

Course Syllabus

Instructor: Haibo Wang, Room: ENGR E-116, Tel: 453-1522, haibo@engr.siu.edu
Office Hours: MW 1:00 pm - 2:30 pm

Textbook: J. L. Antonakos, "An Introduction to the Intel Family of Microprocessors,"
Prentice Hall

Prerequisites: ECE329, ECE327

Course Time/Place:

Lecture:	MW 3:00 pm - 4:15 pm	ENGR A-208
Lab:		ENGR E-231

Course web-site: <http://www.engr.siu.edu/~haibo/ece424>

Course Description:

The objective of the course is to gain a basic understanding of microprocessor-based systems. Fundamental concepts and techniques for designing and programming microprocessor-based systems will be covered. The Intel 80x86 family of microprocessors and 80x86 assembly languages will be discussed during the course study. A single-board computer will be implemented and programmed through the course project.

Topics Covered:

1. Introduction of microprocessor-based systems
2. Intel 8088 microprocessor architecture
3. Memory organization in microprocessor-based systems
4. Intel 80x86 instruction set
5. Assembly language programming
6. Microprocessor I/O systems and bus operation
7. Microprocessor interrupt and interrupt services
8. Design of microprocessor-based systems for different applications

Course Project:

Each group (at most two students) is required to design and implement an 8088-based single-board computer. CPU, memory, and other IC chips will be wire wrapped in the project. In addition, each group has to write a simple operating system (Monitor program) for the constructed single-board computer. The cost of the components is estimated around \$80. The whole project is divided into four sub projects and each sub project has its own deadline. Circuit schematics need to be submitted for sub project 1 to 3. A project report and program list is required for sub project 4.

Project:

Sub Projects	Sub-Project Title	Points
0	Buy Components	5
1	CPU and Clock Circuits	25
2	Memory Systems	25
3	I/O Systems	25
4	Monitor Program and project report	25

- 1) Project deadlines are given in the class calendar
- 2) Dead line for sub project 0 is an absolute deadline. If you miss it, you lose 5 points.
- 3) If you miss deadlines for sub project 1, 2, and 3, each working day will cost you one point.
- 4) Deadline for sub project 4 is an absolute deadline. You need turn in your program before the deadline; partial credit will be given for unfinished work. Fail to turning in your program before the deadline will result in a score of 0.

Exam Schedule:

Midterm 1	09/25/06
Midterm 2	10/30/06
Final Exam	12/15/06

Grading

Class participation	5%
Homework	5%
Lab project	30%
Presentation	5%
Midterm 1	15%
Midterm 2	15%
Final Exam	25%

A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: <60

- 1) **No Make-Up Exams**
- 2) **No late Homework**

Subscription to ListServ

An email list (ece424-L@siu.edu) has been created for the class. Important announcements will be occasionally made through the email list. Also, you are encouraged to discuss topics related to the class through the email list.

1. Add your email address to the list server by sending the following message to:

ListServ@siu.edu

sub ece424-L@siu.edu First Name, Last Name

2. To remove your email address from the list, send the following email to

ListServ@siu.edu

unsub ece424-L@siu.edu

3. Write to the list, send your email to ece424-L@siu.edu.