

# **COURSE OUTLINE**

## **CMSY-276**

### **Multimedia Hardware**

3 Semester Hours

## **HOWARD COMMUNITY COLLEGE**

### **Description**

Upon completion of this course, the student will have a basic technical understanding of the function and operation of the multimedia devices used with or connected to personal computer systems. The student will understand how to install, test, and use multimedia devices such as mass storage devices, CD-ROMs, soundcards, scanners, digital cameras, video capture cards, and touch screens. The course will focus on broad concepts and diagnostic tools which allow the student to rapidly configure or rectify faults in multimedia PC systems. Prerequisite: CMSY-132 and hardware familiarity is recommended. (2 hours lecture, 3 hours lab)

### **Overall Course Objectives**

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

1. Recognize multimedia hardware standards (MPC I, MPC II and MPC III) and requirements.
2. Determine the advantages and limitations of using different operating systems such as DOS, Windows, and Windows 95 in installing and operating multimedia hardware.
3. Identify main PC motherboard components such as microprocessor, and bus connectors.
4. Identify, install, upgrade and troubleshoot RAM, ROM (BIOS, flash BIOS).
5. Install, troubleshoot, replace and repair mass storage drives (different harddrives--SCSI and IDE, CD-ROM and optical drives, Zip drives, floppy drives), input and output devices (keyboards, monitors, and touch screens).
6. Select, install, and troubleshoot the following multimedia peripherals: sound boards, CDs, scanners, digital cameras.
7. Identify and select video capture cards and recognize MPEG standards.
8. Diagnose and troubleshoot hardware and software failures/conflicts.
9. Perform data compression and establish virus protection.
10. Modify .ini and .sys files as necessary when installing hardware.
11. Upgrade multimedia systems.

### **Major Topics**

- I. Identify Different PCs
  - a. Different processor characteristics
  - b. Types of buses (ISA, MCI, EISA, VESA, and PCI and PCMCIA)
  - c. Safety procedures and proper use of tools
- II. Memory Organization
  - a. ROM organization
  - b. RAM and cache configuration
  - c. Solving memory conflicts
  - d. Memory upgrades

- III. Installation of multimedia hardware and configuring multimedia systems with different operating systems--Windows and Windows 95.
  - a. CD-ROM
  - b. Soundcards
  - c. Video cards (different resolution) and monitors
  - d. Scanners
  - e. MIDI instruments
  - f. Harddrives--IDE, SCSI and Optical
  - g. Video Capture cards, and SCAN converters
  - h. Digital cameras
  - i. Touch screens
  
- IV. Optimizing the PC
  - a. Memory management
  - b. Windows virtual memory swap file
  - c. Disk caching
  - d. Upgrading video drivers
  - e. Fine tuning \*.ini files, autoexec.bat and config.sys files
  
- V. System Problems and Software Disasters
  - a. Preparing for a system crash
  - b. IRQ and DMA conflict
  - c. Coping with general protection faults
  - d. Hardware and software bottlenecks

### **Course Requirements**

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following: lab reports, project, exams and final exam.

Writing: Students are expected to write a laboratory report after performing that assigned experiment.

### **Other Course Information**

This course could be an elective in computer-aided design, computer support technology and multimedia programs.