

**Stevens Institute of Technology**  
**Department of Electrical and Computer Engineering**

**EE/CpE 322: Engineering Design VI**

**Class meets once every week on Tuesday from 1:00 pm to 2:40PM or as we may adjust the ending time during the semester.**

**Catalog Description: EE/CpE 322 Engineering Design VI (1-3-2)**

This course addresses the general topic of selection, evaluation, and design of a project concept, emphasizing the principles of team-based projects and the stages of project development. Techniques to acquire information related to the state-of-the-art concepts and components impacting the project, evaluation of alternative approaches, and selection of viable solutions based on appropriate cost factors, presentation of proposed projects at initial, intermediate, and final stages of development, and related design topics. Students are encouraged to use this experience to prepare for the senior design project courses.

Corequisite: EE 345.

**Text Book:**

**Required Textbook:** *Engineering Design: A Project-Based Introduction*, C.L. Dym and P. Little, John Wiley & Sons, 2000. ISBN 0-471-28296-0

**Recommended Textbook:** *Tools and Tactics of Design*, P.G. Dominick, J.T. Demel, W.M. Lawbaugh, R.J. Freuler, G.L. Kinzel, and E. Fromm, John Wiley & Sons, 2001 ISBN 0-471-38648-0

**Instructor:**

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**Attendance:**

Attendance is expected. When you hear the word "expected", translate that into "required" - the usual understanding of "expected" in the real world. "Pop quizzes" will be given from time to time as needed to assess attendance. As Woody Allen said, "80 percent of life is showing up."

**Grading:**

Grades will be based on individual homework and reports completed by the student and on the team project developed by the student's team. The distribution of grade weights is:

Homework assignments (Assignment 1~7)	40%
Final written report (Assignment 8)	40%
Final oral presentation	10%
Attendance and participation	0-15%

## **How to Submit Homework**

### **Homework Submissions**

Each homework assignment counts equally towards the final homework grade.

Homework solutions must be submitted via email and must be pledged. The assignments will be discussed in class and posted on the class web site. You must submit your work via Stevens eMail. You may submit either MS Word (.doc or .docx) files or PDF files. Once graded, your grade will be posted on Canvas. Paper copies will not be accepted. The final report must be submitted both electronically via email and as a signed, pledged paper copy delivered directly to me. If you cannot hand the report to me at the proper time, leave it with Maria or Cecilia in the ECE office. They will time and date stamp it so you get credit for an on-time submission. **DO NOT LEAVE IT UNDER MY OFFICE DOOR** – doing so may result in a lost submission or, at best, a submission that is considered received whenever I happen to find it, days or weeks after the due date.

The course covers the tasks of developing the project concepts, but does not include development of the product. Once students have selected the project topics, subsequent homework assignments will guide the student through the steps of developing their initial concepts into a defensible project. Once student teams have been established, there should be one report submission per team, not separate individual submissions by the individual team members.

### **Note the following:**

- I teach several other courses and have MANY students in all the classes. To be sure you receive proper credit for your work, you **MUST** name your submissions properly following this format

Course Number – YourStevensEmailID-Keyword1\_Keyword2\_Keyword-HW#.doc

For example:

EE322A-bmcnair-software\_defined\_radio-HW1.doc

- Do not submit a zip file containing separate files for all of the screen shots and other information needed for the report. Your Word/PDF report should contain all of this information embedded in the report. Also, you should get familiar with the professional standards for reports you prepare. I cannot prevent you from submitting handwritten materials, but if you do so, they will only receive 1/3<sup>rd</sup> the credit of a typed submission.

### **"Final Exam"**

During the semester, you will be developing a sequence of reports representative of how an actual project report would be developed. The various assignments provide individual "sections"

of a completed project report. After completing an assignment and before writing the completed report, you may need to change what you had submitted for the given section. This is expected. However, the individual assignment "sections" should provide the raw material needed to easily assemble the completed project report.

In place of a "final exam," the final for this course will be the completed project report and an oral presentation.

## Plagiarism and Student Conduct

This statement has been added to ensure that everyone understands their obligations regarding plagiarism and unethical conduct in this course. I am a Stevens alum, so I know first hand about student obligations under the Honor System. I have also served as a faculty advisor to the Honor Board Advisory Council. I have a zero tolerance policy regarding violations of the Stevens Honor Code. ALL cases of Honor Code violations will be reported to the Honor Board and will be dealt with as the Honor Board Constitution requires.

All of your submitted work **MUST** be pledged to allow me to grade it. If you don't pledge it, I will assume it was an oversight on your part and will ask you to resubmit it. If I do not receive a pledged resubmission, I will then assume that you do not intend to submit the assignment and will record a grade of zero. Individual assignment submissions are individual work. I will clearly indicate work that is a group submission. This work must be the combined work of the group and no one else. If there is any evidence of plagiarism or other violations of the Honor Code, I will assume the student or students submitting the work were all aware of their collective actions and will hold every group member responsible for Honor Code violations unless a single group member confesses that they acted without the knowledge or involvement of the other group members.

As stated on the Stevens Honor Board web site, "The dictionary defines plagiarism as the act of "...stealing and using the ideas, writings, or inventions of another as one's own" or ".... taking passages, plots, or ideas from another and using them as one's own". Where using the ideas of another in your work, proper citations are imperative. Proper citations include:

- Identification of the author or authors
- Identification of the title of the publication
- Identification of the source of the publication
- Identification of the date of publication
- Other information that would allow a reader to find the specific item by page number, volume number, etc. if they were looking at a hard copy of the material.

For this course, most of your primary sources should be refereed magazines, journals, or conference proceedings, e.g., from the IEEE or ACM. Where you use web sites as secondary references, some of this information is not available, but you should include as much as is available and include the web site address and date of retrieval. Where it is possible to cite publication information **or** a web site, **DO NOT CITE THE WEB SITE ONLY**. For instance, the following is a proper citation.

- J.R. Pierce, "Relativity and Space Travel," Proceedings of the IRE, Vol. 47, Issue 6, 1959, pp. 1053-1061.

The following is not. No one outside of Stevens can use this to find the document, and without Internet access, it can't be verified as valid. I list this because I often receive this type of reference and grade it as no citation.

- <http://ezproxy.stevens.edu:2109/stamp/stamp.jsp?tp=&arnumber=4065783>

The following would be a much better option:

- J.R. Pierce, "Relativity and Space Travel," Proceedings of the IRE, Vol. 47, Issue 6, 1959, pp. 1053-1061. Retrieved on January 15, 2015 from:  
<http://ezproxy.stevens.edu:2109/stamp/stamp.jsp?tp=&arnumber=4065783> on January 15, 2015.

## **EE/CPE322 Design VI Course Outcomes**

2F1 (Engineering foundations) Students will be able to use block diagrams and a hierarchical representation of the project and use detailed circuit diagrams and interconnected component diagrams with technical specifications on inputs, outputs, and control to describe the detailed operation of components in the project

4F3 (Technical design) Students will be able to explore the design space of performance, features, and cost to determine the cost (fixed and operating) of a given project "product"

5F2 (Design assessment) Students will understand and apply the principles of concurrent design in the breakdown of tasks and project plans and will understand and apply Gantt chart and PERT/CPM (either or both) in the creation of a breakdown of tasks and planning the activities to complete the project

5F3 (Design assessment) Students will be able to design a system or process with considerations of economic, environmental, health and safety, manufacturability and sustainability constraints.

7F1 (Professionalism) Students will understand the associated professional responsibilities.

9F2 (Teamwork) Students will be prepared to effectively participate in and manage a multidisciplinary design team.

10F1 (Communication) Students will be able to write technical reports with sufficient clarity and accuracy.

11F1 (Ethics and morals) Students will understand the associated ethical issues.

12F1 (Social issues) Students will be able to explore the non-technical space of social requirements, with a particular concern for the social impacts (both favorable and unfavorable) of their project "product"

Revised 1/15/15