
Syllabus

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Office Hours: MW: 10am--12noon; TTh: 1pm -- 3pm; and by appointment


Objectives

This course presents a combined introduction to the concepts of computer architecture and operating systems. In particular, we will discuss processor design, assembly and machine language, translation from assembly language to machine language, processor scheduling, memory management, virtual memory, file systems, machine level representation of data, digital logic, and processor implementation.

Intended Learning Outcomes:

Successful students completing this course will be able to:

1. design and implement an assembler given the assembly and machine language instruction sets for a processor,

2. design and implement a simulator for a given processor architecture,

3. design and implement various functions of an operating system, including process management, memory and virtual memory management and file systems,

4. understand the design of the control unit, the arithmetic logic unit and datapaths in a processor.

Prerequisites: CPSC 250
Electronic Devices and Academic Integrity

Students are expected to adhere to the Academic Integrity policies of Roanoke College. All work submitted for a grade is to be strictly the work of the student unless otherwise specified by the instructor. The policies as outlined in the Academic Integrity handbook will be enforced in the course.

Graded programs are subject to the Roanoke College Academic Integrity policies. Copying a program or a portion of a program (even a single line) or reading another person's program to obtain ideas for solving a problem is plagiarism. Other examples of integrity violation include writing code for someone else, using code written by someone else, telling someone else how to solve a problem or having someone tell you how to solve a problem (and using their method). These cases apply to any work that is handed in for a grade under the instructor's assumption that the work is your own. Unless specified otherwise by the instructor, discussion among students should be limited to general discussion of concepts and language details, not specific aspects of a solution to the assigned problem.

Cell phones and pagers must be turned off prior to entering the classroom or lab.

The use of any electronic device during a quiz or exam is strictly prohibited. This includes PalmPilots, Pocket PCs, and Blackberrys. Any use of such devices during a quiz or exam will be considered a breach of academic integrity. Basic handheld calculators may be used on certain quizzes and exams only when announced by the instructor.

Class Attendance

Regular attendance is highly recommended. Regardless of attendance, students are responsible for all material covered or assigned in class.

Mechanics

Tests: There will be two tests in class (Feb. 15 and Mar. 19), and a final exam (Tuesday, May 1, 2012, 2pm - 5pm). Make-up tests will be available by pre-arrangement only in case of scheduling conflicts. After the test, make-ups will be available only in the case of a documented medical emergency.

Besides the exams, there will be regular homework assignments and quizzes in class, and a co-curricular requirement. Some of the homework assignments will be programming projects. All the programming projects must be completed in an environment compatible with the Linux installation in the lab computers, and not dependent on any integrated development environments such as eclipse.
**Home works:** Home works will be assigned on a regular basis and posted at the course website. All home works are due at the beginning of class on the posted due date. **Late home works will not be accepted.**

**Quizzes:** There will be short quizzes in class. These will be announced at least one class period in advance. There will be no make-ups for missed quizzes.

**Co-curricular Requirement:** The Mathematics, Computer Science and Physics department will offer a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications and other issues that face these disciplines. A list of the talks is available at the conversationserieswebsite. Each student is required to attend at least three of these sessions, and turn in a short paper describing the contents of the session, and his/her critical reflections about the topic and content. **These papers are due in class within a week of the session.**

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**Grading**
The final grade will be computed based on the grades in the tests, the final exam, home works, quizzes, and the co-curricular component according to the following weights.

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<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Home works</td>
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<tr>
<td>Quizzes</td>
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<tr>
<td>In class Tests (2)</td>
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<td>Final Exam</td>
<td>26%</td>
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<td>Co-curricular</td>
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The grading scale is as follows:

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<th>60</th>
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<th>73</th>
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