



Engineer Your World

Gregory Poe

gpoe@everettsd.org

2022-2023

Jackson High School



Instructor: Gregory Poe

Room: C204

Office Phone: (425)-385-7000

Tutorial/Office Hours:

2:05 – 2:30 Tuesday, Thursday, or (preferably) by appointment

Website: bit.ly/misterpoe

Email: gpoe@everettsd.org

About Mr. Poe: I love engineering, but even more I love *teaching*. I look forward to seeing my students and helping them grow. I go the extra mile when it comes to planning lessons and ensuring fairness. I'm your coach, not your boss. If we work together, we can accomplish great things.

I've never taught this course the same year-to-year; I'm always trying new projects. That said, this is my 6th year teaching Engineer Your World, so I'm very happy with it! This will be the best year yet.

Course Description: This course introduces students to engineering through a series of projects like creating a pinhole camera, designing an earthquake-proof tower, building an aerial imaging device, etc. Students often express their love for this course because it's project-based, meaning there are no worksheets or tests. That said, this course can be intense. Students learn to program, 3D print, and create complex circuits. Each project lasts about a month and teaches a core engineering practice. Throughout the year, students create an engineering portfolio to display their learning.

Tentative Course Outline:

FALL SEMESTER

Unit 0: Introduction to Engineering
Unit 1: Designing Pinhole Cameras
Unit 2: 3D Modeling
Unit 3: Creating Aerodynamic Cars
Unit 4: Circuit Design

SPRING SEMESTER

Unit 5: Programming Electronic Music
Unit 6: Engineering Research Project
Unit 7: Design a Prosthetic Hand
Unit 8: Build Earthquake-Proof Buildings
Unit 9: Aerial Imaging project

Communication: The best way to reach me is via email. Parents and students may email me to request a date and time to conference. Additionally, I periodically email newsletters to parents.

Tutoring Hours: I'm always available for tutoring on Tuesdays and Thursdays after school from 2:05pm until 2:30pm. But I'm typically available anytime by appointment if I have prior notice.

Canvas: Students need to bring their charged laptops every day. We'll use it to access project instructions, software, portfolios, etc. All this is on the front page of our Canvas course.

Parents may view our Canvas, but they cannot interact with its assignments. I recommend that parents download "Canvas Parent" and students download "Canvas Student" on their phones. More information about accessing Canvas can be found [here](#). NOTE: The grades in Canvas are purely for feedback. Weighted grades are only recorded in Gradebook. Parents, Canvas will read like a checklist for assignments, whereas Gradebook actually records student progress.

Gradebook: Students earn around 5 weighted grades per semester, mostly determined by portfolio entries. Parents and students can access grades [here](#). Note that, students only earn grades upon the completion of projects, so it may take 2 months before they receive their first weighted grade.

The Portfolio: In this class, students are graded for their understanding, not for their “doing”. *This is not a “building” class, it’s an engineering class!* Thus, the portfolio entries are more important for earning credit than whether projects work well. Here’s a snapshot of a typical gradebook. Only the orange columns affect the average. They’re mostly affected by the portfolios (though, for Unit 3, I had to improvise because the student didn’t complete the portfolio entry).

Unit 1: Pinhole Camera			Unit 2: 3D Modeling			Unit 3: Aerodynamic Cars			Semester Grade Average
Final Project	Portfolio Entry	Grade for Unit 1	Final Project	Portfolio Entry	Grade for Unit 2	Final Project	Portfolio Entry	Grade for Unit 3	
B	A	A	B	A	A	A	M	C	B

Portfolio Scores follow this rubric. Note, portfolio entries are intended to be viewed by a parent or college admissions employee. **Thus, they must be clear to anyone, not just the teacher.**

Mastery	A	Anyone viewing the portfolio entry would conclude the student demonstrated mastery of the material and <i>engineered</i> an effective product. Additionally, the entry is clear and professional. You seem impressive!
Proficient	B	Anyone viewing the portfolio entry would conclude the student demonstrated a “ good enough ” understanding of the material and <i>engineered</i> a mostly effective product. Additionally, the entry is clear and professional. You seem competent!
Developing	C	Anyone viewing the portfolio entry would be unsure of the student’s proficiency. At best, your understanding appears to be “ somewhat lacking ” and the product may appear ineffective. Perhaps the entry is unprofessional or unclear .
Beginning	D	Anyone viewing the portfolio entry would be unsure of the student’s proficiency. At best, your understanding appears to be “ very lacking ” and the product may appear ineffective. Typically, portfolios in this category are difficult to understand.
No Evidence	F	You either did not complete a portfolio entry, or there’s no evidence that you understand any concepts.

Make-Up Projects: There are no penalties for late work in this class. However, it’s wise to keep up, because late assignments cannot be completed during class. For students who’ve fallen very behind, I offer the option to make up entire projects with shortened Make-Up Projects. They’re simple, but they only demonstrate a Developing (C-level) understanding, at best. These will replace missing unit grades with Cs. Additionally, completing these warrants an email home. Parents need to know when their children aren’t completing projects. These are for desperate students, so they can catch up with the class. Don’t count on them.