CIS 1120

Division: Career and Technical Education
Department: Information Technology
Course: CIS 1120
Title: PC Hardware and Software
Catalog Description:

This course discusses the history, role, and structure of computer architecture and operating systems needed by computers. This class is designed to explore physical and functional characteristics of computer devices and components and trends in computer architecture with emphasis and detailed information on configuring a microcomputer, troubleshooting problems that occur, interrupts, device and memory management, virtual memory and paging, file management, and performance analysis. Lab exercises include assembling a computer and troubleshooting problems. The course prepares students for the A+ certification exam.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 1
Clock/Hour Requirements: 60
Offered for Non-Credit: Yes
Prerequisites: N/A

Corequisites: N/A

Justification:

This course is required by the program advisory committee and is a prerequisite for other CIS classes. This course helps prepare students for job readiness at graduation and/or transfer to a four-year college.

Student Learning Outcomes:

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

- understand the basic components of hardware and how they function
- understand concepts and hardware used in the architecture of PCs, including: CPUs, RAM, secondary storage, peripheral devices
- have a basic understanding of primary structural and functional aspects of operating systems
- explain the complex interactions between operating system software and computer hardware.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following

subject areas:

- computer architecture history
- computer system
    - interconnection structures
    - memory (internal and external)
    - input/output
    - operating system overview
- central processing unit
    - computer arithmetic
    - instruction sets
        - characteristics and functions
        - addressing modes and formats
    - CPU structure and function
- control unit
- parallel organization
- reduced instruction set computers
- con-currency in programs and operating systems
- long-term and short-term scheduling
- memory management
- resource management and blocked queues
- input and output operations and interrupts
- files and information storage
- spooling
- operating systems kernels
- structure and flow in layered operating systems
- security and systems performance
- preventative maintenance
- DOS/Microsoft Windows installing, configuring, upgrading and usage.

General Education Outcomes:

1) Read effectively, constructively, and critically.
Students will be required to read from the assigned text, reference manuals, and industry journals to retrieve, analyze, and synthesize information into design, repair, and troubleshooting situations.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will utilize a variety of Internet resources to retrieve information for the completion of assignments. Instructors will provide feedback to students regarding the methods and tools utilized for these exercises.

5) Apply a cultural and historical awareness to a variety of phenomena.
Students will understand and discuss the historical aspects of IT development as well as the cultural implications of computer use and development in our society.

Applied Education Outcomes:

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

Students will acquire skills in building and maintaining computer systems. They will also gain skills in t roubleshooting computer hardware issues.

2) Students will become aware of industry specific certification and develop skills sufficient to acquire the same.

Students will become aware of the vendor neutral CompTIA A+ certification and develop skills sufficient to acquire the same.

Key Performance Indicators:

Student Learning Outcomes will be assessed by two or more of the following Key performance Indicators:

- exams
- quizzes
- lab exercises
- success in subsequent courses.

Student grades will be based on a combination of lab exercises, quizzes, tests, and a final exam or project.

Post evaluation will be measured by student success in subsequent classes where students are expected to be familiar with the general workings of operating systems at the microcomputer, minicomputer, and mainframe levels.

Representative Text and/or Supplies:

- Testout LabSim software: A+ Essentials
- Testout LabSim software: A+ Practical Application
- Supplemental materials will be supplied that support the hands-on lab activities

Optimum Class Size: 15
Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

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Michael P. Medley, MBA, Assistant Professor

I hereby find this course consistent with the goals and resources of the Information Technology Department:

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Michael P. Medley, MBA, Assistant Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

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Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)