



CS 2810

Division: Natural Science and Mathematics

Department: Engineering and Computer Science

Course: CS 2810

Title: Computer Organization AND Architecture

Catalog Description:

This course introduces organization and architecture of computer systems. Topics include assembly language programming, instruction sets, pipelining, and memory systems.

General Education Requirements: N/A

Semesters Offered: Spring

Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: CS2420 AND ENGR2700

Justification:

This is a first course in computer systems. It is part of the recommended curriculum for computer science majors at Snow College. This course follows guidelines for a "Computer Architecture" course outlined in *Computing Curricula 2001*, The Association for Computing Machinery, 2001

Student Learning Outcomes:

Students will understand characteristics of an instruction set architecture, an assembly language, assembly level machine organization, and performance and compilation issues.

Students will be able to analyze computer system organization at the assembly language level, implement algorithms in assembly/machine language, and design a computer system at a block level.

Content:

The following topics will be covered in this course:

- Role of performance
- Instruction sets and types
- Assembly/machine language
- Arithmetic
- Datapath and control
- Pipelining

- Memory management
- Interfacing and communication.

General Education Outcomes:

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

Students will be required to utilize the text, application software help material, and online information to produce software solutions to many assigned problems.

7) Apply scientific reasoning to a variety of contexts.

Students will be able to approach problems logically and develop solutions by applying the software development process. This will include understanding the problem statement, developing a algorithmic solution, and verifying the solution.

Key Performance Indicators:

Homework exercises: 10%-20% of final grade

Assembly language programming projects: 15%-25% of the final grade

3-5 examinations: 30%-60% of the final grade

Comprehensive final examination: 15%-30% of the final grade

Representative Text and/or Supplies:

D. Patterson and J. Hennessy, *Computer Organization & Design: The Hardware/Software Interface*, current edition, Morgan Kaufmann

Optimum Class Size: 20

Maximum Class Size: 30

Signatures:

I hereby submit this course syllabus:

Garth O. Sorenson, MS, Associate Professor

I hereby find this course consistent with the goals and resources of the Engineering and Computer Science Department:

Garth O. Sorenson, MS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

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

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

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)