El Centro College COSC 2425 Computer Organization Syllabus

COURSE DESCRIPTION

Prerequisite: COSC 1436

The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced.

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, students will:

- Explain contemporary computer system organization.
- Describe data representation in digital computers.
- Explain the concepts of memory hierarchy, interrupt processing, and input/output mechanisms.
- Measure the performance of a computer system.
- Design and develop assembly language applications.
- Explain the interfaces between software and hardware components.
- Explain the design of instruction set architectures.
- Explain the concept of virtual memory and how it is realized in hardware and software.
- Explain the concepts of operating system virtualization.

COURSE MATERIALS

Textbook: Essentials of Computer Organization and Architecture, 5e Author: Linda Null, Julia Lobur

A student of this institution (El Centro College) is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.
MAJOR COURSE REQUIREMENTS

Students will participate in Discussion Boards addressing topics relevant to computer organization.

Students will complete Lab Assignments which include:

• Data Representation
• Circuits and Logic
• Assembly Language Programming
• Virtual Memory
• Input/Output
• Embedded Systems

Chapter Quizzes will evaluate the student’s understanding of the concepts and knowledge presented in each chapter.

A Midterm and a Final Exam will evaluate the student’s overall understanding of computer organization.

SUBJECT MATTER

Topics covered in the reading and lessons portion of the course include:

• History of Computer Architecture
• Integer and floating point number representation
• Digital Logic
• Instruction Sets
• Machine Language
• Memory Hierarchy
• Data Storage including RAID
• Operating Systems
• Performance Measurement and Analysis

Disclaimer The provisions contained in this syllabus do not constitute a contract between the student and El Centro College. These provisions may be changed at the discretion of the Coordinator/Instructor. When necessary, appropriate notice of such changes will be given to the student.

The instructor-of-record may provide additional information to enhance the course to meet the needs of the enrolled students, provided that the enhancements do not conflict
with the official course syllabus.

POLICIES Students should click on the links below and read all of these policies.
Institutional Policies
Course-related Institutional Policies

DISABILITY SERVICES Students who feel that they may need assistance or accommodations due to a disability should contact the El Centro Disability Services Office in Room A095, phone (214) 860-2411, or go to the DSO webpage at: http://www.elcentrocollege.edu/students/disability-services

DCCCD Office of Institutional Equity Syllabi Statement

Title IX and Sexual Misconduct

Concealed Carry (Campus Carry)