CSE220 - Syllabus
Systems Fundamentals I
Fall 2016

<table>
<thead>
<tr>
<th>Lecture Meeting Time:</th>
<th>Monday/Wednesday/Friday 9:00am ~ 9:53am</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (Lecture):</td>
<td>B203</td>
</tr>
<tr>
<td>Course Web Site:</td>
<td><a href="http://www3.cs.stonybrook.edu/~icyoon/teaching/cse220-2016f/cse220.html">http://www3.cs.stonybrook.edu/~icyoon/teaching/cse220-2016f/cse220.html</a></td>
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<tr>
<td></td>
<td>Also, check Blackboard and Piazza</td>
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<tr>
<td>Instructor:</td>
<td>Dr. Ilchul Yoon</td>
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<tr>
<td>Office:</td>
<td>Academic Zone B #421</td>
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<tr>
<td>Phone:</td>
<td>+82 (32) 626-1213</td>
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<tr>
<td>Fax:</td>
<td>+82 (32) 626-1559</td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:icyoon@sunykorea.ac.kr">icyoon@sunykorea.ac.kr</a></td>
</tr>
<tr>
<td>Office Hours:</td>
<td>Tuesday 1:00pm ~ 2:30pm / Wednesday 1:00pm ~ 2:30pm; or by appointment</td>
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MATERIALS

**Required:**
  Author: David Money Harris & Sarah L. Harris
  Publisher: Morgan Kaufmann

**Supplement materials:**

COURSE DESCRIPTION:

In this course, we will study assembly language programming and essential concepts of computer organization and architecture. The focus of this course is on the computer organization of a computer system, including the processor architecture and the memory system. In particular, we will discuss the internal representation of information, performance evaluation methodology, instruction set architectures and implementation techniques for computer arithmetic, control path design, and pipelining.
We will use Piazza for this course. Lecture notes and assignments will be available for download in Piazza, and class announcements will also be posted to Piazza. However, you must use Blackboard for submitting assignments and for checking your grades. This course will be very demanding. Expect to spend many hours to study the contents we will cover in classes and also to complete assignments. Our Piazza class page is: https://piazza.com/sunykorea.ac.kr/fall2016/cse220/home

COURSE OUTCOMES:

- An understanding of processor organization.
- An understanding of the design principles of instruction set architecture in terms of the programming flexibility, hardware complexity, and implementation efficiency of complex versus reduced instruction set computers.
- Knowledge of implementation techniques such as number representations, computer arithmetic, processor data paths, pipelining.
- An ability to program in assembly language and understand the relationship to processor design.

MAJOR TOPICS COVERED IN THIS COURSE

- Internal Number Representation
- Bits, Bytes, Words, ASCII and Unicode
- Overview of MIPS, Instruction cycle, processor registers.
- Assembly language: Loops, conditional branching, addressing modes
- Assembly language: Function calls, parameter passing.
- Assembly language: 2-pass assembly process, linking and loading
- Introduction to Digital Logic
- Performance Evaluation Methodology
- Instruction Set Architecture
- Computer Arithmetic
- Processor Data Path and Control Path Design
- Introduction to Pipelining

COURSE COMPONENTS

Lectures

The lectures will focus on discussing concepts with simple examples. All lecture meetings will be in the classroom. The student will be responsible for all the material and updates presented and discussed in the lectures. The text, lecture notes and lectures will provide a base of knowledge that participants can use in assignments and the course project.

In-Class Quizzes and Homework Assignments

To reinforce the contents discussed in class, there will be 5–6 in-class quizzes. And, to reinforce your knowledge and skills on the MIPS assembly programming, there will be 4–5 homework assignments to be completed individually. It is allowed to discuss with other class participants to have clear understanding of the questions. However, the discussion should be only for the clarification purpose,
and each student must complete the assignments, individually in her/his own ways. In case that we detect any offering and accepting solutions from others, all involved parties will be penalized according to the Academic Integrity Policy. *Successful completion of the homework assignments on MIPS assembly programming is very important. There will be four assignments, and you must earn > 50% on them to earn at least a C in the course (and also do well on everything else).*

Quizzes are closed-textbook, but you do not need to memorize everything for taking quizzes. You are allowed to bring 1-page (front and back) document for your reference. **Only self-prepared hand-written document will be allowed.**

Submit your work, before the announced due date/time. Late submission is allowed, **only if** you submit your work within 24 hours after the due. However, expect a grade reduction of 25% for the late submission. Submissions after 24 hours will not be accepted.

**Exams**

The Mid-Term and the Final Exam will primarily test whether you understood concepts covered in the lecture and reading. Mid-term exam will be in class. I will post the room number for the final exam in the class homepage. Both exams are closed-textbook. Again, you do not need to memorize everything for taking the exams. You are allowed to bring 2-page (front and back) document for the mid-term exam and 4-page version for the final exam. **Only self-prepared hand-written document will be allowed.**

The final exam will be cumulative. No extra time will be provided for late arrivals. Make-up exams can only be offered in the event of documented emergencies. Written permission must be obtained 48 hours before the exam if you cannot attend. In any event, make-up exams are only given at instructor discretion.

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**GRADING**

*Grading method*

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Homework (4~5)</td>
<td>200</td>
</tr>
<tr>
<td>Quizzes (5~6)</td>
<td>200</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>250</td>
</tr>
<tr>
<td>Final Exam</td>
<td>300</td>
</tr>
<tr>
<td>Class/Recitation Attendance</td>
<td>50</td>
</tr>
<tr>
<td>Maximum Points Possible</td>
<td>1000</td>
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- The TA will often check your attendance to lectures and recitations **without any prior notification**.

**Final grades**
The following are indicative of how the points on the course would be mapped to a grade. This is only indicative and may be adjusted at my discretion.

A = 90%+, B = 75-90%, C = 55-75%, D = 30-55%, F = 0-30%

Pass/No Credit (P/NC) option is not available for this course.

SCORE/GRADE APPEALS

You must make the appeal in writing. However, score changes are at the discretion of the instructor and may be up or down based upon a complete review of the work in question. It is important to recognize that a grade reflects another person’s judgment of your work. In this sense, all grading is subjective. Appealing scores is discouraged. Changing a few points on assignments rarely makes a difference in the final grade. Time is much better spent discussing and clarifying the information content presented in the course. In the event of disputes at the end of the semester, you will be required to produce the testing material in question.

In the case of a grading mistake (i.e., grade is posted incorrectly, grader did not give credit for an item that exists) you can always send me e-mail, or we can meet in office hour.

ACADEMIC INTEGRITY

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty members are required to report any suspected instances of academic dishonesty to the Academic Integrity Committee.

DISABILITIES ACT

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Department of Student Affairs, Campus Building A, Room 217, (032) 626-1132. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

CRITICAL INCIDENT MANAGEMENT

SUNY Korea expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Department of Academic Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.
COURSE EVALUATION

Your participation in the evaluation of courses through Course Evaluation System is a responsibility you hold as a student member of our academic community. The system will be open for you to complete your evaluations later in this semester. You can participate after logging in to the system with your NetID.

RIGHT TO CHANGE INFORMATION

Although every effort has been made to be complete and accurate, unforeseen circumstances arising during the semester could require the adjustment of any material given here. Consequently, given due notice to students, the instructor reserves the right to change any information on this syllabus or in other course materials.