**CE 4383** **Senior Project**

**Fall 2017**

**Instructor:** Andrew P. Kruzic

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**Office Hours:** M,Tu 2:00 – 4:00 pm, Th 1:00 – 4:00 pm or by appointment

**Section Information:** CE 4383 – 001, 011

**Time and Place of Class Meetings:** COBA 254 and NH 202

**Description of Course Content:** Planning, analysis of alternatives, and designs of selected projects that cross various civil engineering disciplines, and including engineering standards and multiple realistic constraints. Application of computer-aided engineering in analysis and design. A final oral presentation and written report that presents application of engineering standards and multiple realistic constraints in the design are required. A team approach is emphasized. Prerequisites: Completion of all required CE courses and a minimum of one CE design technical elective. One required CE course may be taken concurrently.

**Specific Outcomes of Instruction:**

Students will be able to:

• define a specific scope of work for each team member and propose a schedule for completion of the project;

• analyze alternatives for one or more critical aspects of the project using multiple realistic constraints and recommend the preferred alternative;

• design the physical facilities defined by their scope of work;

• document their work sufficiently in a work folder so it can be reviewed easily;

• make several oral presentations and produce a final report on their project.

**Student Learning Outcomes:**

Senior Project, often called the capstone course or experience, should demonstrate the following outcomes as defined by ABET:

a) Ability to apply knowledge of mathematics, science, and engineering (CE)

c) Ability to 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 (TI)

d) Ability to function on multi-disciplinary teams (TE)

e) Ability to identify, formulate, and solve engineering problems (CE)

f) Understanding of professional and ethical responsibility (CE)

g) Ability to communicate effectively (TI)

h) Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (TI)

k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice (TI)

Covered Implicitly (CI): The outcome is implicitly covered

Covered Explicitly (CE): The outcome is explicitly covered

Tested Implicitly (TI): The outcome is covered and implicitly assessed for by one or more means including assignments, test questions, essay questions, presentation evaluations, lab reports, etc.) Tested Explicitly (TE): The outcome is explicitly assessed for by one or more means

**Required Textbooks and Other Course Materials:** None

**Descriptions of Major Assignments and Examinations:** Each student, as a member of a team, is expected to assist in completing a project involving engineering design. The project will be of such magnitude that its successful completion, along with numerous ancillary tasks, will require each student to spend approximately 200 hours during the semester. Each student is required to maintain a contemporaneous log book containing a record of all his activities related to the class and a work folder documenting his own engineering contribution to the project. In addition, each student is required to periodically provide a categorized accounting of the time spent on class activities. The format required for these items will be provided in other documents. These documents will be maintained on a network site. Each student is also required to complete the Senior Exit Interview Survey. Failure to do so will result in a grade of incomplete until it is done.

The team will provide various reports and presentations including progress reports, a technical review presentation, a written report and a summary presentation at biannual meeting of the Civil Engineering Advisory Committee. The contents and format of these reports and presentations will also be provided in other documents.

There will be no examinations in the traditional sense. At the end of the course, each student will be required to assess the contribution made to the team project by himself and his teammates and to assess the teamwork contributions of teammates.

**Attendance:** At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, CE 4383-001 and 011, I have established the following attendance policy: The ability to function on a multi-disciplinary team is an essential element of the senior project course. For this reason each team member’s participation in class activities and team meetings is mandatory and is a factor in their final grade. Any missed class, team meeting with the instructor, or team meeting with the Project Director is considered an absence. As a professional courtesy, you should notify the instructor and Project Director before missing a class or meeting; however, notification does not excuse an absence. Absences will only be approved and excused from counting against the final grade if a written request for approval is sent to the instructor with proof that the absence is unavoidable, and the instructor grants approval in writing. An unexcused absence from a major presentation can result in significant loss of grade points (up to 20 points). Late attendance at meetings and presentations will also result in loss of grade points. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

**Techniques, Skills and Modern Engineering Tools Used in this Course**.

**Grading**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component** | **Weight** |  | **Total (T)** | **Grade** |
| **Project Proposal** | **8%** |  | **90 ≤ T ≤ 100** | **A** |
| **Individual Progress Reports / Logbook / Work Folder Review – Week 5** | **15%** |  | **80 ≤ T < 90** | **B** |
| **Individual Progress Reports / Logbook / Work Folder Review – Week 10** | **25%** |  | **70 ≤ T < 80** | **C** |
| **Individual Progress Reports / Logbook / Work Folder Review /Final Report** | **35%** |  | **60 ≤ T < 70** | **D** |
|  |  |  | **T < 60** | **F** |
| **Project Director’s Evaluation** | **9%** |  |  |  |
| **Presentations** | **8%** |  |  |  |
| **Teamwork Evaluation** | **+/- 10%** |  |  |  |
| **Professional Conduct** | **Up to - 50%** |  |  |  |
| **Total** | **Up to 100%** |  |  |  |

All grades except the Project Director’s Evaluation will be assigned by the course instructor with input solicited from the PDs and others as appropriate (including team members if needed).Your grade will primarily be tied to the quantity and quality of the productive work accomplished and how well you document your work in your work folder. A minimum of 120 hours of productive work is expected. This amount excludes class time, group meetings, travel time to anything for any reason, and meetings with your Project Director. It includes information gathering, logbook and project folder maintenance, calculations, alternative analysis, report writing, and presentation preparation. An average performance which meets expectations will earn at most a B in the class. Approximately half the class will meet with the Course Instructor every other Friday for Individual Oral Progress Reports and Work Folder Review (10 minutes/student). Each group will meet at a pre-arranged time with the instructor for 50 minutes. At the end of the semester the PD will provide a grade for each team member. The two major presentations will be evaluated by faculty and professionals using rubrics and the average scores will be applied to this category. While the content of the presentations cannot be ignored, the presentation grade will focus is on the individual’s and group’s presentation skills. Peer evaluations will be used primarily to allow the course instructor to better account for the teamwork component of the course (+/- 10% of course grade). Individual team member grades can be raised or lowered by 10% of the total grade based on the course instructor’s evaluation of each individual’s teamwork effort. Unprofessional conduct described above will result in the loss of grade points in an escalating manner. A single serious breach of professional conduct can result in significant grade point losses, dismissal from the class, and/or reporting to the Office of Student Conduct. As noted above failure to complete the Senior Exit Interview Survey will result in a grade of incomplete.

**Grade Grievances**: Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations:** UTArlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD).Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability).

**Counseling and Psychological Services, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Non-Discrimination Policy:** *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*.*

**Title IX Policy:** The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated.*For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](file:///C:\Users\kruzic\Desktop\Class%20Notes%20Folder\4355-5326\jmhood@uta.edu).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

You must be ethical in your behavior and actions related to this class. In particular, you can give and receive aid from the members of your team and receive aid from your various professional advisors. You must document in your logbook both any aid you have received or given. Your work folder must also provide proper documentation for the source of all written materials. You may not in any way violate copyright laws. This permission to give and receive aid in no way condones plagiarism. You may not plagiarize written documents in any way and you must document help you have received in your work. You are not allowed to use any document from your current or previous employment or that of your teammates in completion of your project without getting explicit written permission from the employer and confirming this with the course instructor. No one, outside of your team, should perform a task that materially contributes to the completion of your project. You must accurately report the time you spend with respect to both quantity and purpose. You must only claim credit for work to the extent that you actually performed it. Examples of professional unethical behavior include but are not limited to: withholding requested information to protect a teammate, inflating the hours you spent on an activity in your records, and not recording meetings and activities in your logbooks as these occurred and then filling it in several days later but not indicating so.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:** At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** for semester-long courses**,** a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the north exit of the classroom, and out the north exit of the GACB. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. The instructor will assist individuals with disabilities.

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php), [major-based learning centers](http://www.uta.edu/universitycollege/resources/college-based-clinics-labs.php), developmental education, [advising and mentoring](http://www.uta.edu/universitycollege/resources/advising.php), personal counseling, and [federally funded programs](http://www.uta.edu/universitycollege/current/academic-support/mcnair/index.php). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

**Librarian to Contact:** Sylvia George-Williams, Engineering Librarian, NH - B03D, Tel: 2-7519, Email: sylvia@uta.

**Course Schedule**

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| **Week** | **Date** | **Assessment, Presentation, Report** |
| 3 | Sept 15 | Project Proposal Submittal |
| 14 - 15 | Nov 27 – Nov 29 | Final Report Presentation to Faculty |
| 15 | Dec 1 | Presentation to CE Advisory Board |
| 15 | Dec 6 | Turn in Final Report |

**Emergency Phone Numbers**: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381