ECE 3570 COMPUTER ARCHITECTURE
SPRING 2011
Syllabus

Instructor: Dr. Janos Grantner
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Web Home Page: http://homepages.wmich.edu/~grantner/ece3570
Class: MWF 1:30-2:20pm, in C-141, CEAS
Hours: MW 2:30-3:20pm, or by appointment

Course Description

The objective of this course is to broaden students' knowledge on hardware and software aspects of contemporary computer architecture. The subject matter is considered in the required text, the instructor's lecture notes, and the recommended texts. Additional materials will be posted on the Class Home Page.

Prerequisites:

CS 2230 Computer Organization and Assembly Language, or
ECE 2510 Introduction to Microprocessors

Prerequisites by topic:

Number representations
Fundamental digital logic design
Prior introduction to basic computer architecture
Prior assembly and high level programming language experience

Topics to be covered in this course include:

1. Historical perspective of computer architectures and their evolution
2. Computer system components and organization: processors, primary memory, secondary memory, and input/output ports and devices
3. Digital logic elements in computer design: numerical representations, basic circuits, memory, CPU and buses, input and output
4. Microarchitecture level structures and design for implementation
5. Instruction set architecture (ISA) for programming
6. Operating system machine functions and instructions used to support applications programming: virtual memory, virtual I/O, and process management
7. Assembly language constructs, translation into machine language and support for software module linking and loading
8. An overview of parallel computer architectures and design issues

Required Textbook/Materials

2. Data sheets for selected microprocessors and other chips. Students are expected to locate and download the needed information from either the vendor's Web site, or from an on-line library.

Recommended Textbooks/Materials


3. IEEE Articles

Course Procedure

There will be homework assignments to work on and two in-class Midterm Exams and a Final Exam to be taken. No late homework will be accepted. Homework is individual assignment! Plagiarism and/or the copying/duplication of another student’s homework will result in zero scores for the homework for all individuals involved. All exams will be open textbook and open notes tests. Failure to attend any exam will result in an X grade for the course. A make-up exam will only be given under extreme circumstances, and in any case, students should ask for the course instructor's permission prior to the test. If permission is desired, a request must be made before the due date and should include either a signed doctor's explanation or a written explanation signed by an appropriate WMU officer.

Grading Policy

Grades will be determined on the following basis:

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
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<tr>
<td>Midterm Exam 1</td>
<td>25%</td>
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<tr>
<td>Midterm Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>35%</td>
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It is expected that the breakdown for letter grades will be as follows:

100-89 A, 88-824 BA, 83-74 B, 73-69 CB, 68-59 C, 58-49 D, 48 and below E, missed final exam E, or X as appropriate. The boundaries between grades may be individually lowered at the instructor’s discretion. In borderline cases, the final exam may be given a higher weight, at the instructor’s discretion.

Exam Dates

Midterm Exam 1: 1:30-2:20pm, Wednesday, February 16, 2011, C-141, CEAS

Midterm Exam 2: 1:30-2:20pm, Wednesday, March 30, 2011, C-141, CEAS

Final Exam: 2:45-4:45pm, Wednesday, April 27, 2011, C-141, CEAS
Codes, Policies, Processes and Procedures

The ECE 3570 Web Home Page will be used as official communications media for the class.

The WMU College of Engineering and Applied Sciences Honesty Code will apply in this course.

Homework is individual work! Students may discuss with their classmates the basic approaches to arrive at the solutions in principle. However, they are not allowed to share calculations, program files, schematic diagrams and the like.

You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate Catalog that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. The policies can be found at http://catalog.wmich.edu under Academic Policies, Student Rights and Responsibilities. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

Furthermore, students are encouraged to visit to http://osc.wmich.edu and www.wmich.edu/registrar to access the Code of Honor and general academic policies on such issues as diversity, religious observance, student disabilities, etc.