CS/EE1012 INTRODUCTION TO COMPUTER ENGINEERING SPRING 2013

SYLLABUS

1. **Professor**: Haldun Hadimioglu
   
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2. **Course format**:
   
   Lectures: 2 hours/week
   Lecture Section: 1629

3. **Prerequisite**: None
   
   « Only those students who are **freshman** and in **Computer Engineering** can take the course.
   " Other students **must** confirm with and bring a note from their advisor to take the course.

4. **Course web page**: [http://cis.poly.edu/csee1012](http://cis.poly.edu/csee1012)
   
   « Course handout and all other files are at the course web site

5. **Textbook**:

   
   « Publisher’s web site: [http://highered.mcgraw-hill.com/sites/0072467509](http://highered.mcgraw-hill.com/sites/0072467509) has additional material including solutions to some of the textbook problems.

6. **Professor’s message**:

   « In the past students memorized text to solve exam problems!
   " They did not focus on learning
   
   « Now, students memorize past exam solutions
   « They do not focus on learning
   
   « Target **learning** and **thinking**, not the **grade** nor **pattern matching** (past exam solutions)!
   « Do **not** go for memorizing patterns (past exam solutions)
   
   « Lectures present subjects, explain why and how to use the subjects by means of **thinking**
   " Suggestions & warnings are also given avoiding pitfalls & focusing on **thinking & solving problems**

7. **Benefitting from the course for the years before and after graduation**:

   « Industry and academia look for graduates who can **solve problems**, are **systems oriented** and **creative**
   " In order to accomplish those you need to have
   " Analytical skills, synthesis skills and team work skills
   " For these three skills, you will need to develop **critical thinking** and **personal skills** for which you need to do the following
"Learning is your target!
Memorizing does not help thinking!
- You need to study books, notes, handouts, distill the concepts to learn!
- If you miss classes, you are not learning!

È You interact with people to work on a problem, to exchange ideas, to help, etc.!

All of these are possible by doing the following
È You care for the course and show with your own actions.
È You take the course to learn, not to pass!
È You take the course for its content, not for the grade!
È You attend classes and do the homework!

Then, you will enjoy the course and appreciate it which will make you more interested in the course!

After graduation, the most common way you will be judged is how you write
È Concentrate on documentation!
È Homework and exams help you practice writing: Students show work, not just the final answer

Students understand and satisfy the goals of the course which are intellectual, technical and non-technical:
1) The intellectual goals are that students learn how to learn fast and are critical thinkers. This is necessary during one’s lifetime,
   è The more you learn, the better for you. That is, do not go for the grade!
2) Technical goals are for a successful technical career: Acquiring the necessary course content which is computer layers and an understanding of Computer Engineering,
   a) Computer layers, from the application layer down to the transistor layer.
      è Continuous improvement of computers (faster, cheaper, smaller, lighter, less power consuming, more reliable) is mainly due to Moore’s law.
   b) An understanding of Computer Engineering, including, areas, applications, past, present and future of the field.
      è Seminars will be given by Computer Science and Electrical Engineering faculty members that will help students meet with faculty members, listen to their current work and discuss invention, innovation, entrepreneurship potential and ethical issues of their work.

8. CS/EE1012 Teams:
Students will form teams and do the homework together. Teams will help students understand different aspects of the course since each member of the team has his/her unique experience:
È 3- or 4-student teams are formed by the third week of the semester. Team members work on the homework assignments together until the end of the semester. If a student does not attend lectures, he/she will be separated from the team.

9. Homework:
There will be five homework assignments. The homework will be submitted by teams. An assignment submitted late will not be accepted. Author’s web site has solutions of some of the textbook problems.
È Students who do the homework are faster at solving problems. Showing work (intermediate steps) is required to get full/partial credits on a question. The homework is graded by the TA.
È Homework assignments will have sample questions and answers to help learn chapters and solve homework problems. Students need to study them before they solve homework problems, not before exams. Note that, these sample questions do not give hints about exams this semester.
È The homework will be collected during the break of the lecture on the due date. It will be on hard-copy.
10. Exams:
There will be a midterm exam and a final exam.
- **Showing work** (showing intermediate steps) is required to get full credits on a question. That is, both the final answer and the steps to get it, the approach, are important.

  These steps are given in class and sample solutions. Therefore, students are expected to solve exam questions as such. Showing the approach also helps students acquire and improve their documentation skills, critical for the technical world.

  In order to facilitate this, the exams are open book exams: students can use their own material, i.e., their books, notebooks, and handouts during the exams. Simply, students have to refer to notes and handouts as they solve an exam problem.

  **Students must prepare for the exams as if they are closed book exams!**

- In addition, remembering the following is needed during the exams:
  - No multiple answers to a question,
  - Precise answers to questions, no answers like “the rest is similar,”
  - Answering the question asked, and
  - Using the exam booklet space well: For example, start a new question on a new page.

11. Term Grade:
The term grade calculation is as follows:

<table>
<thead>
<tr>
<th></th>
<th>5%</th>
<th>40%</th>
<th>55%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- When a student’s term grade is near a grade “border,” his/her attendance and participation in the classroom are taken into account. If they are both good, the grade is raised. Finally, the professor may change the term grade computation. Thus, students are strongly suggested that they fulfill the requirements of the course, i.e., lectures and homework assignments.

12. Office Hours:
The professor has an open-door policy that if he is not busy, students can ask questions in his office. If the door is closed, he might be teaching or at a meeting. If a student wants to see the professor at a certain time, he/she makes an appointment with the professor.

- Students can use email. But, they are strongly suggested that they see the professor to ask questions, instead of sending email. If email is sent, a Polytechnic email address must be used and student’s name and section must be included. Broadcast messages will be sent to class to make announcements. Note that grades are not given out to students via email or telephone. Students need to see the professor to learn their grades.

- There is a TA to help students. The contact information and office hours of the TA will be given at the course website and in class later in the semester.

13. Material Coverage:
All chapters will be covered, some partially, some completely this semester. Students will be given additional material in class. The tentative schedule is as follows:
14. References:
Students are suggested that they study recent digital logic books since the field advances rapidly. The books below are recommended with respect to their relevance to the course and the textbook:


È A book giving insight on microprocessor design from the concept phase to the production phase : 
È A book describing how and why technical work involved in computer design and development is just a small part of a larger picture with emotions, ambitions and conflicting goals of many people involved :

15. Reminders about the course:
Students are required to read the web pages whose links are provided with at the course web site :

1) [NYU-Poly Code of Conduct web page](http://www.poly.edu/academics/code-of-conduct)

2) [NYU-Poly Life page web page with links to Health+Wellness, Campus Safety, Students Resources and other](http://www.poly.edu/life). In addition, keep the following in mind :

a) A successful course experience : To enjoy the course as much as possible and be ready for the follow up courses, students need to be committed to the course
È **Attending classes and doing the work** are needed.
È Lectures are dependent on each other.
È **Study** the notes, books, handouts. But, just reading does not mean studying ! Also, do the homework !
È **Do** not study past exams, without studying books, notes and handouts.

b) Students must realize that every action they take has consequences. They also should **not** make assumptions and decisions on the course (the exams, lectures, the homework and attendance) without asking the professor. An assumption that is often made by students is that every course is the same. This is not the case !

c) A reason for a low grade is **missing classes**. Even if one gets the notes, it does **not** help. This is because :
È The notes taken from the board may not be correct.
È Someone taking the notes may not write down all the verbal comments and suggestions made by the professor.
È Attending classes forms better memory because of visual (seeing the writing on the board), audio (listening to the professor) and tactile (writing down the notes) inputs.
During lectures, the professor refers to earlier lectures (past topics, comments, suggestions, etc.) which refreshes students’ memory and further reinforces their knowledge.

Overall, students learn and remember more. Finally, since their memory is fresh, students save time when they study for exams.

d) Missing an exam is not a minor case. A careful assessment is made to excuse a student or to grant an incomplete to a student. The professor makes the decision. The decision is made also based on the information by the student’s academic department and the Student Affairs Office. One of the requirements to excuse a student is that at the time the student is not able to take the exam, he/she be in good standing in class, i.e. has good attendance, a good homework performance and a good exam performance. The professor wants to see that the student has been committed to the course and learning the material has been his/her main objective.

A student who is excused from a midterm exam is not given a make-up exam. The weight of the midterm exam is distributed to the other exams at the discretion of the professor. The make-up exam for the final exam will be harder than the one given to the whole class.

If a student experiences any problem, including health/personal problems, he/she must immediately contact Judith Simonsen who is the director of the Student Development Office: jsimonse@poly.edu. Her number is (718) 260-3046. Her office number is LC 240C.

e) For a course, the semester is over when the final exam is over. Students are not given extra work, a project, a make-up exam or any other kind of special treatment to raise their grade during or after the semester.

f) It has been observed that a student pays unnecessary penalty, because he/she does not know/follow NYU-Poly and CS2204 rules and regulations. They also do not seek advice from Polytechnic staff. Therefore, students, especially, transfer students, are strongly suggested that they speak with the professor, the TAs, the major advisor, the personnel of the Student Affairs Office, and the Counseling Center.

g) Always keep contact with the professor. Discuss personal matters in professor’s office.

16. ABET Outcomes:
CS/EE1012 addresses the following ABET a-k outcomes:

   e) Students identify, formulate and solve problems.

   h) Broad education necessary to understand the impact of engineering solutions in a global and societal context.

   j) Knowledge of contemporary issues.