ECE/CS 252: Introduction to Computer Engineering  
Fall 2010, Section 3

**Attendance is required**
Lecture: M(WF) 11-11:50 Soils 270  
Discussion: WF time/loc varies

**URL:** http://ece252.ece.wisc.edu/  

<table>
<thead>
<tr>
<th>Instructors/TAs:</th>
<th>Prof. Mikko Lipasti</th>
<th>Daniel Chang, lead TA</th>
<th>Philip Garcia</th>
<th>Sean Franey</th>
<th>Vignyan Kothinti</th>
<th>Naresh</th>
<th>Felix Loh</th>
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<tbody>
<tr>
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<td><a href="mailto:floh@wisc.edu">floh@wisc.edu</a></td>
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<tr>
<td>Office hours</td>
<td>M3:30-4:30, R11-12 in EH4613</td>
<td>W3:30-5:30</td>
<td>M2-4</td>
<td>R10-12</td>
<td>T3-5</td>
<td>F2-4</td>
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**Grading:**
| Pop quizzes       | 25%                  | Introduce yourself, express concerns, offer suggestions, and seek advice. |
| Homeworks         | 25%                  | Make sure you monitor the web site for this course which contains course information, lecture notes, pointers to project resources, and the latest announcements. |
| 4 Midterm exams   | 50%                  |

I strongly encourage you to meet with us during office hours, or call us or send e-mail.

**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 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 Quizzes and Homework Assignments**
You will be divided into small groups within your discussion section, and will be required to complete in-class quizzes both individually and in these groups. In addition, 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 the assigned discussion section groups. Each group should submit only one completed homework, and all members of the group will receive the same grade. 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)

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Chapter</th>
<th>HW Out</th>
<th>Due</th>
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<tr>
<td>0</td>
<td>Sep 03, Fri</td>
<td>Course Introduction</td>
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<tr>
<td>1</td>
<td>Sep 06, Mon</td>
<td>Labor Day, no lecture</td>
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<td>Sep 08, Wed</td>
<td>Ch 1 - Welcome Aboard</td>
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<td>Sep 10, Fri</td>
<td>Discussion</td>
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<td>2</td>
<td>Sep 13, Mon</td>
<td>Ch 2 - Bits, Data Types, &amp; Ops</td>
<td>H2</td>
<td>H1</td>
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<td>Sep 15, Wed</td>
<td>Discussion</td>
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<td>Sep 17, Fri</td>
<td>Discussion</td>
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<td>3</td>
<td>Sep 20, Mon</td>
<td>Ch 2 - Bits, Data Types, &amp; Ops</td>
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<td>Sep 24, Fri</td>
<td>Discussion - Exam Review</td>
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<td>Ch 3 - Digital Logic Structures</td>
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<td>Sep 29, Wed</td>
<td>Midterm I (Ch. 1-2)</td>
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<td>Oct 01, Fri</td>
<td>Discussion</td>
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<td>Ch 3 - Digital Logic Structures</td>
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<td>Oct 06, Wed</td>
<td>Discussion</td>
<td>H4</td>
<td>H3</td>
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<td>Oct 08, Fri</td>
<td>Discussion</td>
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<td>6</td>
<td>Oct 11, Mon</td>
<td>Ch 4 - Von Neumann Model</td>
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<td>Ch 5 - LC-3</td>
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<td>Discussion - LC3 Demo</td>
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<td>9</td>
<td>Nov 01, Mon</td>
<td>Ch 6 - Programming</td>
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<td>Nov 03, Wed</td>
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<td>H6</td>
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<td>10</td>
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<td>Ch 7 + 9.2 - Assembly Language</td>
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<td>12</td>
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<td>Ch 8 + 9.1 - I/O</td>
<td>H7</td>
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<td>Nov 24, Wed</td>
<td>Discussion - H7 project help</td>
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<td>Ch 8 + 9.1 - I/O</td>
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<td>Engineering Ethics</td>
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<td>15</td>
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<td>Summary and course evaluations</td>
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<td>Dec 15, Wed</td>
<td>Midterm IV (Ch. 7-9)</td>
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