

The University of Texas at Dallas

Erik Jonson School of Engineering and Computer Science

EE4388: Senior Design Project 1

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Course Objective: (UTD website course description) First of two sequential semesters devoted to a team project that engages students in the full engineering design process. The goal of senior design projects is to prepare the student to run/participate in engineering projects related to an appropriate industry. Thus, all project teams are to follow standard industrial practices and methods. Teams must carry the engineering project to completion, examining real world and multiple design constraints, following applicable industrial and business standards. Such constraints may include but are not limited to: economic, environmental, industrial standards, team time/resource management and cross-disciplinary/departmental result integration. Students are required to work in teams that include collaborative design interaction. Additionally, cross-disciplinary teams are encouraged but not required. In Senior Design I, project proposals will be written, reviewed and approved. Initial designs will be completed and corresponding constraints will be determined. All students will participate in a public oral and poster presentation following departmental approved guidelines at a departmental approved time and location. Teams will also submit a written end of semester progress report and documented team communication (complete sets of weekly reports and/or log books) following guidelines approved by the faculty. Students must have completed ECS 3390 and one of the following prerequisite sequences: ((CE 3311 or EE 3311), and (CE 3320 or EE 3320), and (CE 3345 or CS 3345 or SE 3345 or TE 3345), and (CE 3354 or CS 3354 or SE 3354)), or [(ENGR 3300 and (CE 3302 or EE 3302 or TE 3302), and (CE 3311 or EE 3311), and (CE 3320 or EE 3320)), or ((ENGR 3300 and (CE 3302 or EE 3302 or TE 3302), and (CE 3345 or CS 3345 or SE 3345 or TE 3345))); prerequisite or corequisite: EE 3350 or TE 3350.] (Same as EE 4388 and TE 4388) (3-0) S

Learning Outcomes:

1. Ability to develop system specifications and perform task management based upon a customer's needs/desires.
2. Ability to develop a viable system design, perform system integration, testing and evaluation.
3. Ability to effectively communicate in both verbal and written forms.
4. Ability to interact constructively within a multi-member design team.
5. Ability to identify and understand the social and ethical ramifications of the technologies used in the designed solution.

Course Topics:

Approximately the first half of the semester will consist of regular class meetings with lectures focused on skills and topics relevant to planning and executing an engineering project. The following is a tentative list of the major topics that will be covered in this course:

- Teamwork
- Engineering Design
- Project Management
- Communication and Professionalism

Textbooks and Material:

No textbook is required for this course. In most cases, students will need to research and collect information from sources relevant to their particular project. Textbooks and notes from previous courses will likely be useful additional resources. The course material will come from presentations and documents that will be distributed throughout the semester. The following books are recommended as useful references:

1. Ulrich, K. T., & Eppinger, S. D. (2012). Product design and development. New York: McGraw-Hill/Irwin.
2. Rosenau, M. D., & Githens, G. D. (2011). Successful Project Management: A Step-by-Step Approach with Practical Examples. Hoboken: John Wiley & Sons.
3. Ruskin, A. M., & Estes, W. E. (1995). What every engineer should know about project management. New York: M. Dekker.
4. Bowen, H.K. (2002). Project Management Manual. Harvard Business Publishing.

Items 1-3 are available in the UTD library. Item 4 can be ordered online at hbsp.harvard.edu.

Grading Policy: posted on the instructor website (kickoff meeting slides).

Detrimental team member behavior will result in a reduction of an individual's final course grade (including possible final grades of F or I) regardless of the team's overall performance. In these cases, a student will be notified by the course instructor that their behavior and/or actions put them at risk for a course grade reduction. Detrimental behaviors include, but are not limited to, the following:

- Lack of participation in team activities;
- Insubordination toward anyone involved in the project;
- Unprofessional or unethical conduct (including actions while on project-related travel);
- Misuse of sponsor provided data or equipment;
- Extremely poor peer evaluations;
- Actions which jeopardize the progress of the project team.

The course instructor, in consultation with the faculty and industry mentors, will have the option to award team bonus points equal to 0%-10% of the final grade. This bonus is intended to reward teams that produce outstanding work relative to the difficulty level and expectations of their particular project.

Workload

This course will require students to work on realistic and challenging engineering design

projects. Consequently, students should expect to spend a considerable amount of time outside of class working on the project. Students should be aware of this requirement and should plan their schedules accordingly. Students with significant extra-curricular obligations (especially jobs) should be aware that they will need to be available to fully participate in all course activities.

Off-campus Instruction and Course Activities

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean. Below is a description of any travel and/or risk-related activity associated with this course.

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Series 50000, Board of Regents, The University of Texas System*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:
The University of Texas at Dallas, SU 22
PO Box 830688
Richardson, Texas 75083-0688
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the Instructor.