

IE 4350-001(lecture)/002(lab) Spring 2015
TR 8:00-10:20AM - Room 221/417-419 Woolf Hall

Instructor: Dr. K.J. Rogers, P.E. <https://www.uta.edu/profiles/k-rogers> Phone: 817-272-2495

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Office Hours: Before and after class (other times by appointment as requested)

Required Text: Facilities Planning, Tompkins, White, et.al. John Wiley, 4th ed., 2010. and The Goal. By Eli Goldratt and Jeff Cox, North River Press, 3rd ed., 2004.

Course Description: IE 4350. INDUSTRIAL ENGINEERING CAPSTONE DESIGN (2-3) 3 hours credit. This course provides an open-ended design experience through the planning and design of an enterprise. Typically, the student selects a product; determines the necessary processes, equipment, capacities, routings, and personnel required; develops supporting material handling, inventory, and quality systems; and designs the fully integrated enterprise including facility layout with estimated cost of operation. Contemporary project management techniques are utilized. The design experience project includes submittal of approximately nine written and oral presentations culminating in a written project report and oral presentation at the end of the semester. IE 4350 is the capstone design course and draws on material from the total industrial engineering curriculum. The impact of engineering design on society is discussed. **Prerequisite:** All required 4000 level IE courses or concurrent enrollment

Course Learning Goals/Objectives: This course provides an open-ended capstone project design experience through the planning and layout of a manufacturing or service enterprise. In addition to the capstone project, we will review, discuss, analyze and evaluate various contemporary issues in IE, project management techniques, practical applications of IE techniques in “The Goal”, ethics considerations in engineering, resume preparation and interview techniques, and other relevant topics of mutual interest as time permits. The student will demonstrate the ability to satisfy ABET Outcomes as described below via key assignments.

- **ABET Criterion 3 (c)** an 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 **Key assignment: Capstone Design Project**
- **ABET Criterion 3 (f)** an understanding of professional and ethical responsibility **Key assignment: Incident at Morales**
- **ABET Criterion 3 (g)** an ability to communicate effectively **Key assignment: Contemporary Issues Presentations**
- **ABET Criterion 3 (i)** a recognition of the need for, and an ability to engage in life-long learning
Key assignment: Homework Assignment and Final Exam Question
- **ABET Criterion 3 (j)** a knowledge of contemporary issues
Key assignment: Contemporary Issues Presentations and Follow-up Exam Questions
- **ABET Criterion 5. Professional Component:** Students must be prepared for engineering practice through the curriculum culminating in a major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints. **Key assignment: Capstone Design Project**
- **ABET IE Program Criteria.** The program must demonstrate that graduates have the ability to design, develop, implement & improve integrated systems that include people, materials, information, equipment and energy. The program must include in-depth instruction to accomplish the integration of systems using appropriate analytical, computational and experimental practices.
Key assignment: Capstone Design Project

General Policies/Guidelines:

- ♦ Class attendance is expected – “showing up” is the first step toward excellence in any endeavor.
- ♦ If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are appropriately accommodated.
- ♦ If you miss an exam with an approved excuse (e.g. from a doctor stating you are too ill to attend class), you may take a comprehensive final as a makeup.
- ♦ **Course Evaluation & Final Grade:** Grades are based on performance. No curves planned. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.
 - ♦ Course grade will be comprised of performance on exams, homework, quizzes, and projects.

Exams	20%
Homework/Quizzes	20%
Project	60%
 - ♦ Performance standard: D ≥ 60%, C ≥ 70%, B ≥ 80%, A ≥ 90%

Key Dates (Note: Capstone design project due dates for each subsection are on separate sheet):

03/03	Midterm Exam
03/09-03-14	Spring Vacation
04/30	Capstone Project practice oral presentation and review checksheet for completeness
05/07	Capstone Project Due – Sponsors invited (written reports & presentation files due at the beginning of class).
05/12	Final Exam Note Time! [8:00-9:30AM]

Copyright © 2015 K.J. Rogers as to this syllabus and all lectures and materials. Students are prohibited from selling (or being paid for taking) notes during this course to or by any person or commercial firm without my express written permission. *As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –K.J. Rogers*

Last update: 01/08/15

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

<http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>

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://www.uta.edu/aao/fao/>).

Americans with Disabilities Act: The University of Texas at Arlington 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)*. 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

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 as they see fit in their courses, including (but not limited to) 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.

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>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be 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 enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: 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

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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 nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to 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, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. 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, or view the information at www.uta.edu/resources.

The English Writing Center (411LIBR): Hours are 9 am to 8 pm Mondays-Thursdays, 9 am to 3 pm Fridays and Noon to 5 pm Saturdays and Sundays. Walk In **Quick Hits** sessions during all open hours Mon-Thurs. Register and make appointments online at <http://uta.mywconline.com>. Classroom Visits, Workshops, and advanced services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information.

Librarian to Contact: Sylvia George-Williams sylvia@uta.edu **Subject guide:** <http://libguides.uta.edu/IMSE>

Course Schedule

The following table provides a general description of subjects & an approximate timetable. Recall page 1 of this syllabus: As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –K.J. Rogers

Week	Dates	Subject, Key Dates &/or Deliverables for Capstone Project
01	01/20	Welcome Quiz, Contemporary Issues, HW assignment
01	01/22	HW: Researching Internet for IE topics due
02	01/27	Begin discussion of “The Goal” (Read book through chapter 20)
02	01/29	Chip Mfg via ‘Coin and Die Game’
03	02/03-05	Contemporary Issues Pecha Kucha presentations by students
04	02/1	Resume workshop, Name Game, “5 Minute Interview”
04	02/12	Project [1] due with presentation
05	02/17-19	Work together in teams on project
06	02/24-26	Critical Thinking Skills & Metacognition, Review for Midterm Exam
07	03/03	Midterm Exam
07	03/05	Project [2] due with presentation, Review Midterm Exam results
08	03/10-12	Spring Vacation
09	03/17	Work together in teams on project
09	03/19	Ethics video & class discussion
10	03/24	Ethics write-up due at 8:00am
10	03/26	Work together in teams on project
11	03/31	Project [3] due with presentation
11	04/02	Complete discussion of “The Goal” (Finish reading book)
12	04/07-09	Contemporary Issues NAE Grand Challenges presentations by students
13	04/14-16	Project [4] due with presentation
14	04/21	Revise MS Project by team and submit by end of class
14	04/23	Work together in teams on project
15	04/28	Lego Game + Exit Interview + Poster Working Session
15	04/30	Mandatory project practice oral presentation and checksheet review
16	05/05	Project [5] due with presentation
16	05/07	Final Report & Poster with Presentation to Sponsors, Alumni, Faculty, Staff, & Students
Final Exam	05/12	Final Exam Note Time! [8:00-9:30AM]

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.