

UNIVERSITY OF ILLINOIS AT CHICAGO
DEPARTMENT OF MECHANICAL ENGINEERING
ME/IE 396: SENIOR DESIGN
FALL 2002

Instructor & TA

Instructor: Dr. Wei Chen Office: 3027 ERF, Phone: 996-6072
Email: weichen1@uic.edu
Office Hours: Mon. 3:00-5:00 pm, Wedn. 2:00-4:00 pm
TA: Graduate students in Integrated DDesign Automation Laboratory
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Class Website www.uic.edu/labs/idel/, choose “Teaching”, then select “ME/IE396 Spring 02”

Textbook:

Engineering Design Methods: Strategies for Product Design, Cross, Nigel, 3rd Edition, John Wiley & Sons, 2000.

Objective:

To provide senior mechanical and industrial engineering students with an open-ended problem-solving experience that requires them to synthesize the learning from individual courses through an authentic engineering design problem. Students will be exposed to systematic approach to the design process, creative problem solving techniques, and design methodology and engineering principles applied to open-ended design problems. In addition to the technical aspects of the projects, student groups of three-to-four will experience working in teams toward a common goal and will enhance their communication skills through proposal and report writing and oral presentations.

Prerequisite:

Senior standing; or completion of all core courses and consent of the instructor.

Project Management:

Each team should be formed by 3-4 team members, with an elected team leader. Students will form their own teams and will select their own problems (within certain limits which will be discussed in class). A list of available projects is posted at the class website.

Subsequent to the formation of design teams and the selection of a design problem, the team will meet with the instructor on a regular basis (schedules to be determined). During these meetings, the teams are expected to provide oral presentations of their technical progresses and to submit their design log books for review. It is recommended that each team identify an advisor from the faculty of

Mechanical & Industrial Engineering (or others familiar with the topic) as the technical consultant on an informal basis.

The teams are expected to keep a close contact with the sponsor of the project. It is advised that the teams make site visits to the sponsor to learn more of the problem first-hand and meet sponsor personnel who will be involved in the project. Student/sponsor interactions can also be carried out via email and telecommunications. During the semester-long projects, the minimum documents sponsors receive from students include the project proposal, one interim report, and a detailed final report. Students make final presentations before the start of final exams. Sponsors are invited to attend the final presentations on the campus of UIC. Students are encouraged to make a final trip to the sponsor to present their findings.

Grading:

The student earns the five (5) credits assigned to this course by successfully completing his/her part of the group design project. The final grade will be based on both the individual's performance, and on the team performance. More details of the criteria for grading oral presentation and written documents will be provided. Weighting factors for grading are listed as follows.

Group Proposal	10%
Interim Report	15%
Draft of Final Report	10%
Final Written Report	25%
Progress Report (Oral Presentation)	20%
Final Presentation	10%
Log Book	10%

Sponsors' inputs will be solicited in final grading.

Class Attendance Policy

Regular and punctual attendance at all class meetings, meetings with the instructor, group meetings, and other meetings is the responsibility of the individual student. It is specially important in this course because of the team design effort. Those habitually absenting themselves from design meetings will FAIL this course. Please keep in mind that you have a professional responsibility to both your sponsor and to members of your team and to your faculty advisor to maintain a proper level of work. Keep your team members informed of your schedule and your plans to be away.

Important Due Dates

Finalization of Groups and Projects	September 9 (Mon.)
Proposal	September 18 (Wedn.)
Interim Report	October 17 (Thurs.)
Draft of Final Report	November 25 (Mon.)

Final Presentation
Final Report

December 2, 4, 5.
December 11 (Wedn.)

Lecture Schedule:

Lecture sessions will be given more frequently at the beginning of the semester than the latter part. The whole class will meet on the dates listed as follows. This schedule also reflects the instructor's business travel plan (out of town on September 2-5, September 28-October 2). Three individual group meetings with the instructor will be scheduled during the period of September 23 – November 22.

DATE	TOPIC	READING
8-28 (Wednesday)	Course Introduction	Project Description
8-29 (Thursday)	The Design Process	Chapters 1, 2, 3, 12
9-4 (Wednesday)	Group Discussion	
9-9 (Monday)	Problem Definition	Chapters 4, 5
9-11 (Wednesday)	Problem Definition	Chapters 6, 7
9-12 (Thursday)	Problem Definition	Chapter 8
9-18 (Wednesday)	Concept Generation	Chapter 9
9-19 (Thursday)	Alternative Evaluation	Chapter 10
9-26 (Thursday)	Alternative Evaluation	
10-10 (Thursday)	Engineering Analysis/Interviewing Skills	
10-24 (Thursday)	Design Synthesis	
11-7 (Thursday)	Design Evaluations	
11-25 (Monday)	Non-Engineering Issues	
12-2 (Monday)	Final Presentation	
12-4 (Wednesday)	Final Presentation	
12-5 (Thursday)	Final Presentation	