

Department of Systems Engineering
Donaghey College of Engineering and Information Technology

SYEN 4385 Systems Engineering Capstone Design I

Course Description:

Prerequisites: Completion of at least 40 credit hours of SYEN courses First semester of systems engineering capstone design sequence. Focuses on the requirements definition process and involves designing 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, using appropriate engineering standards. Students will make formal written and oral presentations of their preliminary work. Three credit hours.

Instructor: Dr. Andrew Wright

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569-8071
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Dr. Jing Zhang

EIT 542
569-8043

Office Hours: By appointment

References:

- Engineering Design Methods (4th ed.) by Nigel Cross, John Wiley and Sons, ISBN-10: 0470519266
- Engineering Design (5th ed.) by George E. Dieter and Linda C. Schmidt, McGraw Hill, ISBN 9780073398143

Grading

The following deliverables will determine the grade. Grades will be determined in consultation between Dr. Wright and Dr. Zhang.

New project idea proposal (individual)	10%
Project proposal (group)	15%
Individual Job Description (individual)	10%
Ethics assignment (individual)	5%
Design Meetings	5%
Prototype plan and budget (individual)	20%
Budget presentation (group)	5%
Prototype (individual)	15%
Final project plan and budget (for capstone II) (group)	10%
Peer evaluation (individual)	5%

Students will be formed into interdisciplinary teams.

New project idea proposal: this is a brief description of a project idea. One or two of the best ideas will be selected for projects.

Students will form teams around a list of project ideas. Students will flesh out the idea in consultation with the course instructors through the weekly **Design Meetings** and submit a **Project proposal**. Each student will determine his/her contribution to the project and submit an **individual job description** which will lead to a **prototype** to answer a relevant engineering question in preparation for the Capstone II project. Design meetings will be held at a time that instructors and the students in the group can meet and will be about 30 minutes long.

Based on the individual job description, each student will prepare a **prototype plan and budget** for his/her prototype. The group will make a **budget presentation** to the instructors and dean to get funding for the prototype.

Based on the work in Capstone I, the group will submit a **project plan and budget** for Capstone II.

Students will grade each other at the end of the semester through a **peer evaluation**.

Ethics assignment: students will review the professional engineering code of ethics. The video “Incident at Morales” will be shown. Students will pick an ethical quandary from the questions supplied with the video and determine how the engineer should respond consistent with the professional engineering code of ethics. NOTE: blackboard will check for plagiarism. Should the submission be largely plagiarized, this will result in a zero grade for this assignment.

Grades (points gained/100 points)

A = 90%

B = 80%

C = 70%

D = 60%

F = below 60%

Attendance will be taken periodically. If a student misses 15% of lectures, his/her final grade will be reduced by one letter grade (i.e., from A to B or B to C). Students who do not attend during the first eleven days of class may be administratively dropped from the course.

A student who misses more than 25% of lectures will receive a final course grade of an F and may be administratively withdrawn at the discretion of the instructor.

Tardiness is disruptive, so please be respectful of your peers and instructor and get to class on time. If you are tardy, please come into the room quietly and sit in the nearest available seat to the door.

Cell phones can be disruptive. Please turn off your cell phone (i.e. airplane mode) before class. If you forget and receive a call in class, please immediately disable your ringer/buzzer and terminate the call. Do NOT answer the call and have a conversation as this may be classified as disruptive behaviour.

Disruptive Behaviour may result in your being administratively dropped from the class, especially if it is persistent. Persistent disruptive behaviour will also be penalized through the Class Participation grade.

Sickness or Emergency is a legitimate excuse to delay an assignment due date or to avoid the attendance penalty. However, to guarantee that penalties are avoided, the student should notify the instructor in advance (if possible) or provide a signed, written reason after the fact.

Late assignments are any homework or lab assignment that is turned in after 5:00 pm on the official due date until 5:00 pm on the day after the due date. A 10 point penalty will be imposed on Late Assignments. Criminally Late Assignments are assignments delivered after 5:00 pm on the day after the official due date. Criminally Late Assignments will not be accepted or graded.

Make up policy: Due to the deadline-driven nature of the course, there will be no make-ups of any assignments.

Mid-Term Grades are not required by this course. They may be issued based on student's progress in the course at the mid-point, if it appears that such grades would be useful in assisting in an intervention to improve the student's chance of success in the course.

Electronic delivery of assignments: all assignments will be delivered as a PDF through upload into blackboard. Blackboard timing will be used in determining lateness of assignments.

Modifications to Syllabus may be made to improve delivery of the course content. The instructor will provide an updated syllabus at least one week prior to any changes taking effect and no modifications will be done within two weeks of the final exam.

Students with Disabilities:

Per academic policy 501.2, the following statement must be included in all syllabi (see <http://ualr.edu/policy/index.php/5012/>)

“Students with Disabilities: Your success in this class is important to me, and it is the policy and practice of the University of Arkansas at Little Rock to create inclusive learning environments

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consistent with federal and state law. If you have a documented disability (or need to have a disability documented), and need an accommodation, please contact me privately as soon as possible, so that we can discuss with the Disability Resource Center (DRC) how to meet your specific needs and the requirements of the course. The DRC offers resources and coordinates reasonable accommodations for students with disabilities. Reasonable accommodations are established through an interactive process among you, your instructor(s) and the DRC. Thus, if you have a disability, please contact me and/or the DRC, at 501-569-3143 (V/TTY) or 501-683-7629 (VP). For more information, please visit the DRC website.”

This statement has not been prepared by the instructor of this course, but is an academic policy, so please excuse the colloquial wording (use of first and second person).