

# EASTERN ARIZONA COLLEGE

## PC Troubleshooting and Repair

Course Design  
2011-2012

### Course Information

**Division** Business  
**Course Number** CMP 110AM  
**Title** PC Troubleshooting and Repair  
**Credits** 1  
**Developed by** Scott Russell/Revised by Pat Burke  
**Lecture/Lab Ratio** 1 Lecture/0 Lab

### Transfer Status

ASU	NAU	UA
Elective Credit	Elective Credit	Non Transferable

**Activity Course** No  
**CIP Code** 11.0100  
**Assessment Mode** Pre-Post Test (15 Questions/15 Points)  
**Semester Taught** Upon Request  
**GE Category** None  
**Separate Lab** No  
**Awareness Course** No  
**Intensive Writing Course** No

### Prerequisites

None

### Educational Value

This course is designed for the intermediate computer user level, Computer Information Specialist majors, and for students desiring a basic knowledge of computer repair.

### Description

This course is designed to teach the basic principles of PC trouble shooting and repair, including providing a basic knowledge of PC components and their function and how to use Window built-in diagnostic tools. It provides a foundation in diagnosing common symptoms and catastrophic failures as well as proper hardware handling and removal and reinstallation of common components. It is recommended that students be familiar with basic Windows operating systems, navigation and menu and be able to use small hand tools.

### Supplies

None

## **Competencies and Performance Standards**

### **1. Identify basic terms, components, and functions of a Personal Computer.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Define basic terminology associated with PC components, concepts, and functions.
- b. Identify major components including motherboards, memory, drives, peripheral cards and devices, BIOS, and Windows operating system.
- c. Identify common peripheral ports, associated cables, and their connectors.

#### **Performance Standards**

*Competence will be demonstrated:*

- by completing assignments from handout.
- by successful completion of quiz.
- by completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can define basic terminology associated with PC components, concepts, and functions.
- learner can identify major components including motherboards, memory, drives, peripheral cards and devices, BIOS, and Windows operating system.
- learner can identify common peripheral ports, associated cables, and their connectors.

### **2. Recognize common symptoms associated with diagnosing and troubleshooting PCs and utilize Windows built-in diagnostic tools.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Identify general troubleshooting techniques and strategies.
- b. Utilize scandisk, control panel, boot-up menu, and startup disk as diagnostic tools.
- c. Access Microsoft Knowledge Base on the Internet to solve common problems.
- d. Identify the common problems associated with shutdown, configuration, and cabling.
- e. Identify problems associated with heating and cooling of the internal components.
- f. Identify problems with installing internal devices such as hard drive, tape drives, or CD-ROM drive.
- g. Recognize and interpret the meaning of common error codes and startup messages.
- h. Recognize windows-specific printing problems and corrections.

#### **Performance Standards**

*Competence will be demonstrated:*

- by completion of assignments from handout.
- by successful completion of quiz.
- by successful completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can identify general troubleshooting techniques and strategies.
- learner can utilize scandisk, control panel, boot-up menu, and startup disk as diagnostic tools.
- learner can access Microsoft Knowledge Base on the Internet to solve common problems.

- learner can identify the common problems associated with shutdown, configuration, and cabling.
- learner can identify problems associated with heating and cooling of the internal components.
- learner can identify problems with installing internal devices such as hard drive, tape drives, or CD-ROM drive.
- learner can recognize and interpret the meaning of common error codes and startup messages.
- learner can recognize windows-specific printing problems and corrections.

### **3. Demonstrate how to diagnose and troubleshoot catastrophic failures.**

#### ***Learning objectives***

*What you will learn as you master the competency:*

- a. Recognize how to recover from file system design failures.
- b. Check and restore file systems.
- c. Recover deleted files when backups are unavailable
- d. Analyze, test, and restore other system crashes

#### ***Performance Standards***

*Competence will be demonstrated:*

- by completion of assignments from handout.
- by successful completion of quiz.
- by successful completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can recognize how to recover from file system design failures.
- learner can check and restore file systems.
- learner can recover deleted files when backup are unavailable
- learner can analyze, test, and restore other system crashes

### **4. Demonstrate proper hardware handling using standard electrostatic discharge precautions.**

#### ***Learning objectives***

*What you will learn as you master the competency:*

- a. Prevent damage to the connectors by aligning connector pins before connecting cables.
- b. Dissipate static electricity before handling any system components by proper grounding methods.
- c. Utilize wrist straps, and antistatic bags to eliminate static electricity.
- d. Eliminate static electricity by a variety of techniques including: leaving memory modules in their anti-static packets until installation and avoiding touching the contacts and components on the memory modules.

#### ***Performance Standards***

*Competence will be demonstrated:*

- by completion of assignments from handout.
- by successful completion of quiz.
- by successful completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can prevent damage to the connectors by aligning connector pins before connecting cables.
- learner can dissipate static electricity before handling any system components by proper grounding methods.
- learner can utilize wrist straps, and antistatic bags to eliminate static electricity.
- learner can eliminate static electricity by a variety of techniques including: leaving memory modules in their anti-static packets until installation and avoiding touching the contacts and components on the memory modules.

**5. Demonstrate removal and reinstallation of common components such as battery, hard drive, CDROM drive, peripheral boards, and memory.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Demonstrate how to replace CMOS battery.
- b. Demonstrate how to reinstall RAM.
- c. Demonstrate how to replace PC disk drives.

***Performance Standards***

*Competence will be demonstrated:*

- by completion of assignments from handouts.
- by successful completion of quiz.
- by successful completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can demonstrate how to replace CMOS battery.
- learner can demonstrate how to reinstall RAM.
- learner can demonstrate how to replace PC disk drives.

**6. Perform computer maintenance and preventative maintenance functions.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Perform physical cleaning (internal and external) of personal computer.
- b. Demonstrate how to adjust basic performance settings.
- c. Perform hard drive file system maintenance.
- d. Identify anti-virus software and applications.
- e. Identify diagnostic software such as Norton Utilities.

***Performance Standards***

*Competence will be demonstrated:*

- by completion of assignments from handouts.
- by successful completion of quiz.
- by successful completion of final exam.

*Criteria - Performance will be satisfactory when:*

- learner can perform physical cleaning (internal and external) of personal computer.
- learner can demonstrate how to adjust basic performance settings.

- learner can perform hard drive file system maintenance.
- learner can identify anti-virus software and applications.
- learner can identify diagnostic software such as Norton Utilities.

***Types of Instruction***

Classroom Presentation and Lab

***Grading Information***

***Grading Rationale***

Pre-Post test 10%

Quizzes/Labs 90%

***Grading Scale***

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 59% or below