

Revised: 8/24/12

FALL 2012
SYEN 1310: INTRODUCTION TO SYSTEMS ENGINEERING, Sections 01 and 02
COURSE SYLLABUS

Instructor: Dr. Andrew Wright, Email: abwright@ualr.edu, Phone: (501) 569-8071
Office: EIT 522, Office hours: M, R 9:00-10:00 am

Lecture Room: EIT 224, **CAD Lab:** EIT 224, **Robotics Lab:** EIT 321

Class Time: Section 01: MW 11:00-11:50 (lecture), W 12:00-1:40 (lab)
Section 02: MW 11:00-11:50 (lecture), F 11:00-12:40 (lab)

Teaching Assistants: CAD: Qian Liu
Robotics: Taimoor Azfal

Course Description

Prerequisite(s): MATH 1302 or 1315 or consent of the instructor. Introduction to engineering as a profession, engineering problem solving, engineering design process, engineering ethics, engineering communication, history of engineering developments, and case studies involving leading inventions in the engineering field from a variety of disciplines. Students work in teams to build small engineering projects. Course includes industry visits and invited talks by industry specialists. Two hours lecture. Two hours lab. Three credit hours.

Readings

W. C. Oakes, L. L. Leone, C. J. Gunn, **Engineering Your Future: A Comprehensive Introduction to Engineering**, Oxford University Press, 2012, ISBN: (required).

ISBN-10: 0199797560, ISBN-13: 978-0199797561

Course Objectives

1. Introduce students to on campus resources to enhance success and introduce students to the University's processes and expectations.
2. Introduce students to the engineering profession and creative engineering problem-solving through class activities, design projects, and presentations.
3. Familiarize students with the various engineering disciplines and their interrelationships.
4. Provide historical perspective on engineering design processes, successes, challenges, failures, and their influence on contemporary society.
5. Inspire and instill an appreciation for the engineering profession, its ethics, and practices.
6. Learn and apply engineering design process in proposing and building working devices or models that meet preset constraints and specifications.
7. Introduce students to communication, teaming, and project management skills necessary to excel in today's engineering workplace.
8. Introduce solid modeling and computer aided engineering graphics as an aid in the engineering design process.

Sickness or Emergency is a legitimate excuse to make up a graded assignment (attendance or exam). However, to guarantee that no late penalties are applied, the student should notify the instructor in advance or provide an independent written excuse (e.g., a doctor's note) after the fact.

Late Assignments

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All homework assignments are due one week after the date they are assigned. Late homework will incur a penalty of **20%** unless excused for some sickness or emergency.

Class examinations are **CLOSED BOOKS** and **CLOSED NOTES**. Students are responsible for **ALL** topics covered in class, assigned reading, and homework assignments.

Make up policy

Exams may be made up on the date of the final exam provided that the student notifies the instructor in writing at least two weeks prior to the date of the final exam. There will be an 80% maximum for any exam for which a legitimate excuse was not provided for the absence.

Course Evaluation

Students will be assessed based on class participation, homework, project work, case studies, and class presentations. Final grades will be computed using the following weights:

40% Exams (2)

20% CAD exam

10% Homework assignments

5% Mid-term presentation

24% Robotics Design Reports (2)

1% Final report (learning experience)

Grades: 100% > A > 90% > B > 80% > C > 65% > D > 50% > F

Attendance

Regular attendance will be taken. If a student is absent for four times his/her final grade will be reduced by one letter, i.e. from A to B, or B to C, etc.

A student who misses more than six classes or labs will receive a final course grade of "F." Students who do not attend during the first eleven days may be administratively dropped from the class.

Tardiness is disruptive, so please be respectful to 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

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 behavior" and may result in your being administratively dropped from the class.

Disruptive Behavior may result in your being administratively dropped from the class, especially if it is persistent.

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 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

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first and second person).

Student Handbook

The UALR Student Handbook is available at <http://ualr.edu/deanofstudents/assets/archive/HANDBOOK.pdf>.
Most of your disciplinary questions will be answered by that document.

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Course Topic List

	Dates	Topic	Reading	Lab Activity
Week 1.	Aug. 27	Introduction, syllabus, class format and expectations.		Robotics
	Aug. 29	Succeeding in the classroom, attitude, goals, test-taking, learning styles, time management.	Ch 7	
Week 2.	Spt. 3	Labor Day ... no class		Robotics
	Spt. 5	Introduction to engineering, history of engineering developments and disciplines.	Ch 1	
Week 3.	Spt. 10	Visualization and Graphics	Ch 9	Robotics
	Spt. 12	Visualization and Graphics	Ch 9	
Week 4.	Spt. 17	Engineering Computer Tools	Ch 10	Robotics
	Spt. 19	Units and Conversions; Dimensional Analysis	Ch 16	
Week 5.	Spt. 24	Units and Conversions; Dimensional Analysis	Ch 16	App. B , Introduction to Matlab
	Spt. 26	The Campus Experience Statistical profiles of engineering profession Global engineering workplace	Ch 19 Ch 4 Ch 5	
Week 6.	Oct. 1	Review for Exam		CAD
	Oct. 3	First Exam		
Week 7.	Oct. 8	Future challenges.	Ch 6	CAD
	Oct. 10	Engineering communication, technical reports, and presentations. Teamwork and leadership.	Ch 14 Ch 11	
Week 8.	Oct. 15	Engineering problem solving, analytic and creative problem solving, personal problem solving styles. Mid-term grades viewable by students.	Ch 8	CAD
	Oct. 17	Engineering problem solving, analytic and creative problem solving, personal problem solving styles. Future Challenge Presentation 1	Ch 8	
Week 9.	Oct. 22	Project management. Future Challenge Presentation 2	Ch 12	CAD
	Oct. 24	Project management. Future Challenge Presentation 3	Ch 12	
Week 10.	Oct. 29	Engineering design process. Future Challenge Presentation 4	Ch 13	CAD Exam
	Oct. 31	Engineering design process (Halloween!) Future Challenge Presentation 5	Ch13	
Week 11.	Nov. 5	Engineering design process. Future Challenge Presentation 6	Ch 13	Robotics
	Nov. 7	Engineering Fundamentals. Future Challenge Presentation 7	Ch 18	
Week 12.	Nov. 12	Engineering Fundamentals. Future Challenge Presentation 8	Ch 18	Robotics
	Nov. 14	Engineering Fundamentals. Future Challenge Presentation 9	Ch 18	
Week 13.	Nov. 19	Areas of engineering specialization and emerging fields. Engineering majors, positions and job functions. Future Challenge Presentation 10	Ch 2	No Labs
	Nov. 21	Thanksgiving		
Week 14.	Nov. 26	Review for Exam.		Robotics
	Nov. 28	Exam Two		
Week 15.	Dec. 3	Engineering Fundamentals	Ch 18	Robotics
	Dec. 5	Design Consultation		
Week 16.	Dec. 10	Last day of classes. Design Consultation		Robotics
	Dec. 11	Consultation Day		
Week 17.	Dec. 14	Final Exam Fri. 10:30-12:30: Robotics Competition Final report due on the overall learning experience in the course due at final exam time.		