

**FSE100 Introduction to Engineering**  
**Fall 2018 TTh**

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**Office Hours:** Mon 11am – 1pm, Tue and Thurs 12 – 1pm, or by appointment

**Lecture Meets:** Sec 74418 T 10:30- 11:20am in E-Space ECG G141  
**Lab Meets:** Sec 74419 Th 9:00 – 11:50am in E-Space ECF F122

**Academic Integrity**

ASU expects and requires all students to act with honesty and integrity, and respect the rights of others in carrying out all academic assignments. Each student in this class is expected to abide by the ASU *Academic Integrity Policy* and *Student Code of Conduct*. Discussions are encouraged for assignments. However, individual assignments must be your own work. **Copying is not allowed.** Teamwork must be the original work of the team and each team member is expected to participate in the teamwork.

Team assignments are expected to be completed by ALL members of the team, although the details of how each member participates will be left up to the individuals in the team. **Zero credit** will be given to individuals who fail to contribute in team assignments.

You are encouraged to work with others on assignments. However, assignments denoted as **individual assignments** MUST be your own, original work. If you work with others on these assignments, you must acknowledge their help. Direct copying of others' assignments will result in an **E or XE** for this course. Cheating on exams will also result in an **E or XE** for this course. Any cheating will be reported to the ASU academic integrity office.

**Course Description:**

The Introduction to Engineering course (FSE 100) introduces the engineering design process, engineering models, and provides opportunities to learn about and use various engineering tools and software. The course will also teach basic written and oral communication skills important for communicating technical information effectively. You will learn to work in a team environment, using engineering models and design methods, to address multi-disciplinary engineering design problems.

**Course Learning Outcomes:**

1. Students will work effectively as part of a design team to develop and demonstrate team norms and critique team effectiveness through peer evaluation.
2. Students will apply the steps of the engineering design process based on the analysis of customer needs to design, build, and test a physical prototype.
3. Students will apply customer focused design and the entrepreneurial mindset to create and evaluate design prototypes that will solve problems.
4. Students will use and select appropriate tools and technical skills to collect and analyze data from a variety of sources, to describe and predict the behavior of designs, and to justify design decisions based on appropriate models.
5. Students will write technical project reports and give oral/multimedia presentations about their designs which includes addressing the economic and societal value of those designs.
6. Students will apply project management skills such as scheduling, budgeting, and resource management to an engineering design.
7. Students will be able to identify their motivations, strengths, and contributions within the field of engineering and critique their own skills and understanding through self-reflection.

### Course Materials:

- Abarca, Javier, et al. (2000) "Introductory Engineering Design: A Projects-Based Approach," Third Edition, Textbook for GEEN 1400: First-Year Engineering Projects and GEEN 3400: Innovation and Invention, Integrated Teaching and Learning Program and Laboratory, College of Engineering and Applied Science, University of Colorado Boulder. Available online at:  
[http://itll.colorado.edu/index.php/courses\\_workshops/geen\\_1400/resources/textbook/](http://itll.colorado.edu/index.php/courses_workshops/geen_1400/resources/textbook/)
- Additional required and recommended readings will be provided.

### Course Requirements and Policies:

#### Attendance

Attendance is **MANDATORY** for **ALL** lab and lecture sessions. Excessive tardiness (more than 5 minutes late to a lecture or lab) will cause a reduction in your grade. Missing a lecture or a lab will result in a zero for any quizzes, activities, or labs that may have been scheduled during that class time. An absence will not be counted against a student for university excused absences (illness, death in the family, university sanctioned event, etc.) providing that the reason for the absence is documented **in writing** and the instructor is notified prior to the absence (if possible). Excuses which will **NOT** be accepted include scheduling an appointment during part of the lab/lecture time, taking a math/science test during lab time (if there is a real conflict, you should notify instructor at the beginning of the semester so this can be resolved before the date of the exam). All students are responsible for all material covered during the lecture and lab sessions and arrangements for any make-up work for an excused absence should be done prior to the absence (if possible).

#### Assignments

Assignments must be turned in on stated due dates. **No late assignments will be accepted. Notify the instructor in writing BEFORE an assignment is due** if an emergent situation rises and you cannot turn in the assignment on time. Other excuses will **NOT** be accommodated, for example, printer has not worked; data was not obtained from other group members; assignments were left in the dorm room; the car didn't start; etc. Please follow the appropriate University policies to request an [accommodation for religious practices](#) or to accommodate a missed assignment due to [University-sanctioned activities](#).

If you wish to dispute a homework or exam grade that you received, you must inform your instructor **in writing** within **5 days** of the receipt of the grade.

#### Disability Accommodations

Students with disabilities who may require special accommodations are encouraged to request for them through the [Disability Research Center](#). All such requests will be kept confidential and every attempt will be made to provide equal access.

#### Computers and Cellphones

Laptop computers are NOT to be open in lectures unless needed. Cellphones are **NOT** to be used during lectures or labs. No personal emails, games, music, etc. during lectures or labs. The team may be penalized for individuals in the team who use cellphones, sending personal emails, texting, playing games, etc. during the labs.

#### Sexual Discrimination

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX & university policy make clear that sexual violence & harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling & academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence & dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish discuss any concerns confidentially and privately.

## SEMESTER TEACHING PLAN\*\*

Unit	Day	Date	Lecture/Lab Topic	Requirements	Textbook Chapter
1	Th	8/16	Course/Lab Intro, Team Concepts, Team/Design Activities		6
	T	8/21	Engineering Design Process		
2	Th	8/23	Project Problem Definition Lab	Laptops	3 & 7
	T	8/28	Engineering Models and Idea Generation		
3	Th	8/30	Ideation Lab	Laptops	
	T	9/4	Introduction to Matlab	Laptops	9
4	Th	9/6	Matlab and Modeling Lab	Laptops	
	5	T	9/11	Power Efficiency and Experiment Design	
Th		9/13	Measurement and Experiment Design Lab	Laptops, Closed Toed Shoes	
6	T	9/18	Decision Making & Evaluating Alternatives		14 & 17
	Th	9/20	Evaluating Alternatives Lab	Laptops, Closed Toed Shoes	
7	T	9/25	Project Management	Laptops	
	Th	9/27	Project Planning Lab	Laptops	
8	T	10/2	Technical Drawing		10
	Th	10/4	Drawing/Visual Modeling Lab	Laptops	
9	T	10/9	<b>FALL BREAK – NO LECTURE Automation</b>		Watch Video Lecture
	Th	10/11	Arduino Lab	Laptops	
10	T	10/16	Technical Communication		11 & 12
	Th	10/18	Midterm & Proposal Presentations	Business Casual	
11	T	10/23	Troubleshooting		
	Th	10/25	Project Construction & Testing	Laptops, Closed Toed Shoes	
12	T	10/30	Engineering Economics		
	Th	11/1	Project Construction & Testing	Laptops, Closed Toed Shoes	
13	T	11/6	Entrepreneurial Mindset		
	Th	11/8	Project Construction & Testing	Laptops, Closed Toed Shoes	
14	T	11/13	Cool Engineering Designs		
	Th	11/15	Project Construction & Testing	Laptops, Closed Toed Shoes	
15	T	11/20	Engineering Ethics		5
	Th	11/22	<b>THANKSGIVING – NO LAB</b>		
16	T	11/27	Wrap-Up		
	Th	11/29	Demonstration and Presentation Day	Business Casual	

\*\* This is a preliminary teaching plan and may be adjusted during the semester as needed\*\*

Bold items on the syllabus represent topics that will not have a lecture associated with them. The topics will need to be learned based on the resources provided on the course Blackboard shell.

**Course Grading:**

Teamwork and participation are critical to your success in this course. The table below provides details on how your performance will be assessed for this course.

<b>Individual</b>	<b>Points</b>
Online Lecture Quizzes (13 quizzes - 5 pts each)	65
Lecture Activities (14 activities – 5 pts each)	70
Lab Evaluation and Reflection Questions (10 Evaluation/Reflections – 10 pts each)	100
Design Notebook	45
Midterm Exam	100
Design Process Critique	50
Professionalism*	50
<b>Team</b>	
Lab Worksheets (8 Worksheets - 10 pts each)	80
Design Project	440
<b>Total</b>	<b>1000</b>

**\*Professionalism includes coming to lecture and lab on time and prepared to work, staying on task, participating during lecture and lab time, demonstrating good teamwork, and acting in a manner fitting of the engineering position. This portion of the grade will be determined based on instructor and TA observations, peer evaluations, and documentation of participation in the Design Notebook.**

**Your final course grade will be based the total points you earn during the semester as follows:**

- A+: 990+ points
- A: 900 – 989 points
- B: 800 – 899 points
- C: 700 – 799 points
- D: 600 – 699 points
- E: below 600 points

**Note:** During lab sessions, you will have various opportunities to build skills in the following tools:

- a. Orthographic drawings
- b. Soldering
- c. Power Drills & Jigsaws
- d. Epoxy
- e. Digital Multimeters, Breadboards, Power Supplies, & Circuit Components
- f. Tachometers
- g. Digital calipers
- h. MATLAB, Fusion 360, SolidWorks
- i. Arduino

It is **STRONGLY** encouraged that you take advantage of the chance to learn and use anything you have never worked with before. Most, if not all, will be required for your final design project.

**I have read this syllabus and I understand what is expected of me for this class:**

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date