



## Engineer Your World

Gregory Poe

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Cascade High School



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**Instructor:** Gregory Poe

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**Tutorial/Office Hours:** Available after school by appointment

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**About Mr. Poe:** I see myself as your coach, not your boss – if we work together, we can accomplish great things. And yes, I'll probably nag a little along the way because I want you to succeed. I love my job, and I love engineering – but more importantly, I see it as my mission to inspire and encourage students to consider careers in engineering one day.

**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 to 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: 3D Modeling  
Unit 2: Designing a Pinhole Cameras  
Unit 3: Creating Aerodynamic Cars  
Unit 4: Circuit Design

#### SPRING SEMESTER

Unit 5: Programming Electronic Music  
Unit 6: Engineering Research Project  
Unit 7: Build Earthquake-Proof Buildings  
Unit 8: 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 typically do not have students stay after school for this class because there are no tests. But, if a student needs help, I'm typically available anytime by appointment if I have prior notice.

**Classroom Expectations:** This class is not a socializing hour – you are here to learn engineering.

**Cell Phones:** Students must keep their cell phones in assigned pouches at the front of the room for the entire class period, unless they have an accommodation that says otherwise. Attendance depends on leaving your phone in your pouch.

**Class Policy:** Mr. Poe will monitor your computer with Class Policy. Poe may delete your windows if you are off-task, and he may block your web browser if it's not relevant to class.

**Class Contracts:** This class is meant to resemble a real engineering firm. As a result, it is possible to be "fired" from a group (so, you have to complete a project on your own) if you are not contributing. Groups will create contracts with these guidelines at the beginning of every project. It is possible to no longer be allowed in groups if you consistently do not contribute to projects.

**Logging Hours:** Just like with a real engineering firm, you'll log your daily tasks into a Google Form. Poe will use that to determine your participation.

**Student Jobs:** There will be a rotating list of jobs in the classroom on days where we have building projects. You're expected to complete your job each day.

**OneNote:** Students need to bring their charged laptops every day. We'll use it to access project instructions, software, portfolios, etc. This year, we're doing this in OneNote instead of Canvas.

**Grades via Synergy:** This year, Everett Public Schools is switching from Gradebook to Synergy, which consolidates several applications into one. I've been told Synergy does everything Gradebook did and more.

Students will earn 8-12 weighted grades per semester, determined by daily tasks, final products, and portfolio entries. 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". Thus, the portfolio entries are crucial to determining students' grades. I urge you, do not waste the time you're given in class to work on your portfolio – it is a crucial part of this class.

Portfolio Scores follow this rubric.

Mastery	A	Anyone viewing the portfolio entry would conclude the student demonstrated <b>mastery</b> of the material and <i>engineered</i> an effective product. Additionally, the entry is clear and professional. You seem <b>impressive!</b>
Proficient	B	Anyone viewing the portfolio entry would conclude the student demonstrated a " <b>good enough</b> " understanding of the material and <i>engineered</i> a mostly effective product. Additionally, the entry is clear and professional. You seem <b>competent!</b>
Developing	C	Anyone viewing the portfolio entry would be <b>unsure</b> of the student's proficiency. At best, your understanding appears to be " <b>somewhat lacking</b> " and the product may appear ineffective. Perhaps the entry is unprofessional or <b>unclear</b> .
Beginning	D	Anyone viewing the portfolio entry would be <b>unsure</b> of the student's proficiency. At best, your understanding appears to be " <b>very lacking</b> " 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 <b>no evidence that you understand</b> the required concepts.

**Late Work:** There are no penalties for late work in this class. That said, you will not get extra class time for late assignments – they must be completed on your own.

**Make-Up Assignments:** For students who've fallen very behind, I offer the option to make up entire projects with shortened Make-Up Assignments. They're simple, but they only demonstrate a Beginning (D-level) understanding. These can replace missing unit grades with Ds. These are for desperate students, so they can catch up with the class. Email Poe if you need one.