CMPE12/12L: Computer Systems and Assembly Language
General Information and Syllabus

Winter 2006
MWF: 12:30pm – 1:40pm
Class room: Porter Acad 148

Instructor: Cyrus Bazeghi
E-mail: cyrus@soe.ucsc.edu
Office: E2-319
Office Number: (831) 459-2217
Office Hours: Wednesday 2-4pm
Friday 10:30am to 11:30am
By appointment
Cell Number: (831) 566-0960

Teaching Assistant: John Connors
E-mail: jconnors@soe.ucsc.edu
Office: TBA
Office Hours: TBA

Key Dates

Final Exam: Thursday, March 23rd, 8:00am to 11:00am
Exam #1: Monday, February 6th
Exam #2: Monday, March 6th
Holidays: Monday, January 16th and Monday, February 20th

Required text book


Optional reference


WWW site and Discussion Forum

Website: http://www.soe.ucsc.edu/classes/cmpe012/Winter06

Check this site often as this is where the homework assignments, lecturer notes, homework, quiz, and test solutions are posted. You are expected to read all the material on the website.

Discussion Forum: http://apps.soe.ucsc.edu/fora/

Use the discussion forum to post questions to the tutors and the TA’s about lab and class material, ask questions to other students, or start discussions about class and lab material. Do not expect fast replies from the instructor, use email or the phone for a timely response. Check this often as class announcements will be made on here.

Course Work – CMPE 12

Attendance is highly recommended for the lectures as the material rapidly builds upon each topic. Please see the website for details on what is expected of you. The lecture material will be recorded and be available on the class website.
There will be semiweekly homework assignments which are graded. The instructor feels strongly that you learn by doing, not just by reading or listening. There will be two exams during the quarter and one comprehensive final exam. The exams will be based on homework and lecture material. There will also be occasional pop quizzes. **No calculators are ever allowed for any exam or quiz, using one will be considered cheating.**

If you have any disability-related needs, be sure to contact the Disability Resource Center well in advance of any expected need.

**Class Evaluation**

The class grade is determined by the following criteria: Homework/Quizzes (20%), Exam #1 (20%), Exam #2 (20%) and the Final Exam (40%).

**Lab Work – CMPE 12L**

You must be enrolled in CMPE12L to remain in CMPE12. You must pass CMPE12 to pass CMPE12L. You may pass CMPE12 and fail CMPE12L. Attendance in lab section is required so be sure to enroll in a section you can attend.

The labs will start out with basic hardware design and then transition to programming. We will be working with **two** assembly languages in this course based on two processors: a 16-bit RISC type processor, the LC-3, covered in the text book, and a neat 8-bit microcontroller from Motorola, the HC11. We will also be doing C programming on either a SPARC (UNIX) system, the HC11 microkits, or with the LC-3. See the class website for more information on the lab.

There will be lab assignments throughout the quarter that will have you do logic design or write programs in one of the languages covered in class. No collaboration is allowed on lab assignments unless explicitly permitted in the assignment write-up. When permitted, **collaboration must be acknowledged** and may only be with current course staff or students currently enrolled in CE12L. Failure to give credit when collaboration is allowed is a form of academic dishonesty and can be grounds for failure of the course. You are **not allowed at any point to share actual code with another student unless you are in a professor approved pair**, collaboration is the discussion of the topic and how to solve it at a high level.

**Lab Evaluation**

Your lab (CMPE 12L) grade is determined solely by your performance on the lab assignments. Though the lab grade does not directly contribute to the course grade, the material covered in the lab is meant to reinforce the material presented in class. Thus doing well in the lab will directly improve your class performance. Your lab grade will be considered if you are on the border line between grades.

**Academic Honesty**

Academic honesty is a requirement for the course. All material produced must be your own independent work; this includes homework/quizzes, exams, and lab assignments.

What is cheating? In the class it is copying answers during exams, using a calculator, or bringing in unauthorized reference material. Homework should be done independently though comparing answers is permitted as long as you work through the problems together when there are differences. Copying is **NEVER** acceptable.

In the lab cheating is sharing code or solutions when not **explicitly** told it is permitted. Submitted labs are electronically compared to all other submitted labs, including past labs for similarities. The code checker tool checks all lab assignments for common cheating practices, renaming variables, moving code sections, changing comments and other formatting changes.
If a student is caught cheating in either the class or lab this will result in failure in the class and further damage to your academic career as appropriate. DO NOT CHEAT, IF CAUGHT YOU WILL BE DROPPED FROM THE CLASS AND THE LAB AND REPORTED TO YOUR COLLEGE AND THE DEPARTMENT. It is not worth it, please do not do it.

**Tentative Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Start Date</th>
<th>Description of lecture topics</th>
<th>Chapters to read</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>1/6</td>
<td>Welcome, History of computers</td>
<td>1</td>
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<tr>
<td>1</td>
<td>1/9</td>
<td>Computer Systems, Digital Logic</td>
<td>3, 4</td>
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<tr>
<td>2</td>
<td>1/16</td>
<td>Holiday (16th). LC-3 Architecture, LC-3 ISA</td>
<td>5</td>
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<tr>
<td>3</td>
<td>1/23</td>
<td>LC-3 ISA, LC-3 Assembly</td>
<td>6, 7</td>
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<tr>
<td>4</td>
<td>1/30</td>
<td>Traps &amp; Service calls, Number Systems</td>
<td>9, 2</td>
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<tr>
<td>5</td>
<td>2/6</td>
<td>Exam #1 (6th). Data Representations</td>
<td>2</td>
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<tr>
<td>6</td>
<td>2/13</td>
<td>Arithmetic and Logic</td>
<td>2</td>
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<tr>
<td>7</td>
<td>2/20</td>
<td>Holiday (20th). Data Structures, Embedded systems (HC11)</td>
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<tr>
<td>8</td>
<td>2/17</td>
<td>HC11 programming, floating point arithmetic</td>
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<tr>
<td>9</td>
<td>3/6</td>
<td>Exam #2 (6th). Input/Output, “C” programming</td>
<td>8, 11</td>
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<tr>
<td>10</td>
<td>3/13</td>
<td>“C” programming</td>
<td>12, 13, 14</td>
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<tr>
<td>11</td>
<td>3/23</td>
<td>Final Exam</td>
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Besides the textbook you will receive references for the HC11 microcontroller and supplementary documentation on data representations and arithmetic and floating point arithmetic.