ME495 SENIOR CAPSTONE DESIGN
SPRING 2011

COURSE SYLLABUS

Prof. T. A. de Winter
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Office hours: Monday 7-8AM, 2-4PM
Tuesday 7-11:15AM, 1-4PM
Wednesday 7-8AM, 2-4PM
Thursday by appointment only
Friday 7:00-11:00AM
Classroom: 8 St. Mary's Street, Room PHO-205
Time: Monday, Wednesday 8:00-10:00AM
Project Laboratory: 730 Comm. Avenue, Room ENA-222
Agganis Arena: Section 112, Row Q, seat 2

COURSE DESCRIPTION

The Senior Capstone Design course requires the successful completion of an assignment in industry by a team of Manufacturing Engineering seniors. It will be an assignment, which will have to be defined, interpreted and solved by the group. No two groups will have the same assignment although it is possible if not likely that more than one group could be assigned at the same client company. It is a requirement for graduation. Each team is expected to visit its industrial client at least one day per week during the course of the semester. There will be no incompletes given in the course.

Attendance at the regularly scheduled class time is mandatory. It is the intent to have each group report regularly in class on the progress it is making on its assignment. This will allow each group to share to some extent in the experiences of the other groups. The assignments will vary widely in objectives, means of solution and outcomes. Awareness of the other projects will give each student more of a sense of the flavor of assignments in the real world. The progress reports by each group will require each member to report on work done by that member and presentation quality as well as presentation substance will be subject to comment during the group's report. In past semesters, the membership of each group has been, for the most part, determined voluntarily by the members. In most cases the client company and the project have been selected by the group as well. The group membership, the client company and the project are subject to approval by the instructor.

Each group has to schedule a weekly one hour meeting with the instructor to report on the status of the assignment. The meetings will be held in Room 138, 15 St. Mary's Street or in the ME495 laboratory at 730 Commonwealth Ave, Room ENA-222. In the event there is a need for the use of the PC's in the description of the status of the project or a demo of something available in the project lab, a meeting can be scheduled in the project lab(Room ENA-222)

At the conclusion of the semester, each student will be required to grade the contribution of the other team members. The grade each student receives will take into account the group's success and the individual's contribution based on the judgement of the students peers and that of the instructor. The successful completion of a project for a client company does not imply that all team members will receive a passing grade.

Each team member is required to keep a log showing any original individual analyses, calculations, discussions, logs or notes of telephone conversations and meeting notes. All entries shall show date and time of the entry. The logs should be kept in a square ruled bound notebook, samples of which can be seen in the instructor's office. The logs should be available for inspection by the instructor at all class and individual group meetings with the instructor. The instructor will periodically initial the latest entry as evidence of having submitted the log. Group members may at their discretion enter the notes of other members in their logs in order to have a complete working record which could be useful for their own efforts on the project. In such case it should be indicated that these notes were transferred from the original notes of the identified other group member. Each group should keep a file of any catalogs or commercial data and correspondence which is relevant to the project. Such files should be kept in the course project lab.

All ME495 students who do not have an active Solidworks account should activate their account, Solidworks is installed in the ECL laboratory. ME495 students have card access to the second floor lobby of 730 Comm. Ave and to the MN495 project lab (Room ENA-222) as soon as they are listed on the Registrar's class list. It is the responsibility of ME495 students to maintain security in the project lab. This means locking and securing the lab door if you are the last one to leave.

In the course of the semester each group will need to do some printing, and copying of power point presentations. In general each group will make a power point presentation each week. An effective power point presentation is accompanied by comic books for each person attending the meeting. A comic book is a hard copy of every screen in the power point presentation. It is at the group's discretion whether to put one, two or six screen on one 8.5X11 sheet. In the case of graphs, bar charts or flow diagrams it is essential to have those screens in legible size. There is no provision for the use of College or Departmental facilities for making such copies, other presentation materials other than by use of the available printer. Since there is no assigned course text for students to buy, the group members are expected to cover the expenses of copies, and any other presentation materials. Past semester experience has shown that such costs are modest compared to typical textbook costs. While the quality of presentation material is important, it is not necessary to have color copies for every class progress report. There is equipment for power point presentations in the classroom, however, transparencies are acceptable and even desirable as a backup in case there is a problem with the computer.

It is important that team members be clear with each other concerning the individual tasks and schedules for the project. Tardiness in completing agreed upon tasks, and absence or chronic tardiness at group meetings are not acceptable and should not be tolerated by other group members. All group meeting and task schedules must be e-mailed to each member, and copied to the instructor. Each group must maintain a hard copy log of all incoming and outgoing emails. It is especially important that appointments with the customer be meticulously on time. One group member who delays the entire group and causes a late appearance for a scheduled meeting embarrasses the other group members and, not incidentally, Boston University, the Mechanical Engineering Department and the instructor. In the event that a team member whose performance has been unacceptable, due to chronic tardiness, failure to complete his or her share of the project continues his or her unacceptable performance, in spite of having been warned about this by the other team members, a team may fire that member. This action may only be taken after consultation with the instructor, and the member in question is entitled to an appeal hearing with all the group members and the instructor present. A fired member will receive a failing grade for the course.

Even if a group member performs well, tardiness to meetings, to class or to work sessions at the client or elsewhere will result in a lower grade for that member and may result in a lower grade for the entire group. Attendance will be taken at each class. Students arriving after the start of class will be marked late and their arrival time will be noted.

After the formation of the groups, numbers will be drawn to determine the number of each group. All groups will make their presentations in the numerical order of the group numbers. Before the first presentation class a drawing will be made to determine which group will make the first presentation. At the next class the first presentation will be made by the next number.

For example, if out of a total of 6 groups, group 4 draws the very first presentation, groups 5, 6, 1, 2 and 3 will follow in that order. The next week's presentation will start with group 5, followed by 6, 1, 2, 3 and 4. It is not acceptable for groups which have been scheduled for later presentations to show up late for class but in time for their own presentation.

Groups will not be allowed to make their presentation unless all members are present unless a prior explanation has been presented for a member's absence. In the absence of reason to do otherwise, all group members will receive the same grade.

While new client companies are welcomed every semester, there is a list of companies, which have had project teams in the past. They include the following companies:

1. Boston Scientific
2. Vicor
3. General Electric
4. Johnson & Johnson
5. Microtouch(3M)
6. Texas Instruments
7. Sikorsky
8. Gillette
9. PRI
10. Teradyne
11. New Balance
12. Malden Mills
13. Hasbro
14. Perkin Elmer
15. Atrium Medical
16. E-Ink
17. Axcelis
18. Becton Dickenson
19. DePuy
20. Analog Devices

A number of recent Manufacturing Engineering graduates at local companies have indicated an interest in having a project group.

The course is presently scheduled to meet on Mondays and Wednesdays from 8:00 to 10:00AM. If there is sufficient time for each group to make its weekly presentation in one morning, the course may only meet once a week. There is some flexibility on Monday versus Wednesday to be the meeting day. On some occasions a second session may be added in a week to cover some relevant material in lecture format. The classroom, PHO205, has been assigned to ME495 on Mondays and Wednesdays from 8:00 to 10:00AM. This time slot has been selected in the hope that every group will have Fridays completely open and free of scheduled courses. This will allow at least one full day at the client company every week, for meetings, work, taking data and the like.

In many cases, you will be given company badges which will allow you to come and go like regular employees. In such cases, dress like typical employees and try to blend in with the permanent workers. The way you dress shows a measure of self esteem, respect for others, for the engineering profession and for the occasion. In general your dress code should be appropriate and should reflect how you would like to be seen. Remember that you never get a second chance to make a first impression. In general it is as bad to overdress as it is to underdress. The use of perfume, or aftershave is strongly discouraged, when your meeting is over, you don't want somebody's office or conference room to be contaminated for several hours with your scent.

The dress code for the classroom presentations will be shirt and tie for men and appropriate wear for women. No blue jeans are considered to part of the dress code for any ME495 activities with the exception of factory activities on the production floor or laboratories.

While for engineers "casual neat" is the dress code in many companies, if you are scheduled to make a presentation to members of upper management, you would not dress as you normally do, but you would dress to reflect the occasion. If upper management appears in suit and tie, you would look out of place with a Red Sox sweatshirt on. In industry, if the normal dress code is ultra casual, remember that many times corporate executives visit individual plants, and ask to sit in on groups meetings of select projects. Be ready for such an eventuality. Incidentally, this also underscores the importance of a comic book with the date, the name of the project and the names of the members. You want the visiting 400lb gorilla to leave with your name on his or her copy of your presentation (Yes, there are female 400lb gorillas in industry).

Presentations by the groups during class should reflect the professional dress code. No caps(unless you can produce a doctor's note that your cap is surgically attached to your scalp) should be

worn in class. Suits are not necessary, but clean slacks and shirts are necessary to avoid losing points on dress code. A group should decide on some uniformity of its dress code, one member in jeans and a T-shirt is likely to look out of place with three appropriately dressed partners. Having to think about what to wear and getting dressed for a presentation underscores the importance of your presentation. Remember that a presentation of your work should reflect your pride in your work. You'll have to condense hours(sometimes weeks) of work into a few minutes, presentation skills and substance are both important.

Based on the number of students presently registered for the course, it appears that each group will have 15 to 20 minutes to make its presentation each morning. You may be cut off at the designated time in order to allow all groups to make their presentations. Failure to complete the presentation of your progress report within the allotted time may detract from your grade for that report. Time taken by comments from the instructor will not count towards your allotted time.

As stated above, a log of meeting notes, analysis, data and phone conversations is essential and will be handed in at the end of the semester.

It is expected that email will be a routine and frequently used means of communication. Each group should keep a single hard copy record of all email communication. The instructor should be routinely copied on all email between group members and between the group and its client.

Please fill out the form on the next page at the close of the first class or whenever you become aware that you are registered for the course.

It is expected that you will seek out some of your professors for advice in their areas of expertise when necessary. By this time collectively you will have taken most of the elective upper level courses so that you'll be familiar with the specialty areas of many faculty members in the department(and outside the department if appropriate). While other faculty members are not officially part of the ME495 support system, you will find that most of them are flattered that you remember the subject matter they tried to familiarize you with and that you are seeking them out for advice.

English is the international language of engineering and technology, and presentations and presentation material must be in fluent English. Some foreign students who are not fluent are expected to work on improving their delivery. This will take the form of a weekly reading out loud of a technical article to the instructor.

Corrections and improvements in pronunciation and enunciation will be the goal of these readings. A copy of the article must be provided to the instructor at the time of the reading. This will permit corrections to be noted on the copy, which will be furnished to the student at the conclusion of the reading. In some cases, at the request of the student or the instructor, a reading may be repeated for improvement. Failure to make an effort to improve when requested to do so may result in a lower grade.

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CLASS LIST REGISTRATION

Note: This information and statement simply confirm your intention to attend this course, and acknowledges the receipt of the syllabus. It is strictly for the use of the instructor in the course. This information is necessary to assign you to a group. Since the official class lists are not available until well after the start of the semester, and we cannot waste any time getting started, please submit this information.

NAME: _____

ID#: _____

TERM PHONE #: _____ *
OR CELL PHONE

e-mail address: _____ *

* Listing your phone and e-mail address will allow us to get in touch with you and will allow you to contact your group partners.

I acknowledge the receipt of the ME495 SENIOR CAPSTONE DESIGN syllabus for the SPRING 2011 Semester, I have read it and I understand it.

_____
SIGNATURE DATE