

EASTERN ARIZONA COLLEGE

Computer Systems I

Course Design

2018-2019

Course Information

Division Business
Course Number CMP 151
Title Computer Systems I
Credits 3
Developed by James McBride
Lecture/Lab Ratio 2 Lecture/2 Lab

Transfer Status

ASU	NAU	UA
Elective Credit	ISM Departmental Elective	BASV Dept Elective, Credit given in Bachelor of Applied Sci only.

Activity Course No
CIP Code 11.0100
Assessment Mode Pre/Post Test (100 Questions/100 Points)
Semester Taught Fall
GE Category None
Separate Lab No
Awareness Course No
Intensive Writing Course No
Diversity and Inclusion Course No

Prerequisites

None

Educational Value

This course will serve several target populations:

1. Computer program majors.
2. Those seeking A+ (CompTIA) certification.
3. Those seeking information regarding PCs to increase chances of success in Microsoft, CISCO or other related Certifications.
4. Individuals with an interest in gaining knowledge of troubleshooting and maintaining PCs.

Description

Designed to provide understanding and experience with hardware and operating systems at the technical support level, exploring aspects of the PC, including: computing, PC technician troubleshooting skills and tools, hardware performance, PC system components, peripheral devices and drivers, storage options and standards, networking theory and components, wireless networking concepts, printing processes, mobile devices, Windows system management, file management, security, and troubleshooting.

Supplies

None

Competencies and Performance Standards

1. Distinguish the basic components of computers and the tools used in troubleshooting.

Learning objectives

What you will learn as you master the competency:

- a. Identify the fundamental components of personal computers.
- b. Install, configure, optimize and upgrade personal computer components.
- c. Identify tools, diagnostic procedures, and troubleshooting techniques for personal computer components.
- d. Perform preventative maintenance on personal computer components.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of unit quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner identifies the fundamental principles of using personal computers
- learner installs, configures, optimizes and upgrades personal computer components
- learner classifies tools, diagnostic procedures, and troubleshooting techniques for personal computer components
- learner performs preventative maintenance on personal computer components

2. Explain what it means to be a PC Technician.

Learning objectives

What you will learn as you master the competency:

- a. Identify safety protocols for working with PC components.
- b. Identify the important factors of providing professional technical support.
- c. Identify important PC maintenances factors for optimal PC hardware performance.
- d. Identify tools, diagnostic procedures, and troubleshooting techniques for personal computer components.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of unit quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner lists the fundamental principles of PC safety procedures
- learner identifies and exhibits correct professional behaviors
- learner contrasts important PC maintenances factors for optimal PC hardware performance
- learner compares tools, diagnostic procedures and troubleshooting techniques

3. Compare and contrast major system components found in personal computing devices.

What you will learn as you master the competency:

- a. Identify basic system components.
- b. Identify variations in cases and form factors.
- c. Identify variations in motherboard and system buses.
- d. Identify variations in processors, memory, and BIOS.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of unit quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner identifies basic system components
- learner identifies variations in cases and form factors
- learner classifies the variations in motherboard and system buses
- learner chooses variations in processors, memory, and BIOS

4. Define and use peripheral devices.

Learning objectives

What you will learn as you master the competency:

- a. Identify the fundamental principles of using peripheral devices.
- b. Identify basic concepts of installing, configuring, optimizing and upgrading peripheral devices.
- c. Identify standard peripheral/PC connectors.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of unit quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner appraises the fundamental principles of using peripheral devices
- learner explains basic concepts of installing, configuring, optimizing, and upgrading peripheral devices
- learner identifies standard peripheral/PC connectors

5. Explain storage and contrast differing elements relating to storage.

Learning objectives

What you will learn as you master the competency:

- a. Identify the fundamental principles of storage.
- b. Install, configure, optimize and upgrade storage.
- c. Identify various storage methods and devices.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of units quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner lists the common types of network cables, their characteristics, and connectors
- learner critiques the fundamental principles of storage
- learner installs, configures, optimizes, and upgrades storage
- learner uses various storage methods and devices

6. Identify networks and recognize their uses in society.

Learning objectives

What you will learn as you master the competency:

- a. Identify the fundamental principles of networking.
- b. Identify interconnecting network hardware.
- c. Identify network media.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of units quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner appraises the fundamental principles of networking
- learner uses interconnecting network hardware
- learner assess network media

7. Explain wireless networks and interconnecting devices.

Learning objectives

What you will learn as you master the competency:

- a. Identify the fundamental principles of wireless networking.
- b. Compare interconnecting wireless network hardware.
- c. Outline wireless network access methods.

Performance Standards

Competence will be demonstrated:

- in the completion of in class lab work and assignments
- in the successful completion of unit quiz
- in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- learner summarizes the fundamental principles of wireless networking
- learner compares interconnecting wireless network hardware

- o learner outlines wireless network access methods

8. Explain printing processes.

Learning objectives

What you will learn as you master the competency:

- Configure printers in the operating systems.
- Contrast the components of the printing process.
- Choose correct printer configuration options.
- Configure network printing.
- Demonstrate proper printer management and maintenance.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner configures printers within the operating system
- o learner contrasts the components of the printing process
- o learner chooses correct printer configuration options
- o learner configures network printing
- o learner demonstrates proper printer management and maintenance

9. Explain mobile devices.

What you will learn as you master the competency:

- Compare the difference between mobile PC components and standard PC components.
- Classify mobile power options.
- Chose proper management and maintenance of mobile devices.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful competition of final exam

Criteria - Performance will be satisfactory when:

- o learner compares the difference between mobile PC components and Standard PC components
- o learner classifies mobile power options
- o learner chooses proper management and maintenance of mobile devices

10. Explain Windows system management.

Learning objectives

What you will learn as you master the competency:

- List system tools available in the system to troubleshoot system instability.

- b. Compare system tools available to monitor system performance.
- c. Characterize system tools available to administer users and groups.
- d. Explain system tools available to manage applications and updates.
- e. Distinguish system tools available to system protection.
- f. Identify system tools available to manage virtual memory.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner lists system tools available in the system to troubleshoot system instability
- o learner compares system tools available to monitor system performance
- o learner characterizes system tools available to administer users and groups
- o learner explains system tools available to manage applications and updates
- o learner distinguishes system tools available to system protection
- o learner identifies system tools available to manage virtual memory

11. Explain system implementation.

Learning objectives

What you will learn as you master the competency:

- a. Evaluate the fundamental principles of component selection.
- b. List various options for pre-installation.
- c. Explain the stages of Windows installation.
- d. Demonstrate necessary post-installation processes.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of units quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner evaluates the fundamental principles of component selection
- o learner lists various options for pre-installation
- o learner explains the stages of Windows installation
- o learner demonstrates necessary post-installation processes

12. Explain the concepts of file management.

Learning objectives

What you will learn as you master the competency:

- a. Report on the fundamental principles of file management.
- b. List default system file locations.

- c. Compare the fundamental principles of permissions, share level, and NTFS.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of units quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner reports on the fundamental principles of file management
- o learner lists default system file locations
- o learner compares the fundamental principles of permissions, share level, and NTFS

13. Demonstrate personal computer security.

Learning objectives

What you will learn as you master the competency:

- a. Evaluate the fundamental principles of PC security management.
- b. Select proper physical security.
- c. Differentiate social engineering techniques.
- d. Show what constitutes malware and its subcategories.
- e. Show the fundamentals of authentication and encryption.
- f. Diagram the fundamentals of network security and security devices.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner evaluates the fundamental principles of PC security management
- o learner selects proper physical security for given scenarios
- o learner differentiates social engineering techniques
- o learner shows what constitutes malware and its subcategories
- o learner shows the fundamentals of authentication and encryption
- o learner diagrams the fundamentals of network security and security devices

14. Demonstrate proper troubleshooting of components and associated software.

Learning objectives

What you will learn as you master the competency:

- a. Classify the fundamental principles of PC troubleshooting.
- b. Exhibit proper hardware troubleshooting.
- c. Exhibit proper driver troubleshooting.
- d. Exhibit proper software troubleshooting.
- e. Exhibit proper operating system troubleshooting.

- f. Report on security troubleshooting.
- g. Identify system errors.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful completion of final exam

Criteria - Performance will be satisfactory when:

- o learner classifies the fundamental principles of PC troubleshooting
- o learner exhibits proper hardware troubleshooting
- o learner exhibits proper driver troubleshooting
- o learner exhibits proper software troubleshooting
- o learner exhibits proper operating system troubleshooting
- o learner reports of security troubleshooting
- o learner identifies system errors

15. Explain wired networks and interconnecting devices.

What you will learn as you master the competency:

- a. Summarize the fundamental principles of LAN networking.
- b. Compare interconnecting LAN network hardware.
- c. Outline LAN network access methods.

Performance Standards

Competence will be demonstrated:

- o in the completion of in class lab work and assignments
- o in the successful completion of unit quiz
- o in the successful competition of final exam

Criteria - Performance will be satisfactory when:

- o learner summarizes the fundamental principles of LAN networking
- o learner compares interconnecting LAN network hardware
- o learner outlines LAN network access methods

Types of Instruction

Classroom presentation
On campus laboratory

Grading Information

Grading Rationale

Labs	25%
Written Assignments	25%
Quizzes	25%
Final	25%

Grading Scale

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%