

**CTS 220**  
**ADVANCED HARDWARE/SOFTWARE SUPPORT**

**COURSE DESCRIPTION:**

Prerequisites: CTS 120

Corequisites: None

This course provides advanced knowledge and competencies in hardware and operating system technologies for computer technicians to support personal computers. Emphasis is placed on: configuring and upgrading; diagnosis and troubleshooting; as well as preventive maintenance of hardware and system software. Upon completion, students should be able to install, configure, diagnose, perform preventive maintenance, and maintain basic networking on personal computers. Course Hours Per Week: Class, 2. Lab, 3. Semester Hours Credit, 3.

**COURSE OBJECTIVES:**

Upon successful completion of this course, the student will be able to:

- a. Identify, install, configure, and upgrade microcomputer modules and peripherals. Include the ability to identify and configure IRQs, DMAs, I/O address, and set jumpers.
- b. Diagnose and Troubleshoot common module problems and system malfunctions.
- c. Be knowledgeable of safety and preventive maintenance procedures.
- d. Identify specific terminology, facts, ways and means of dealing with classifications, categories and principles of motherboards, processors, and memory in microcomputer systems.
- e. Be knowledgeable of basic types of printers, basic concepts, printer components, how they work, how they print onto a page, paper path care and service techniques and common problems.
- f. Identify portable computers and their unique components and problems.
- g. Identify network terminology, ability to determine whether a computer is networked and knowledge of network interface cards.
- h. Be able to select appropriate hardware to meet specified needs.
- i. Identify appropriate procedures for disaster recovery.
- j. Identify acceptable customer relations.

**OUTLINE OF INSTRUCTION**

- I. Overview of system features
  - A. Types of systems
  - B. Documentation
  - C. Standard Components
    - 1.) System boards
    - 2.) Hard disk drives
    - 3.) Floppy disk drives
    - 4.) Memory
    - 5.) Monitors
    - 6.) Keyboards
    - 7.) Mouse and other pointing devices
    - 8.) Power supply

- II. The computer system
  - A. Interaction between hardware and software
    - 1.) The operating system
    - 2.) Loading software correctly
  
- III. Troubleshooting and repair
  - A. Opening the system
    - 1.) Safety precautions
    - 2.) Equipment Protection
  - B. Diagnosing and correcting problems
    - 1.) Visual inspection
    - 2.) Software diagnostics
    - 3.) Diagnostics tools
    - 4.) Making repairs
    - 5.) Testing after repairs
    - 6.) Disaster recovery
  
- IV. Selecting a system
  - A. Determining needs
  - B. Projecting growth
  - C. Obtaining current system information
  - D. Configuring the system
  - E. Warranty information

**REQUIRED TEXTBOOKS AND MATERIALS:**

Andrews, Jean. A+ Guide to Hardware: Managing, Maintaining, and Troubleshooting. 3<sup>rd</sup> ed. ISBN 0619213272

**STATEMENT FOR STUDENTS WITH DISABILITIES:**

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 686-3652 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.