

# Principles of Engineering

## Instructor Information

Ms. Kristin Barbaw  
Email: [sbarbaw@fusdk12.net](mailto:sbarbaw@fusdk12.net)

Room: 101A Room phone: (510) 656-5711 ext. 46401  
Website: [www.berbaw.com](http://www.berbaw.com)

## Course Description

Principles of Engineering (POE) is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a post-secondary engineering course of study. Students have an opportunity to investigate engineering and high tech careers. POE gives students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem solving skills based upon engineering concepts. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

## Grading Scale/ Grading Information

Daily Lab – 20%

Projects/Inventory/Assessments – 80%

A+	100.1 & ↑	B+	89.9 – 88.0	C+	79.9 –78.0	NC	69.9 & ↓
A	100 – 93.0	B	87.9 – 83.0	C	77.9 –73.0		
A-	92.9 –90.0	B-	82.9 – 80.0	C-	72.9 –70.0		

## Outcome Alignment

**Personal Responsibility:** Students will demonstrate their success with this outcome by completing projects and assignments on time, taking care with equipment, and utilizing all available resources, including tutorial time, classmates, and appointments with the instructor.

**Civic Responsibility:** Students will behave appropriately for a course in Engineering. Students will work with fellow classmates and respect other's property.

**Communication:** Students will develop an increasing level of skill at listening, speaking, reading, and writing to demonstrate understanding of technical ideas.

**Critical Thinking:** Students will demonstrate growth in problem solving skills using a variety of methods.

## Classwork and Projects

Most projects will be done in class and in groups, which makes attendance extremely important. If you have an excused absence, you **may** be able to make up the work missed, but some classwork cannot be duplicated. Late assignments will only be considered for acceptance if an excused absence is presented. If you can make it up, you will have as many days to make up work, as you were absent. It is recommended that you check the website or call a peer in the meantime so that you do not fall behind. Unexcused absences = 0 points on all missed assignments, quizzes and tests. Daily Lab grades cannot be made up.

## Contracts

Due to the group project nature of the class and the cost of each of the equipment we will be using, there will be no contracts given.

## College Credit Opportunity

Principles of Engineering is a dual enrollment course with Las Positas Community College. Students who have successfully completed POE with at least a B are eligible to receive 2 UC transferrable college credits. The class you are getting credit for is ENGR 10, Introduction to Engineering.

## Academic Honesty

- Do your own work.
- Plagiarism and cheating will not be tolerated, and will be dealt with according to the school Academic Honesty Policy.
- Many projects will be done in groups. You are responsible for anything that is turned in with your name on it.

## **Classroom Expectations & Procedures**

- Respect yourself, others, and property at all times.
- All personal electronic devices must be silent and in your bags during class, unless we are using them as a part of the lesson, or they will be confiscated and kept by me for a minimum of 24 hours. If it becomes a problem there will be additional consequences. **ASK TO USE YOUR PHONE IF YOU NEED IT FOR SOMETHING.**
- Follow all school rules and guidelines as defined in the student handbook. If you aren't sure what the rules are, please consult the handbook. Consequences for disorderly conduct in class are aligned to those in the student handbook.
- In order to leave the classroom, you must obtain permission, leave your phone in the classroom, and take the pass. Trips to the bathroom are limited to 3 minutes.
- No sleeping. If you have a medical issue, you may get a pass to see the nurse.

## **Safety**

- Eating and drinking in class is allowed **if** the food is not messy or smelly, **and if** the beverage is in a bottle and has no possibility of bubbling over (no soda). No food or drink is allowed by the computers, or when we are using equipment.
- Wear safety goggles, face masks, and other safety gear when appropriate
- Do not ever put any equipment in your mouth, even LEGO pieces.
- Use tools appropriately, and only for the function for which they are designed.
- Before you use tools or equipment, ASK.
- No horseplay is permitted in the classroom
- Never annoy or distract the attention of anyone working with equipment
- Keep your work area clean and uncluttered. Make sure everything is put away and back in its place by the end of the period. Points will be removed from your Daily Lab if you do not clean up after yourself.

## **Clean Up - EACH DAY**

- Tuck your chair under the table at your computer
- Log off the computer
- Put up the keyboard and mouse
- Put everything away that you have been using
- Check in all toolboxes, tools, and equipment
- Clean up any messes that you have made
- Fold tables, unlock the wheels, and put them in groups of 4 (as demonstrated)

## **Using Tools and Equipment**

- To use a numbered toolbox, check it out on the clipboard.
  - When you check out a toolbox, make sure everything is in the box and alert me if something is missing.
  - When you sign the toolbox back in you are saying everything is present and are financially responsible if something is missing when the next person checks it out.
- To use a drill (after you've been trained), check it out on the clipboard
  - When you check out a drill, make sure everything is in the bag & bit set and alert me if something is missing.
  - When you sign the drill back in you are saying everything is present and are financially responsible if something is missing when the next person checks it out.
- To use any other equipment or tools, ASK
- NEVER use a tool that you have not been trained to use.

## **Strategies for getting an A**

- Stay organized!
- Keep up to date with the class website
- Collaborate on ideas with peers; the real-world values results, which often comes from the efforts of a group rather than an individual
- Utilize FLEX periods, advisory, lunch, and after school for additional work time
- When in doubt, ASK! Never assume you understand. There is nothing wrong with asking questions of your peers or of myself in or out of class.