CSCE486: Computer Science Professional Development
Fall 2010, Course Syllabus
8:30-9:20pm Monday, Wednesday, and Friday in 111 Avery Hall

Instructor

Matthew Dwyer
email: dwyer at cse dot unl dot edu
phone: 472-2186
office: 365 Avery Hall
office hours: by appointment

Lab TA

Ben Christensen
email: christb at cse dot unl dot edu
office: 13A Avery Hall
office hours: 9:30-11:30 AM Monday

Prerequisites

CSCE 361 (Software Engineering); Must be taken exactly one semester before CSCE 487.

Prerequisites by Topic:

1. **Familiarity** with: professional writing and speaking styles (in a general context), conventional word-processors, computer organization, logic design, and computer programming,
2. **Exposure** to: the concepts and principles of professional ethics & team dynamics,

Course Goals

The 486/487 course sequence is unique among your undergraduate courses in aiming to prepare you for the professional life after graduation. For a successful engineering career, technical knowledge is certainly necessary but not sufficient. Proficiency in technical communication, ability to work in a team, and awareness of professional ethics are just as important. All of these elements are brought together in the 486-87 course sequence under the guise of a team project that you conceive, develop in sufficient detail to demonstrate its feasibility, and report on it both in writing and orally.

Course Objectives:

1. **Familiarity & practice** using design tools, resources, platforms & technologies to be used in CSCE-487, as well as selection of candidate project topics for CSCE-487.
2. **Familiarity** with professional standards, practices, regulations & ethical issues in a Computer Science and Engineering specific environment, professional organizations (ACM and/or IEEE), post-graduate education and continuing education opportunities
3. **Practice** in critical thinking, designing and analyzing experiments, technical writing, & oral presentation skills, all in a Computer Science specific environment.

The course will also help you learn the following:

- *Reading Comprehension.* Read and critique technical material effectively.
- *Project Design.* Work in teams to brainstorm on ideas for a substantial team project that you might carry out in 487.

- *Writing and Oral Communication.* Report on your project proposal both in writing and in oral presentations according to professional norms.
- *Design Implementation.* Realize and report on a component of your proposed project according to a well-defined schedule

Required Materials

- *Inviting Disasters: Lessons from the Edge of Technology* by James R. Chiles, Collins; Reprint edition (September 1, 2002), ISBN: 0066620821. (Link to the book on Amazon.com and at the publisher's website)
- Documentaries and online material for which links will be provided on the class web page.

Class Schedule

In the first half of the semester, we will meet jointly with CSCE 486 at the scheduled time, but not always following the standard lecture format. Specifically, we will use the class time in the following ways:

- Have oral class discussions on materials learned from the textbook and other sources.
- Have presentations of project pre-proposals and mini-projects.
- View and discus documentaries and online materials related to ethics and engineering design.
- Listen to and discuss guest lecture(s).

In the second half of the semester, the format will dissolve into the instructor and the TA meeting with individual groups to discuss progress on project work. A tentative schedule appears on the next page.

ACE Compliance

This course fulfills two of the three required credit hours for ACE Student Learning Outcome (ACE SLO 8) on ethics, civics, stewardship, and their importance on society. Most students should have completed the other credit hour required for ACE SLO 8 by completing CSCE230 Computer Organization. Otherwise, students (especially transfer students) may fulfill the requirement by completing any course providing credit hours applicable to ACE SLO 8.

With respect to ACE SLO 8, you will have the opportunity in this course to learn the necessary critical skills and will be assessed on what you have learned. Specifically, through the textbook and online documents, you will learn about events of high societal impact resulting from poor ethical choices, lack of civic responsibility, or inadequate stewardship of the environment. After this, you will be given assignments involving discussions, writing and oral presentations. One assignment will ask you, individually, to participate in oral discussions on professional ethics in cases involving disasters (such as Gulf oil blowup, Enron, Challenger), new technologies (such as robotics), or plagiarism. In another assignment, you will work in groups to identify and analyze an event exemplifying either the observance or neglect of ethical principles, civics, or stewardship. The outcome of the analysis will be a written report that will count towards your team score. Finally, you will have the opportunity to put the learned ideas into practice when you work on your team proposal by considering questions like: How might the project impact the society or the environment in positive or negative ways? Are there any design flaws that might have severe consequences if the project were deployed widely? Further, you must ensure that in all your design work and written reports, all ideas are documented responsibly, all prior work is referenced and properly cited, and all borrowed material – text or otherwise – is properly acknowledged. In summary, learning opportunities for SLO 8 topics arise from (1) the reading, viewing, and discussion of the required materials, (2) an investigative case study, and (3) the development of a proposal for the capstone design project. The grading rubric in the next section shows the relative weights assigned to these SLO-8 related assignments.

Progress Assessment Tests (PATs)

As part of CSE's assessment of its academic programs, every student in this course must take a series of Progress Assessment Tests (PATs) throughout the semester. Five different times this semester, (approximately 3 weeks apart) you will have one week to go to the Arts & Sciences Testing Center in 127 Burnett Hall to take a proctored exam in Blackboard of 30–40 multiple choice questions based on content of courses you've taken as part of your degree program. This series of exams will count towards [10]% of your final grade.

Grading

Apart from the PATs there are no other tests in this course. Your grade for the course will involve team work (70%) and individual work (30%). There will be four team assignments and two individual assignments mirroring the essential aspects of a professional life: technical research, critical summary of technical writing, behavior informed by ethical standards, and most importantly, successful work on a complex project requiring design specification, team work, planning, and scheduling for timely completion. The relative weights of the six assignments will be as follows:

0. (Individual) Progress Assessment Tests	10%
1. (Individual) Written report on technical research	10%
2. (Team) Oral critique of old project reports	10%
3. (Team) Reading comprehension, oral presentation, and leading technical discussion (based on the textbook)	10%
4. (Team) Written preproposal for the project	20%
5. (Individual) Classroom participation in discussion on professional ethics, etc. (Your attendance is a part of this)	10%
6. (Team) Oral presentation of the project preproposal and mini project implementation	30%

Final grades will be assigned based on the following cutoff percentages:

A+	A	A-	B+	B	B-	C+	C	C-	D	F
97	93	90	87	83	80	77	73	70	60	<60

Tentative Schedule

WEEK	TOPICS	ASSIGNMENTS
1	Course syllabus, getting started with projects	Assignment. 1 (due in 2 weeks), Assignment. 2 (spans several weeks)
2	Previous projects, Imagine Cup	Assignment 3 (spans several weeks), Team work and project ideas
3	Professional ethics (documentaries, videos)	Assignment 4 (due mid-semester) Assignment 5 (class discussion) Team work and project ideas
4	Student presentations (Assignment 2)	Assignment 6 (due end-semester) Team work and project ideas

5	Student presentations (Assignments 2 and 3)	Team work
6	Student presentations (Assignment 3)	Team work
7	Student presentations (Assignment 3)	Team work
8	Student presentations (Assignments 3 and 4)	Team work
9–15	Project work (individual group meetings)	Team work
16	Final demo and presentations (dead week and or finals week)	

Help

The CSE Systems FAQ provides helpful information for computer users. The CSE Student Resource Center provides general student assistance. Course-specific assistance should be sought from the course instructor or teaching assistant.

Policies

Late Work: All work must be completed when due; late submissions will not be accepted.

Attendance: You are expected to attend all the classes and must provide a reason for missing a class **before** the class.

Students with Disabilities: All reasonable accommodations will be made for students with learning disability. Contact the instructor as soon as possible.

Cell Phones, Laptops, iPod: Turn off or silence your cell phone at the beginning of the class. Do not use laptops or iPods during the class unless explicitly allowed to do so.

Integrity: All use of the CSE Department's computing resources is subject to the UNL Computing Policy. The CSE Department has adopted a new academic integrity policy that requires reporting of all incidents of academic dishonesty to the CSE Department office. You are responsible to read the policy and adhere to it. While it can be permissible to discuss problems in general terms with others, **you must do all class work independently or as a team (depending on the assignment). Representing the work of anyone else as your own or your group's, in whole or in part, is plagiarism. Sharing your work with others in the class is equally serious.** Make sure that all your files are protected. You will be accountable if someone copies your work and hands it in. Students whom I determine are guilty of academic dishonesty will receive an F in the course and I will refer all cases of academic dishonesty to the CSE Department and the University with my recommendation for expulsion.

I welcome any comments or suggestions you wish to make at any time during the semester. I plan to be flexible in conducting this class and your input will help me refine the course. I have posted office hours when I will make every effort to be in my office, but I sometimes have other commitments so if it is important to see me try to make an appointment. I am here most daytime hours and can usually take time to talk, so feel free to drop by most any time. Also, email is one of the best mechanisms for contacting me.