

Syllabus: Engineering II

Contact Information

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Room 155

Required Class Materials

- Graphing calculator
- Blue or black writing pens
- Colored pencils, pens or highlighters

Class Description

Engineering 2 focuses on applying mathematical and scientific principles to design projects. Examples of such principles may include mechanical advantage, volume, surface area, density, buoyancy, and probability.

Compared to Engineering 1, In this class there is more of a focus on long term planning and design prior to the building process.

Students will learn to design within limitations and manage unpredictable risks. Students will work together cooperatively, and manage time and resources. They will follow instructions, describe results so that these can be replicated, and reflect on mistakes and failures in order to avoid them in future.

Material Donations

Because this class uses up physical materials, I gladly accept donations of tools and materials that may be useful. Examples include:

- Rubber bands
- Craft sticks
- Glue and tape
- Wood, foam, and cardboard
- Blocks
- Electronic parts and batteries
- Scissors and craft knives
- Hot glue and glue guns

Grades and Assignments

Quarterly Grading

- 40% Everyday lab reports and activities, participation assessment.
- 60% Major projects.

Each quarterly grade counts for 37.5% of the final grade and the Final Exam counts 25%.

Lab reports

Lab reports will be completed on the form given in class. They are graded according to a rubric which is detailed on the back of the page. Sometimes bonus points will be available for creativity, outstanding design, or similar.

Please note that these are graded on the quality of the report - not how well the project worked.

Other activities

Some activities will be completed on paper. These will be graded much like any other paper assignment with points given for tasks on the assignment.

Major Projects

Each quarter there will be major projects. These grades have two parts:

1. The lab report, which is graded just like the minor project reports are.
2. A rubric to determine how well the group achieved the objective.

Participation Policy

Students will often be working in groups that are assigned by the teacher. When in these groups, I expect (and students should learn to expect) the following.

- Equitable division of labor.
- Cooperation when gathering materials.
 - Taking only what you need instead of hoarding.
 - Not wasting materials.
- Cleaning up your workspace before class ends.
- Not eating or drinking.
- Providing ideas and encouragement.
- Creative thinking.
- Do not behave in ways that make work for others:
 - Excessive conversation
 - Using PDD
 - Doing other classes work
 - Sleeping, working on other classes, or refusing to participate.

An objective of this course is for students to learn how to work together in a group. Therefore participation is graded. Each quarter students will rate all of their classmates on a scale from 1-5 and the average of these ratings will be a minor grade.

Behavior and Procedure

It is crucial that the classroom remain an orderly space where students are free to learn. Students will receive specific instructions in class. Here are some guidelines.

- Bullying or abuse is not acceptable.
- Do not use language that is vulgar, obscene, or could be considered a slur.
- Practice academic honesty.
- Keep phones put away except in the rare cases that they are needed for an activity.
- Keep food and open drinks put away.
- Sit in assigned seats or with assigned groups.
- Follow instructions concerning movement in the room.
- Use the materials indicated, and get them at the assigned time.
- Follow the Honor Code.
- Maintain the given VL for the activity.

In this class we will sometimes use scissors, x-acto knives, or glue. When using materials such as these which pose a safety risk, students are cautioned to follow instructions.

Knife procedure:

- Students will sign knives out when using them and return them to the teacher's hand.
- Put cardboard on top of the table to use as a cutting surface.
- Only cut the appropriate material for the assigned project.

Cleanliness policy

Help maintain a clean classroom by not eating, or drinking except from containers with closable lids. When there are 10 minutes left in class, be sure to throw away waste. Put unused or reusable materials back. There is a broom and dustpan available to sweep the floor.

Violations will earn reminders, parent contact, detention, or referral as appropriate according to the severity of the violation and number of previous events.

