

INTRODUCTION TO ENGINEERING (B2E SECTION)

ENGR 100A
Santa Ana College
Department of Engineering
Fall Semester 2014

Lectures: Thursday 2-4 pm Room A-214
Units: 2
Instructor: Craig Takahashi, Ph.D. takahashi_craig@sac.edu
Office/office hours: see my website Room A-107-8
Phone: 714-564-6306
Website: <http://sacbusiness.org/engineering/TakahashiC>

Description:

Introduction to major fields of engineering (including mechanical, electrical, industrial, biomedical, aerospace, & others). Includes an overview of academic programs, career information and preparation requirements, virtual or in person field trips, guest speakers, and hands-on projects.

Textbook & Materials

1. Studying Engineering: A Road Map to a Rewarding Career, Raymond B. Landis, Discovery Press, 3rd Edition, 2007 (~\$25 at SAC) (Optional)
2. Scientific calculator (Windows has one & is acceptable)
3. Materials for design projects – There are several projects we will work on this semester. The bridge & circuit project kits will be available at the bookstore. Cost varies for each project but can be as low as ~\$15 per team (so about \$5/student x 3 projects). You are free to spend more if you like but this is not required.

Student Learning Outcomes

Students will develop knowledge & skills necessary to select and develop engineering careers.

Grading

Grading is determined on a percentage system, not on a curve. Note – I do not GIVE out grades, you EARN them! Grading is based on mathematical computation, not by my manipulation or your life circumstances. A final score within 0.5% of the next higher grade is rounded up (e.g., 79.50% = B; 79.49% = C). A final score within 1.00-0.51% of the next higher grade, will round up to the next grade (e.g., 79.0 to 79.49% gets a B) ONLY IF the student does not “miss” (i.e., score < 50%) on more than 1 assignment for the whole semester. NO score > 1% from the next higher grade will round up (e.g., 78.9999 gets a C no matter what).

Grading Scale	Weighting of grades
A = 90 – 100%	Assignments 30%
B = 80-89% D = 60-69%	Exams/quizzes 30%
C = 70-79% F < 60%	Projects 40%

Tentative Fall Schedule

Wk	Date	Topic	Wk	Date	Topic
1	8/28	Intro, Engineering Profession Lecture – syllabus, studying; firms salaries, jobs Lab – none Hw 1 – syllabus, website	9	10/23	EE (electrical engr); EE Project Lec – EE stuff, sub-disciplines; electricity, Ohm’s law, amplifiers Lab – start EE project Hw 7 – EE project Qs; current grade
2	9/4	Personal Growth, Development; Engineering Education Lec – life goals, learning; degrees, courses, succeeding Lab –none (SAC career center?) Hw 2 – salaries, etc.	10	10/28	(Circuit project & testing) Lec – none Lab – circuit project Hw – none
3	9/11	Engr Fields (ME, EE, IE, CE, Biomedical, Aerospace) Lec – stuff work on, courses, jobs Lab – truss, bridges Hw 3 – truss	11	11/4	Exam 2 & ME (mechanical engr); ME project Lec – exam + ME (sub-disciplines); Lab – start ME project Hw 8 – ME project questions
4	9/18	CE (civil engr); CE Project Lec – CE stuff, sub-disciplines; Newton’s laws, trusses, buckling Lab – set teams, start project Hw 4 – standard bridge designs; project questions; truss	12	11/13	(Trebuchet project) Lec – energy, motion of lever Lab – start trebuchet project Hw – none
5	9/25	(Bridge project) Lec – none Lab – bridge project Hw – none	13	11/20	(Trebuchet project) Lec – trebuchet calculations Lab – treb project Hw 9 – treb calcs
6	10/2	(Bridge project) Lec – none Lab – bridge project Hw – none	14	11/27	Holiday
7	10/9	Using Excel & (bridge project) Lec – Excel, tables, graphs Lab – bridge project Hw – none	15	12/4	(Trebuchet project) Lec – none Lab – trebuchet projects Hw 10 – survey
8	10/16	Exam 1 (& bridge testing) Lec – exam Lab – bridge testing Hw 6 – excel graph bridge data	16	12/11	Exam 3 , & Trebuchet testing Lec – closing, SAC programs; Lab – treb testing Hw – none

Communication and Blackboard

I will use the internet regularly to communicate with students. I typically post homework, assignments, & any other handouts on the course website (URL: www.sacbusiness.org/engineering/takahashic), NOT Blackboard. I will use Blackboard (Bb) to post grades (rsccd.blackboard.com) & possibly some other purposes (assessments). It is YOUR responsibility to check these sites regularly.

Blackboard (Bb) is a web-based program used to manage courses. Bb requires official enrollment in the course (you “log on”). If you are unfamiliar with Bb, see me right away. The Bb login username & password are the same as the “WebAdvisor” (sis.rsccd.edu) system, which emails this info to new and returning students. If you have not received an email with this information contact the Admissions Office. Upon first logging into WebAdvisor, you will be prompted to change the temporary password. Your login remains the same each semester, but may be changed by you at any time. If you change your WebAdvisor password, then your Blackboard password changes too. If you have trouble with Bb, contact the Distance Education office (714-564-6725, Room A-101).

Email – I communicate regularly with the class through email. I get student email addresses from the WebAdvisor system, not Bb, so you are responsible for having a valid email on WebAdvisor. If not, you will miss my class-wide emails, & YOU become responsible for communicating with classmates about any missed notifications or handouts emailed by me. When emailing me, always indicate which class you are in (Eg, Engr 122). If you change your email address, notify me by email, indicating the class of mine you are in.

Assessments:

- *Assignments* – may take various forms of work (homework (hw), lab work (labs), project, write up based on class activities like a film, guest speaker, etc.). Assignments are typically assigned weekly and are due 1 week later in the first 15 minutes of lecture. Any work submitted after the first 15 minutes will receive half credit. Any work submitted after the class period is LATE & will receive a score of 0. Occasionally, I assign “same-day” assignments, which are due the same day it is assigned (often based on an in-class activity, like a film or guest speaker). All work must be labeled in the upper right of the front sheet with student first & last name, course #, & hw # (e.g., John Doe, Engr 100A, hw #1), except in drafting classes where this information must appear in the title block of EACH sheet. All work must be stapled in the upper-left with pages oriented consistently (in drafting classes, the staple should be upper-left with the pages oriented as “landscape”), & with problems in the order assigned or points will be deducted. The lowest assignment score will be dropped to account for “life issues”. Emailed work is not accepted.
- *Assignments & absences* – If you miss lecture & want hw credit, you must arrange for that work to be turned in ON TIME. You can’t just turn it in when you return. I do not accept emailed work. If you are absent on a day of a “same-day” assignment, you cannot get credit for that work & there are no make-ups.
- *Exams* – (see tentative schedule for how many) any exam not taken during the allotted time, including BEFORE the allotted time, is a “make-up” exam. Make-up exams are highly discouraged, granted at the instructor’s discretion, & allowed only once. Students must request a make-up exam in a timely fashion (before or within 1 day of the exam) & must provide documentation to verify the cause of the missed exam. Make-ups have an automatic 15% deduction (REGARDLESS OF CAUSE) if taken the week following the allotted time (more deductions apply if taken even later). There are no make-ups for final exam.
- *Final project* – (see tentative schedule). Projects must be worked on independently unless otherwise noted. No late projects will be accepted.
- *Lab conduct* – (applicable to classes with a lab or hands-on activities) is related to the level of care you give to yourself, your fellow students, the lab equipment, the classroom, & to lab organization, safety, and clean-up (putting stuff away properly and neatly).
- *Participation* – (if indicated) is not simply based on attendance, but instead on the level of involvement in the class (e.g.: turning in assignments, actively listening to lecture, asking questions, going to office hours, and engaging in healthy dialogue with instructor & others).

Course policy and conduct

- *Formal reviews* – If you feel an assignment (hw, lab, project, or exam) was graded in error and wish for the work to be re-graded, you must request a “formal review” within 7 days of the work being returned to you (after the 7 day period, the work will not be re-graded). Submit a *typed* cover sheet with your full name, student number, date, and description of the assignment that you want reviewed. Explain *in detail* (using sketches or drawings if necessary) why the grading was incorrect & why your score should be higher. Staple the questionable assignment to the cover sheet. A review will evaluate the *entire* assignment, not just the issue with which you were concerned. Thus, the review may possibly result in a lower overall score. An incorrectly-entered grade in Blackboard does NOT require a review. Just inform me within 7 days of the grade posting and show me the graded work.
- *Honesty/Integrity Policy* – although you are encouraged to communicate with classmates about course concepts, you may only turn in your own work. Any assignment that has been deemed plagiarized or copied is cheating and will receive a score of 0 (for both the copier and the one who allowed the copying). Any student who violates this rule a second time will be given an F for the course. Projects must be worked on independently unless otherwise specified. A student found cheating on any exam will receive a 0 for that exam. A second instance of cheating will result in an F grade for the course.
- *Attendance/absences* – Students MAY be dropped if they do not appear for the first class meeting or if they reach 3 total absences for the semester (including those prior to adding the class). Attendance is tracked by your initialing of a sign-in sheet each week. YOU are responsible for initialing the sheet, you are considered absent if you forget to initial the sign-in sheet. Do NOT sign in for anyone else! This is fraud, and you may be dropped from the class if you do this. If you are absent, you are responsible for getting class notes, handouts, and/or directions from a classmate. If you miss lecture, hw is still due (see “hw” section above).
- *Lack of participation – Drop & Grade Policy* – students may be dropped due to lack of participation. This includes poor participation in team projects or failure to turn in hw. A student scoring less than 50% on 4 or more assignments will not receive a grade greater than a C and the student may be dropped.
- *Withdraws* –students are responsible for officially withdrawing from classes they do not plan to complete. Do not expect the instructor to drop you due to excessive absence. The deadline for withdrawing from class is the end of the 12th week of the semester. After this time, a student CANNOT withdraw & WILL receive a letter grade for the course. Under extenuating circumstances (such as verified cases of accident, illness, or death in the family & other conditions beyond the control of the student), a student may be reinstated by contacting the instructor. Students are responsible for checking the semester schedule for important dates such as holidays and drop dates.
- *Student with Disabilities* – students with verifiable disabilities who want to request academic accommodations must notify Disabled Student Programs & Services (DSPS; x6260, 6384 TDD for deaf students, U103) and myself as soon as possible.
- *Pagers or Cell Phones* – please be considerate to your classmates & turn off (or set to vibrate) all pagers and cell phones while in the classroom. If you are on-call for emergencies (medical, childbirth, etc.), please let me know at the beginning of the class. Students may be asked to leave the class session for cell phone/pager violations.
- *Food* – students may not bring food or drink into the classrooms. Water in a closable container is okay.
- *Other* – any student claims about something I verbally “allowed” (e.g., “you said I could take a make-up final”, “you said there was no hw”, “you said I would not be dropped even if I missed most of the lectures,” etc.) must be substantiated with some type of verifiable documentation – in particular, an email from me. If it isn’t documented, it didn’t happen.

Engineering Dept Mission Statement: The mission of the Santa Ana College engineering department is to prepare students for transfer to university engineering programs, employment, & careers in engineering and engineering-related occupations.

SAC Mission Statement: The mission of Santa Ana College is to be a leader and partner in meeting the intellectual, cultural, technological and workforce development needs of our diverse community. Santa Ana College provides access and equity in a dynamic learning environment that prepares students for transfer, careers and lifelong intellectual pursuits in a global community.