IND 70A&B - Industrial Systems Design (Fall 2012 and Winter 2013)

Tentative Lecture Schedule:

The tentative lecture schedule for the fall is provided in the table below. Every attempt is made to provide a schedule that is complete and that provides an accurate overview of the course. However, circumstances and events may make it necessary to modify the schedule during the semester.

Class No. & Date	Tentative (!) Lecture Topic
1 (6-Sept-12)	Course Introduction
2 (13-Sept-12)	Review of Year-Long Design Project Requirements
3 (20-Sept-12)	Special Topics in Design: Engineering, Business and Society
4 (27-Sept-12)	Special Topics in Design: Design for Environment
5 (4-Oct-12)	Special Topics in Design: Industrial Product & Process Design
6 (11-Oct-12)	Special Topics in Design: Design for Energy Efficiency & End of Life
7 (18-Oct-12)	No class
8 (25-Oct-12)	No class
9 (1-Nov-12)	Consultations on One-Semester Team Project
10 (8-Nov-12)	Consultations on Year-Long Design Projects (Groups 1-4)
11 (15-Nov-12)	Consultations on Year-Long Design Projects (Groups 5-8)
12 (22-Nov-12)	Presentations for One-Semester Team Project
13 (29-Nov-12)	Presentations for One-Semester Team Project

Details on the Winter 2013 lecture schedule will be provided in January. The Winter 2013 lectures will consist primarily of presentations by external speakers. Attendance to these presentations is required.

Tentative Lab Schedule:

Labs are intended for work on the course projects. There are no formal lab requirements in the course and attendance will not be taken during the lab periods unless they are required for external speaker presentations. Work space has been set aside in both KHE 119 and KHE 137 for project-related work. It is anticipated that students will also use this time to spend time at the companies for their year-long design projects.

Deadlines:

A summary of the preliminary deadlines for the Fall 2012 semester is provided in the table below. These deadlines may be modified at the discretion of the instructor. The deadline is 4:00 p.m. of the date noted in every case. Winter 2013 semester deadlines will be provided in January.

Deliverable	Deadline*
Identify company project (complete "Design Project Supervisor Agreement Form")	September 21
Identify faculty supervisor (complete "Design Project Topic Choice Form")	September 21
Complete year-long design project proposal (letter of intent)	October 12
Complete one-semester project final report	November 22
Present one-semester design project	November 22&29
Complete year-long design project interim report	November 30
Complete individual design project final report	TBA
Present individual design project	TBA
Complete year-long design project final report	TBA
Complete year-long design project conference paper	TBA
Present year-long design project	TBA

*Note: The final design report, conference paper, and presentations for the year-long design project are due in the Winter 2013 semester. An individual design project must also be completed during the Winter semester. Exact dates will be provided in January 2013.

Supervisor Meetings:
Teams are expected to meet regularly with their faculty supervisor to receive feedback on the progress of their year-long design projects. The frequency of these meetings should be determined in consultation with the faculty supervisor.

Course Evaluation:
As noted in the course outline, the course evaluation is divided into three key projects:
- One-semester team project   20%
- Individual projects   15%
- Year-long team projects   65%

The allocations for each project are provided below. There are penalties for late submissions.

Project	Deliverable	Percent
One-semester team project	Final report	12%
	Presentation	8%
Individual projects	Final report	10%
	Presentation	5%
Year-long projects*	Interim report (100% faculty advisor)	6.75%
	Final report (80% faculty advisor; 20% associate examiner)	37%
	Conference paper (60% faculty advisor; 40% associate examiner)	10%
	Presentation (50% faculty advisor; 50% associate examiner)	8%
	Attendance for speaker presentations	3.25%
Total		**100%**

Note: The year-long projects are evaluated by the faculty advisor and an associate examiner from the Department of Mechanical and Industrial Engineering.

As noted on page 1, students are also expected to meet with the course coordinator on the projects during weeks 9 through 11. All team members are expected to attend. The purpose of these meetings is to briefly review progress on the projects, to discuss ongoing challenges, and to provide any needed clarification on expectations for the deliverables. No marks are awarded for these consultations.

One-Semester Team Design Project Expectations:
The one-semester team project requires the completion of a final report and presentation. A summary of the requirements for each deliverable is provided below.

Final Report
The final report must be typed in the Times New Roman style using 12-point font with 1.5 line-spacing. The maximum length of the final report is thirty (30) pages. There is some flexibility on the structure of the report. However, all reports must address the requirements of data collection, analysis, and (re)design. Keep the following in mind when developing the final report:
- *Title:* The title of the project should be clearly presented.
- *Introduction:* A brief introduction to the project, including a description of the problem, should be provided. A design problem statement should be provided. The boundaries and limitations for the project should be addressed.
- *Current System Analysis*: A detailed analysis of the current system should be provided.
- *Design Approach:* Describe the general design approach being used, the methods used, and the data collected.
- *Alternatives Analysis and Selection:* Explain the design alternatives that were explored, how the alternatives were evaluated, and the results of the evaluation.

- *Design*: The detailed design for the selected alternative should be provided. Any suggested modifications to the current system should be supported by appropriate analysis. Costs should be considered as a part of the analysis.
- *Conclusion*: Summarize the final design solution and why this is the best solution for the stated design problem. A detailed set of supported recommendations should be provided.
- *Bibliography*: Briefly summarize what literature (reports, scientific articles, standards etc.) were used for the project. Note that relevant literature should be cited at the relevant place in the report. Use the APA style for referencing.
- *Appendices*: Appendices may be used if necessary. This is where raw data and working materials may be made available to the reader.

Presentation

The duration of the presentation is 12 – 15 minutes. All team members must participate in the presentation. The presentation will be followed with a question and discussion session. The presentation should roughly follow the format of the final report. In developing the presentation, the following guidelines should be applied:

- *Title*: A slide with the project title and the names of the team members should be the first slide in the presentation.
- *Introduction*: Key background information on the project should be provided. This includes a profile on the project, including the design problem statement.
- *Current System*: The current systems relevant to the project should be reviewed. Problems with the current system should be highlighted.
- *Design Approach*: A brief overview of the approach used in the project should be provided.
- *Alternatives*: A summary of the alternatives considered to address the problem should be provided. Methods used to evaluate the alternatives and to select the preferred alternative should be discussed.
- *Design*: The detailed design for the selected alternative should be explained.
- *Conclusion*: Key conclusions, including recommendations, should be concisely presented.

Individual Design Project Expectations:
The individual design project requires the development of a final report and a presentation.

The final report must be typed in the Times New Roman style using 12-point font with 1.5 line-spacing. The maximum length of the final report is ten (10) pages. As with the one-semester team project, there is some flexibility on the structure of the report. However, the same sections identified in the section on the one-semester team project should be addressed.

The duration of the presentation is 4 - 5 minutes. The presentation should roughly follow the format of the final report. Again, in developing the presentation, it is suggested that the guidelines for the one-semester team project are applied.

Year-Long Team Design Project Expectations:
A detailed handbook for the year-long design project has been prepared by the Industrial Engineering program. The handbook will be provided to all students in the course. Students should follow the guidelines provided on the proposal, interim report, full report, conference paper, and presentation. An electronic template for the conference paper will also be provided. Students must follow the guidelines in the conference paper template.