

# CSCE 489, Spring 2011

## Computer Engineering Professional Development

### Instructor

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### Course Webpage

<http://cse.unl.edu/~seth/489/>

### Prerequisites

ELEC 362 and 476; CSCE 430 and 488 (488 must be taken first and in the term previous to registering for CSCE 489. Permission must be obtained to take the courses out of sequence.)

#### Prerequisites by Topics

- Mastery of: Computer Architecture, Computer Programming, Digital System Design, and Logic Design,
- Familiarity with: professional writing and speaking styles; conventional word-processors; the particular design tools, resources and technologies available for the project; and the general topic of the project to be undertaken,
- Exposure to: the principles of professional standards, practices, ethics, and team dynamics

### Course Objectives

- Practice with a significant design project in a realistic design environment, to gain mastery of: open-ended problem solving and design skills, written and oral presentation skills, and team dynamics,
- Practice in the application of standards, regulations and professional ethics, as allowed by the context of the project.

### Relationship to ACE

**This course will satisfy ACE Learning Outcome #10:** Generate a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection.

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<sup>1</sup> More details on the relationship of course to ACE are available on the online version of the syllabus at the course website.

## Topics Covered

Precise topics vary from project to project, but include practice in the following:

- Design and implementation of a combined software/hardware project too complex for one person,
- Three written and oral reports to be written and presented as a team,
- Teamwork, collaboration, and professional conduct in uncooperative and competitive environments

## Textbook/References

There is no required textbook for the course, however, pointers to the sources of information useful for this course will be available at the course website.

## Instructor's Role

- The instructor will play the part of your "Project Supervisor". As such, he is not directly involved in the design or implementation of the project. Rather, his role is managerial and advisory.
- You may assume that your project supervisor is technically competent but not necessarily well-versed in the specific technologies that you might be using for your project.
- Furthermore, your project manager has several other projects also under his supervision, so he cannot give complete attention to yours.

## Grading Policies

### General:

- There will be no formal homework assignments.
- There will be three project reports and presentations. Refer to the class web page for the schedule.
- Each report/presentation must be self-contained. That is, when you write your report/presentation, you should assume that we know nothing about your project.
- Several times during the semester you will be asked to submit your self and peer evaluations as team members. These components will be graded individually. Also, there will be an individual component to team oral presentations.

### First Progress Report (20%):

- Scheduled approximately during the sixth week of class.
- Each team will submit a report and give a presentation to demonstrate progress on the project and likelihood of its successful completion before the end of the semester.
- The grade for each team will be based on
  - 50% on the technical merit of the design (common grade for the team)
  - 25% on the quality and clarity of the report (common grade for the team)
  - 25% on the quality and clarity of the presentation (individual grades within a team may vary)

### **Second Progress Report (25%):**

- Scheduled approximately during the 11th week of class.
- Each team will submit a report describing the first complete design.
- The report should describe the design concept, analysis of design choices and architecture, implementation, testing, any difficulties encountered, and any shortcomings in the design that would be removed in the final report.
- Each team will also give a presentation, along with a demonstration of their project.
- The grade for each team will be based on
  - 25% on the technical merit of the design (common grade for the team)
  - 25% on the quality and clarity of the report (common grade for the team)
  - 25% on the success of demonstration (common grade for the team)
  - 25% on the quality and clarity of the presentation (individual grades within a team may vary)

### **Final Project Report (30%):**

- In the finals week of the semester, tentatively, at the scheduled time for course final exam.
- In addition to the requirements for the second progress report, the final report should also analyze the cost of your project (e.g. development cost, equipment cost, and so on)

### **Self and Peer Evaluations (10%):**

From time to time you will be asked to evaluate yourself and other members of your group as part of a team by filling out a form. This feedback will help me judge individual contributions within a team. At the same time, the feedback may help me resolve potential problems in the functioning of a team before they become serious.

### **Online Documentation (5%):**

Each team should maintain an online *portal* for the project on *cse* (could be a wiki or some thing else) that documents summaries of the team's meeting among themselves and with the instructor (see the next section), a log of individual member's ideas and contributions, project progress reports, etc. Think of this as a live document of the design ideas and progress of the team for the team members and the instructor. Here are some specific guidelines for the online documentation:

1. One substantive, dated entry must be made per week describing the progress made during that week. Additional entries may be made to summarize each group meeting and to document work during more intensive periods of activity.
2. Design ideas should be recorded online *as they occur, not done hastily just to meet the requirement.*
3. Whenever possible, enhance text presentation with graphics, photos, or videos.
4. Include results of testing and a history of revisions of your design.
5. Include a written overview of all algorithms (e.g. written summaries, pseudo-code, or flowcharts) and well documented listings for all code.
6. Record any sensor calibration data that are taken.

**Weekly Meetings: (10%):**

I will schedule a weekly meeting with every team at a mutually convenient time. Before each meeting, the team should have updated its online document to include a 1-2 page report to document: (a) the goals for the next week, (b) the progress during the past week, and (c) how well the goals for the past week were achieved.

Lack of active participation in the weekly meeting, including attendance, may result in a lower grade for individual team members.

**Grading**

Final grades will be assigned approximately based on the following scale.

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
97%-100%	93%-96%	90%-92%	87%-89%	83%-86%	80%-82%	77%-79%	73%-76%	70%-72%	67%-69%	63%-69%	60%-62%	below 60%

**Academic Integrity**

Because of the nature of this course, the issues of academic integrity generally arise from plagiarism of ideas, codes, and written material. Be careful to provide *full attribution* when you borrow ideas or material from *any outside source*. When in doubt, check with me. For more details, please see the CSE Departmental [Academic Integrity Policy](#).