

Principles of Engineering

Instructor Information

Mr. Henry Fung
Email: hfung@fusdk12.net

Room: 101

Room phone: (510) 656-5711 ext. 46401

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

Employability – 30%

Projects/Inventory/Assessments – 70%

A+	100.1 & ↑	B+	89.9 – 88.0	C +	79.9 – 78.0	D+	69.9 – 68.0
A	100 – 93.0	B	87.9 – 83.0	C	77.9 – 73.0	D	67.9 – 63.0
A-	92.9 – 90.0	B-	82.9 – 80.0	C-	72.9 – 70.0	D-	62.9 – 60.0
						F	0 – 59.9

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 others' 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.

WORKPLACE BASIC SKILLS AND BEHAVIORS

- Apply skills learned in class
- Analyze information and make decisions
- Communicate verbally and in writing
- Work independently and as a team member in a diverse workplace
- Work reliably, responsibly, and ethically

CAREER TECHNICAL SKILLS

- Demonstrate occupational competencies
- Use appropriate technology
- Understand and practice occupational safety standards
- Demonstrate an awareness of how a business or industry functions

JOB EMPLOYMENT SKILLS

- Develop a plan to achieve career goals
- Use effective job search strategies
- Demonstrate an awareness of the importance of life-long learning

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. If you can make it up, you will have as many days to make up work, as you were absent. Late assignments will be accepted but with 10% deduction each day it's late. Make sure to check Google Classroom or call a peer in the meantime so that you do not fall behind. You can only make up your employability grade by coming at lunch, after school, or even on weekends by appointments.

Classroom Expectations & Procedures

- Respect yourself, others, and property at all times.
- All personal electronic devices must be silent and in your bags (or on the charging station) 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.

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.

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 out of all programs, especially Google *it's probably best to use an incognito window and just close itx**
- 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 a stacked group (as demonstrated)

Using Tools and Equipment

- To use a numbered toolbox, check it out on the clipboard.
 - o When you check out a toolbox, make sure everything is in the box and alert me if something is missing.
 - o 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 Dial Calipers, check it out on the clipboard (there is a separate clipboard for taking calipers home).
 - o When calipers are brought back from home I MUST CHECK THEM IN. If they are damaged, lost, or broken you are responsible for the replacement cost.
- 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.

Student Name _____
(Print Student Name)

Irvington Room 101 Equipment Use and Syllabus Agreement Form

For the 2024-2025 school year, students and parents will agree to the following conditions:

I understand that I am responsible for the equipment I use during the class I take in Room 101, which may include but is not limited to Robotics kits with components, Raspberry Pi's with components, 3D printers, Laser Cutters, Vinyl Plotters, CNC routers, sewing machines, hand tools, and many other pieces of equipment. I will bear the responsibility for the replacement or repair cost for any equipment if it is lost, stolen or damaged while in my care.

I agree to follow all the safety rules in the class and to exercise care when using the equipment.

I have read and understand the terms of use. I understand that if equipment is broken or damaged due to my carelessness or disregard of the rules that I will be responsible for the replacement cost.

I have read the syllabus, understand all the information presented, and agree to abide by the rules stated.

Student Signature _____ Date _____
(Student Signature)

Student Name _____
(Student Printed Name)

Parent/Guardian Signature _____ Date _____
(Parent/Guardian Signature)

Parent/Guardian Name _____
(Parent/Guardian Printed Name)

Student Name _____ (Print Student Name) Period # _____

Parent/Guardian Notes for Mr. Fung's IED/PoE Classes

1. All Class Info on Google Classroom and Aeries

All the class info and copies of the syllabus are on our Google Classroom and Aeries. This signature form must be turned in soon. If you are not on your student's Google Classroom yet, please write down your personal email address here so I can try to add you in to have access to our course info and assignments:

Parent's Email Address: _____
Please write **carefully** and **clearly**

2. Student's Employability Grade

This is a Career Technical Education (CTE) course, and therefore we are training our students for their careers with skills that employers desire. That means we want students to:

- be safe for themselves and people around them.
- understand and practice occupational safety standards
- pay attention during lectures and safety instructions
- be on time or inform me if they are going to be absent in a timely manner (online absence form)
- take good care of all the equipment in class and share with others
- not use their phones in class unless given permission
- not waste their class time to rely on outside class time
- ask for permission to leave class for any reasons

Not following any of these rules can seriously affect a student's 30% employability grade. Students can only make up for this grade by coming to detention at lunch, after school, or on weekends if they have afterschool sports or work.

3. Student Progress

Student progress is updated periodically and can be monitored via Aeries and Google Classroom.. Late assignments could be turned in but at 10% off each school day it is late. Please do not hesitate to email me if you have any questions or concerns.

PLEASE MONITOR THE PROGRESS OF YOUR SON OR DAUGHTER THROUGHOUT THE YEAR, ESPECIALLY THEIR 30% EMPLOYABILITY GRADE!

4. Students in danger of failing

This is a project-based class that uses expensive equipment that we have in class. We therefore do almost all of our work during class time. Meaning your student might sometimes need to stay during lunch, after school, or even come on weekends. Please encourage your student not to fall behind, follow the rules in class for everyone's safety, and remind them that it is their responsibility to see me immediately if they miss class for any reason.

I, _____, have read and understand the information provided on this page and the online syllabus, and I will do my best to help my child be successful.
(Print Parent/Guardian Name)

Parent/Guardian Signature _____ Date _____
(Sign Parent/Guardian Name)

Any Comments/Questions you have for Mr. Fung:

Dear Parents of Mr. Fung's IED/PoE Students,

Welcome to another school year! As you are probably aware, running our engineering program at Irvington takes quite a bit of money. Think about all the materials our students will be 3D printing and lasercutting for their projects this year!

A **donation of a lab fee of \$150** would be greatly appreciated and would go a long way to helping us maintain our quality program. Much of that donation will go directly back to the students for the supplies they need for their SIDE (Students Involved in Discovering Engineering) projects in this class that they will get to take home.

Also, **included with your donation is a subscription to Adobe Creative Cloud** (\$240 value for students/\$636 value for non-students). It **includes Illustrator, Photoshop, and other Adobe programs** that you can install at home this year and for anyone in your household can use it.

All donations are tax deductible, and I can provide you with an official receipt from our school if needed.

Suggested Donation: \$150 (more is appreciated, nothing is expected)

Ways to Donate:

- 1) Cash
- 2) Check made out to **"Irvington High School"** with the student's name on the memo line
- 3) Donate through Benevity (companies will match your donation!)
- 4) Donate through your company if you work somewhere that does donation matching

Please keep the bottom portion of this form as your donation receipt.

Name _____ Date _____

Please allow this letter to serve as our formal acknowledgement of your recent donation in the amount of \$ _____. Your donation to Irvington High School will be used for the development of our maker education program at Irvington High School. All of us here greatly appreciate your kindness and generosity.

Given the financial constraints under which education normally operates, donations of this kind are vitally important to the success of our program. Our federal identification number is 94-1636029.