

CSE380: INTRODUCTION TO MICROPROCESSORS & MICROCOMPUTERS LABORATORY (3 Credits, Required)

Catalog Description

A microprocessor system and its application in embedded devices. This course is the laboratory component to CSE379. Topics include: microprocessor architecture; memory organization; assembly language programming; microprocessor assemblers; software development; use of microprocessor boards; memory and I/O interfaces; programming peripherals; interrupt system programming; microprocessor system design and applications.

Prerequisites

Prerequisites: CSE241 or EE378

Corequisite: CSE379

Textbooks(s) and/or other required material

(none)

Course Objectives

The objectives of this course are to introduce assembly language programming using the ARM microprocessor, integrating C programs with assembly language subroutines, interfacing parallel and serial I/O devices with a microprocessor, and exception and interrupt processing.

At the end of this course, each student should be able to write and debug C and ARM assembly language programs, understand how to interface serial and parallel I/O devices with a microprocessor, write code to process exceptions and interrupts, and understand the instruction set architecture of the ARM microprocessor.

Topics Covered:

Basic Microprocessor Concepts
Assembly Language Programming
Stack & Subroutines
I/O Concepts
Parallel & Serial I/O
Interrupts

Class/Lab Schedule:

Three 50 minute lectures per week

One 80 minute lab per week

Contribution of course to professional component/criterion 5

Engineering Topics: 3 credits

Engineering Design

Relationship of course to program outcomes

This course is required of all computer engineering students and has a significant relationship with the following program objectives for computer engineering:

- (a) an ability to apply knowledge of mathematics, probability & statistics, computer science, and electrical engineering as it applies to the fields of computer software and hardware
- (b) an ability to design and conduct experiments, as well as to organize, analyze, and interpret data
- (g) An ability to effectively communicate technical information in speech, presentation, and in writing.
- (j) a knowledge of contemporary issues

This course has a strong relationship with the following program objectives for computer engineering:

- (e) an ability to identify, formulate, and solve hardware and software computer engineering problems using sound computer engineering principles
- (k) an ability to use the techniques, skills, and modern hardware and software engineering tools necessary for computer engineering practice

Persons who prepared this description and date of preparation

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