Configure drivers.
Identify common symptoms and problems.

31. Perform operating system upgrades.

Learning Objectives
Determine upgrade paths available.
Determine correct upgrade.
Verify hardware compatibility and minimum requirements.
Verify application compatibility.
Apply OS service packs.
Install addition components.

32. Perform emergency boot processes and utilities.

Learning Objectives
Identify boot process available for operating system.
Explore alternative boot method.
Create emergency disks and OS utilities.
Create emergency repair disk.

33. Load and configure device drivers.

Learning Objectives
Determine adequate permissions.
Install additional window components.
Install device drivers.

34. Optimize the operating system and major operating system subsystems.

Learning Objectives
Practice modifications to memory management.
Perform disk and file optimization.

35. Recognize and interpet the meaning of common error codes and startup messages from the boot sequence.

Learning Objectives
Identify common error messages and codes: Startup messages; boot failure.
Use correct utilities.

36. Recognize common operational and usability problems.

Learning Objectives
Troubleshoot Windows-specific printing problems.
Identify other common problems.
Discuss viruses and virus types.

37. Configure the operating system to connect to a network.

Learning Objectives
Setup protocols needed.
Use common networking software tools.
Setup sharing of computer resources.
Install client needed for network.

38. Configure the operating system to connect to and use the Internet.

Learning Objectives
Discuss protocols and terminologies.
Compare connectivity technology.
Install and configure browsers.

SCC Accessibility Statement

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Additional information and forms can be found at: www.southcentral.edu/disability

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