

Spring 2009 THE PENNSYLVANIA STATE UNIVERSITY IE 480W Capstone Design Project

Instructors:

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Office Hours: By Appointment

Prerequisites: Senior Standing

Class Meeting Times:

T: 11:15 am – 2:15 pm; R: 1:00 pm – 2:15 pm in room 103 Leonhard building.

Class meeting times are to be used flexibly for: instructor lectures, project team presentations, instructor-project team meetings, and project team meetings.

Text: Reference Material posted on ANGEL:
Guide to Deliverables
Effective Use of Language in Proposals and Reports
Managing Design Projects
Industry Project Team Responsibilities

Objective:

The objective of the course is to provide you with “real-world” industry project experience. Through this project you will learn team skills, develop your ability to communicate (oral and written), develop project planning and management skills, and solve a real problem of importance to your sponsor.

Professional Conduct:

You are expected to conduct yourself with the utmost personal and professional integrity during all project activities and business. Your overall performance in the class will be evaluated and your professional conduct is an important component of that evaluation. You must strive to complete all your work with responsibility, honesty and loyalty. As a student in this Capstone Design Project Course you are representing yourself as a professional in the field of engineering and you are also representing The Harold and Inge Marcus Department of Industrial and Manufacturing Engineering at The Pennsylvania State University.

Content:

In this course as in industry, along with the technical solution you provide, your ability to communicate your ideas is very important and will be carefully assessed. You will be developing and presenting a formal project proposal, an interim report on your progress, and a final project report. You will also be making weekly project updates to capture your ongoing work and discussions with your project sponsor. These means of communicating your work are described below. Refer to the “Guide to Deliverables” for more details on each component.

Weekly Project Update Memo: A weekly memo to the sponsor will be written and turned in to your advisor by 7:00am each Monday. This memo should address what was done the prior week and what work is planned for the following week.

Project Proposal: The proposal is due 2/12 (in class). An in-class presentation of the proposal is required (scheduled times will be determined). This proposal and its presentation will provide identification and definition of the problem; background on the company, current design/system, etc.; proposed methodology and approach with appropriate measures and metrics; project management including Gantt and CPN charts of activities; and anticipated results and deliverables.

Interim Progress Report: A major progress report is due 3/19 (in class). An in-class presentation of the interim report is required (scheduled times will be determined). The progress report and its presentation should: review the problem definition, current product/system/service, and proposed solution methodology; show progress to date; review progress from a project management (timing) standpoint, noting any future changes in project timing; and indicate the work remaining and anticipated changes in direction.

Final Report and Showcase: The final report is due 4/16 (in class). An in-class presentation of the final report is required (scheduled times will be determined). You will also prepare a poster for the Project Showcase on 4/29. The entire group is expected to attend the Showcase subject to class conflicts. You are also obligated to schedule and make a final project presentation to your sponsor and submit the final report to them prior to 5/1 by 5:00pm.

For each of the above components, you will be turning in the deliverables to your advisor and this version (Version 1) will be graded. Your advisor will make comments and corrections that you must address in a revised version (Version 2) then submit to your sponsor.

It is also important that you learn to be an effective participant in a group setting. So, your participation and group contributions will be assessed as indicated below.

Participation and Peer Evaluation: Participation and attendance is an important portion of this course. During the beginning of the semester, in-class time will be used to provide professional background and orientation that will be helpful for your projects. Other in-class time will be used for project presentations and discussion. You are expected to be in class unless there is a pre-approved extenuating circumstance.

Part of this course also covers your ability to function effectively as part of a team. You will evaluate your project partners three times throughout the semester. These peer evaluations will be used as part of your grade for the course.

A final component of this course is to impart an understanding of ethical responsibilities. An ethics video will be shown on 1/20. You will be assessed on your understanding of the concepts presented in the video via a one-page essay. Further instructions will be distributed separately.

ABET 2000 Outcomes:

- 3.1 - Present engineering study results in technical reports and orally.
- 3.2 - Demonstrate life-long learning by synthesizing information from several sources.
- 4.1 - Work effectively in groups on case studies/projects.
- 4.3 – Understand professional and ethical responsibilities
- 1.7 – Able to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability. Incorporate appropriate engineering standards.

Grading:

Weekly Project Updates	10%
Project Proposal Deliverables	20%
Interim Progress Deliverables	20%
Participation/ Peer Evaluations	09%
Ethics Assignment	01%
Final Deliverables	30%
Overall Quality	10%
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	100%

Schedule:

Lectures and faculty-led discussions are *italicized*. Major due dates and student activities are in **bold**.

Class Session	Date	Activity
1	T 1/13	Introduction
2	R 1/15	<i>Project Kickoff</i>
3	T 1/20	Professional Ethics Video
4	R 1/22	Ethics Essay Due (in class) <i>Proposal Preparation, Project Management</i>
	F 1/23	Initial company meeting scheduled by 5:00pm
5	T 2/03	Group meetings, consultation
6	R 2/05	Group meetings, consultation
7	T 2/10	Group meetings, consultation
8	R 2/12	Project Proposal due
9	T 2/17	Proposal Presentations
10	R 2/19	Proposal Presentations
11	T 2/24	Group meetings, consultation
12	R 2/26	Group meetings, consultation
13	T 3/03	Group meetings, consultation
14	R 3/05	Group meetings, consultation
15	T 3/10	Spring Break
16	R 3/12	Spring Break
17	T 3/17	Group meetings, consultation
18	R 3/19	Interim Progress Report due
19	T 3/24	Progress Report Presentations
20	R 2/26	Progress Report Presentations
21	T 3/31	Group meetings, consultation
22	R 4/02	Group meetings, consultation
23	T 4/07	Group meetings, consultation
24	R 4/09	Group meetings, consultation
25	T 4/14	Group meetings, consultation
26	R 4/16	Final Report Due
27	T 4/21	Final Presentations
28	R 4/23	Final Presentations
29	T 4/28	Final Presentations
30	W 4/29	Project Showcase; Poster presentation
	F 5/01	Final Presentation to company sponsor completed and Final Report Delivered by 5:00pm