

Fall 2012 THE PENNSYLVANIA STATE UNIVERSITY

IE 480W Capstone Design Project

Instructors:

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Office Hours: By Appointment with your advisor.

Prerequisites: IE 302, IE 305, IE 327, IE 323, IE 330, IE 405

Class Meeting Times:

T: 11:15 am – 2:15 pm; R: 1:00 pm – 2:15 pm in room 103/242 Leonhard building.

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

Text:

Reference Material is posted on the Learning Factory website: www.lf.psu.edu

Project packet: <http://www.lf.psu.edu/Instructors/Projects/>

Objective:

The objective of the course is to provide you with “real-world” industry project experience. You will learn how to work effectively in teams, 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, your ability to communicate your ideas is very important and will be carefully assessed. You will be writing and presenting a formal project proposal, an interim report on your progress, and a final project report. You will also be writing weekly progress memos to capture your ongoing work and participating in weekly conference calls with your project sponsor. These means of communicating your work are described below.

Weekly Progress Memo: A weekly memo to the sponsor will be written and turned in to your advisor by 7:00 a.m. each Monday. This memo should follow the *Weekly Progress Report Template* available on ANGEL under Lessons. You will also schedule a weekly meeting with your advisor and a weekly conference call with your project sponsor.

Project Proposal: The proposal is due to your advisor on 09/20. An in-class presentation of the proposal is required (scheduled times will be determined). This proposal and its presentation will provide 1) identification and definition of the problem; 2) background on the company, current design/system, etc.; 3) proposed methodology and approach with appropriate measures and metrics; 4) project management including Gantt charts of activities; and 5) anticipated results and deliverables. The proposal will follow Proposal Report Guidelines that will be supplied by your faculty mentor.

Interim Progress Report: A major progress report is due to your advisor on 10/18. The progress report should: 1) review the problem definition, current product/system/service, and proposed solution methodology; 2) show progress to date; review progress from a project management (timing) standpoint, 3) noting any future changes in project timing; and 4) indicate the work remaining and anticipated changes in direction. Follow Interim Report Guidelines that will be supplied by your faculty mentor.

Final Report and Showcase: The final report is due to your advisor on 12/04, and it will follow Final Report Guidelines that will be supplied by your faculty mentor.

An in-class presentation based on the final report is required (scheduled times will be determined). You will prepare a one-page project recap summary and a poster. The entire team is expected to attend the Project Showcase to present your poster on 12/13 subject to class conflicts. You will schedule and make a final project presentation to your sponsor by 12/13 and deliver a printed final report to your sponsor no later than 12/14.

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 team setting. Your participation and team contributions will be assessed as indicated below.

Participation and Peer/Sponsor Evaluation: Participation and attendance is an important portion of this course. At the beginning of the semester, in-class time will be used to provide professional background and orientation that will be helpful for your projects. Later, some in-class time will be used for project presentations and discussion. You are expected to be in class for background sessions and project presentations 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 be asked to evaluate your team members throughout the semester. Your Company Sponsor will also provide an evaluation of each individual team member. These peer and sponsor 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 09/04 with an assignment that will assess your understanding of the concepts presented in the video and the relationship to the *Code of Ethics for Engineers*. Further instructions will be distributed separately.

ABET 2000 Outcomes:

- ☐ 3.1 - Present engineering study results in technical reports and orally.
- ☐ 3.2 - Demonstrate independent learning by synthesizing information from several sources.
- ☐ 4.1 - Work effectively in groups on case studies/projects.
- ☐ 4.3 – Understand professional and ethical responsibilities
- ☐ 1.6 –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.

Grading:

Weekly Project Updates	10%
Project Proposal Deliverables	20%
Interim Progress Deliverables	10%
Participation/ Peer/Sponsor Evaluations	15%
Ethics Assignment	05%
Final Deliverables	30%
Meeting Sponsor's Project Objective	10%
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	100%

A grade of “Incomplete” will be assigned to teams until they submit all final deliverables to the project sponsor and the Learning Factory.

Late submission of intermediate deliverables will result in a reduced grade for that deliverable.

The above grading scale applies to team members who make significant and sustained contributions to the team's technical work, to the team's project management, and to the team's deliverables. A team member who fails to contribute in all of these areas harms the team's final product, and his or her grade will be penalized accordingly.

Disabilities:

“Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at <http://equity.psu.edu/ods/>.

In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at <http://equity.psu.edu/ods/guidelines/documentation-guidelines>). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.”

Schedule:

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

NOTE: Additional lecture/discussion topics may be covered on days listed as “Group meetings, consultation” as needed.

Class Session	Date	Activity
1	T 08/28	<i>Introduction, Requirements, Project Descriptions, Project Management</i>
2	R 08/30	Project Kickoff, BJC, South Annex Gym 1-3:00pm – Business Casual Dress Submit Project Preference Form at the kickoff to Ms. Cindy Winkelblech.
3	T 09/04	<i>Project team and advisor assignments, Professional Ethics Video</i>
4	R 09/06	Ethics Essay Due, procedures for expense reimbursement.
	F 09/07	Email advisor with Project Management responsibilities and scheduled date/time of your first meeting with your sponsor by 5 p.m.
5	T 09/11	Group meetings, consultation
6	R 09/13	Group meetings, consultation
7	T 09/18	Group meetings, consultation
8	R 09/20	Project Proposal due
9	T 09/25	Proposal Presentations (scheduled with your advisor)
10	R 09/27	Proposal Presentations (scheduled with your advisor)
11	T 10/02	Group meetings, consultation
12	R 10/04	Group meetings, consultation
13	T 10/09	Group meetings, consultation
14	R 10/11	Group meetings, consultation
15	T 10/16	Group meetings, consultation
16	R 10/18	Interim Progress Report due
17	T 10/23	Group meetings, consultation
18	R 10/25	Group meetings, consultation
19	T 10/30	Group meetings, consultation
20	R 11/01	Group meetings, consultation
21	T 11/06	Group meetings, consultation
22	R 11/08	Group meetings, consultation
23	T 11/13	Group meetings, consultation
24	R 11/15	Group meetings, consultation
		Thanksgiving Holiday
25	T 11/27	Group meetings, consultation
26	R 11/29	Group meetings, consultation
27	T 12/04	Final Report Due
28	R 12/06	Final Presentations (scheduled with your advisor)
29	T 12/11	Final Presentations (scheduled with your advisor)
30	R 12/13	Project Showcase Poster presentation 1-3:30 BJC, South Annex Gym, Final Presentation to sponsor
	F 12/14	Poster, electronic Final Report, and one page summary delivered to Learning Factory by 4:00pm. Printed and bound Final Report delivered to sponsor.