ECE/CS 252: Introduction to Computer Engineering

Fall 2008, Sections 1, 2 and 3

Lecture attendance is required Sec 1: MWF 11-11:50, CS1221 Sec 2: MWF 8:50-9:40, EH1227 Sec 3: MWF 1:20-2:10, CS1221		URL: http://ece252.ece.wisc.edu Text: Introduction to Computing Systems: from bits and gates to C and beyond; Yale N. Patt and Sanjay J. Patel; Mc-Graw Hill, 2003, 2nd edition				
Instructors/TAs:	Prof. Mikko Lipasti	Chao Wang, lead TA	Aditya Godse	Andrew Nere	Erika Gunadi	Atif Hashmi
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Office hours	M9:50-10:50, W2:20-3:20, R10-11	F3:00-5:00, EH B622	W3:30-5:30, EH B622	R3:00-5:00, EH B622	T11:00-12:00, EH B622	M3:00-5:00, EH B622
Grading: Homeworks 40% 4 Midterm exams 60%		I strongly encourage you to meet with us during office hours, or call us or send e-mail. Introduce yourself, express concerns, offer suggestions, and seek advice. Make sure you monitor the web site for this course which contains course information, lecture notes, pointers to project resources, and the latest announcements.				

Course Description and Course Objectives

This course is intended for first-year students, to serve both as a general introduction to engineering for all engineering majors, but also as a foundational course for the computer engineering and computer science degree programs. The course provides bottoms-up coverage of the critical concepts in the operation and design of computing systems, starting with transistors, then logic gates, then complex logic structures, then gated latches and memory. The course removes all of the mystery about the operation of computer systems by methodically and progressively explaining the implementation and behavior of each important layer of abstraction in the hardware of a computer system.

The course will also explore the increasingly pervasive role that computing devices--particularly those embedded in appliance-like systems--play in modern society, as well as the historical importance of computing as a powerful tool and enabler for virtually all engineering and scientific disciplines. Within that context, the course will discuss the ethical, economic, social, and political impacts that computers have had on our society in the past fifty years and will continue to have in the future. There are no prerequisites for this course.

The course will provide students with:

1. A basic understanding of several aspects of computer engineering practice, including basic hardware design and low-level assembly-language programming.
2. Awareness of some of the ethical, social, political, and economic influences on and impacts of engineering.
3. Introductory skills in teamwork with peers.
4. Experience in written and oral communication with an engineering audience.
5. Preliminary development of the habits of mind that engineering study and practice require.
6. Elementary knowledge of other disciplines in engineering.

Small-group Homework Completion

There will be approximately eight homework assignments (about one every other week) which may not be weighted equally. Some assignments will require the review of material that is touched upon, but not covered in depth in class. Most of the homework assignments must be completed in groups of two to three students. Each group should submit only one completed homework, and all members of the group will receive the same grade; however, each homework submitted must include a statement of work that summarizes the contributions of each student in the group. The intent here is to encourage you to develop relationships with your fellow students and form study groups; these connections will prove invaluable in your later engineering courses. You will not receive full credit if you complete group homework assignments individually (not in a group). No late homework will be accepted.

Course Outline (subject to change)

Week	Date	Chapter	HW Out	Due
0	9/1/2008	No lecture		
	9/3/2008	Course Introduction	H1	
	9/5/2008	Ch 1 - Welcome Aboard		
1	9/8/2008	Ch 2 - Bits, Data Types, & Ops		
	9/10/2008	Ch 2 - Bits, Data Types, & Ops		
	9/12/2008	Ch 2 - Bits, Data Types, & Ops	H2	H1
2	9/15/2008	Ch 3 - Digital Logic Structures		
	9/17/2008	Ch 3 - Digital Logic Structures		
	9/19/2008	Ch 3 - Digital Logic Structures	H3	H2
3	9/22/2008	Ch 3 - Digital Logic Structures		
	9/24/2008	Exam review session (TA)		
	9/26/2008	Midterm I (Ch. 1-2)		
4	9/29/2008	Ch 3 - Digital Logic Structures		
	10/1/2008	Ch 4 - The von Neumann Model	H4	H3
	10/3/2008	Ch 4 - The von Neumann Model		
5	10/6/2008	Ch 4 - The von Neumann Model		
	10/8/2008	Ch 5 - LC-3		
	10/10/2008	No Lecture		
6	10/13/2008	No Lecture		
	10/15/2008	Ch 5 - LC-3	H5	H4
	10/17/2008	Ch 5 - LC-3		
7	10/20/2008	Ch 5 - LC-3		
	10/22/2008	Ch 6 - Programming		
	10/24/2008	Ch 6 - Programming		
8	10/27/2008	Exam review session (TA)		
	10/29/2008	Midterm II (Ch. 3-4)		
	10/31/2008	No Lecture		
9	11/3/2008	Ch 6 - Programming	H6	H5
	11/5/2008	LC-3 Demo w/ examples		
	11/7/2008	Ch 7 + 9.2 - Assembly Language		
10	11/10/2008	No Lecture		
	11/12/2008	No Lecture		
	11/14/2008	Ch 7 + 9.2 - Assembly Language	H7	H6
11	11/17/2008	Ch 7 + 9.2 - Assembly Language		
	11/19/2008	Exam review session (TA)		
	11/21/2008	Midterm III (Ch. 5-6)		
12	11/24/2008	Professional Ethics		
	11/26/2008	Ch 8 + 9.1 - I/O	H8	H7
	11/28/2008	THANKSGIVING RECESS		
13	12/1/2008	No lecture		
	12/3/2008	Ch 8 + 9.1 - I/O		
	12/5/2008	Ch 8 + 9.1 - I/O		H8
14	12/8/2008	Summary & Evaluations		
	12/10/2008	Exam review session (TA)		
	12/12/2008	Midterm IV (Ch. 7-9)		
15	12/15/2008	No final exam		