

ECE 190, Fall 2009

Course Overview

Instructors:

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Teaching Assistants:

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Objectives of the course:

ECE 190 adopts a unique bottom-up approach to introductory computing. The course is organized on the premise that learning about computer programming first requires understanding how a computer computes.

The main objective of this course is to provide an exposure to basic computer organization and programming concepts as preparation for advanced computing concepts in subsequent ECE and CS courses. While this course is fundamentally a programming course, the course adopts a bottom-up philosophy to computer programming: we first discuss the basic architecture of a computer before describing how to program it. We discuss computational components such as logic gates, datapaths, registers, and memories, and use these components to describe a simple computing system called the LC-3. We will program the LC-3 in its native machine and assembly language. The second half of the semester focuses on C programming. The bottom-up approach enables us to demonstrate programming concepts by showing how they operate at the lower levels. We will cover basic programming concepts, functions, arrays, pointers, I/O, recursion, simple data structures, and object-oriented programming concepts.

This course has no prerequisites and requires no previous programming experience.

Textbook:

Yale N. Patt and Sanjay J. Patel, *Introduction to Computing Systems: from bits and gates to C and beyond*, 2nd Edition, McGraw-Hill, 2003.

This course is heavily based on the textbook listed above. We will provide different examples and somewhat different viewpoint in the lectures. You should consider the lectures and the corresponding treatments in the textbook as different explanations of the same material.

What you should expect:

There will be **three homework assignments**. They will be posted on the webpage for the course and due in class on the posted due dates.

There will be **five programming assignments**. The first two assignments will be low-level programming of the LC-3 using the LC-3 simulator. The last three will be C programming assignments. We expect the assignments to be fairly substantial. Several of the programming assignments will have intermediate *checkpoints* that you will turn in for us to gauge your intermediate progress.

There will be **two midterm exams** and **one final exam**. The midterm exams will be in the evenings from 7pm-9pm on Wednesday September 30th, 2009 and Wednesday November 4th, 2009. The final exam date is TBD. Any conflict that you have with any of the exams **must be reported** to the course instructors **at least one week before the exam**, but please report such conflicts as early as possible. The later you inform us, the more difficult it becomes to accommodate your schedule.

Grading mechanics:

Homeworks:	5%		
Projects:	25%		
Exams:	20% Midterm #1	20% Midterm #2	25% Final
Other:	5% Subjective evaluation		

Website and web board:

The website (<http://courses.ece.uiuc.edu/ece190/>) will contain important announcements, lecture notes, handouts, and other material helpful for succeeding in this course.

The ECE190 “web board” is available through the web boards link at <http://my.ece.uiuc.edu>. Note that this is NOT the same as the campus’ web board project. The web board serves as a forum for students to post and answer questions, discuss issues, warn of pitfalls, etc. You should read the board at least once a day. The teaching staff will read and make postings to focus discussions and to provide more definitive answers to posted questions.

Final thoughts:

We encourage everyone to stop by our office hours to introduce yourself before the end of the semester.

We encourage everyone to **challenge assumptions**: Computer Science and Engineering deals with man-made artifacts that can be continually improved. Innovation requires that someone challenge the current way of doing things.

You are encouraged to study in groups, and to come to our offices in groups. Studying in groups usually will result in all of you understanding the material better. You, working with other members of your study group, can often unravel concepts to the benefit of all members of the group much better than one person can, working alone.

Although we encourage you to study together, all work products of this course (homeworks, programming assignments, exams) **must be your own individual work**. Do not exchange code with others. Do not copy code from others. We will use code comparison software to check for violations on programming assignments. **If you are caught cheating, you will fail this course**. The policy for the course is based on Article 1.4 of the *Student Code* (available at <http://www.admin.uiuc.edu/policy/code/>).