Name:

Engineering Design Syllabus

General Information

Teacher: Ryan Stevens
Contact: ryanstevens@grauerschool.com
Office Hours: Monday and Friday

Introduction/What to Expect

This class will enable you to explore your creativity and expand your knowledge of the world around you through the lens of an engineer. We will learn the steps of the design process and practice brainstorming new ideas. We will also develop skills with the tools of the engineer, including Computer-Aided Design (CAD) and programming with Arduino devices. Together we will work to make it possible for you to bring your own ideas from concept to creation.

Learning Goals

1. Develop an engineering mindset
2. Learn skills and techniques used in the engineering world
3. Develop both hardware and software skills
4. Gain a better understanding of the engineer's role in society

Grading Policy

A significant portion of the grade comes from being an active participant in class activities and weekly formative assessments. Additionally, there will be self-paced homework assignments consisting of 3D-modeling and circuit-building exercises. Students will also be expected to complete several projects based on different engineering skills, culminating in an invention project at the end of the year.

Formative: 45% (homework, quizzes, models, small projects)
Summative: 30% (daily participation, presentations, end of unit projects)
Weekly Evals: 5%
Final Exam: 20% (project based)

Daily Eval Policy

On Monday of each week, a prompt relating to one of the core values will be posted to Google classroom. Students will reflect on this question throughout the week, and before

the end of the day on Friday will submit a reflection detailing how they felt they demonstrated the core value that week.

Late Work Policy
Many assignments in this class will be given in batches to work through at your own pace, however batches will have deadlines that you are responsible for meeting. Late work can be discussed on a case-by-case basis.

Upgrades and Mastery Learning:
All work must be continually revised until it reaches your mastery learning level. As this is an elective class, if you are having trouble with upgrades and/or late work, please schedule a time to speak with the teacher.

Portfolio Guidelines
Please keep all your work in a digital folder so you can easily find and access past work.

Honors
Students who wish to take this class with honors will have several ways of meeting the honors requirements:

1. Learn additional topics in each unit, completing extra assignments and have additional requirements for projects. Additional topics include rendering and simulation and using extra Arduino components.
2. Book Reports: Read an engineering related book from an approved list. Every two weeks, submit a short reflection that contains a summary of the chapter and at least a paragraph with your thoughts.
3. In the second semester, you have the option to do an independent build project in parallel with the normal units. You will submit a proposal for your idea, and will be responsible for documenting your project and having meetings every two weeks to check your progress.

Absent Policy
If you miss class, email me and I will reply with all the info you need from class. This counts as your class participation grade the day you are absent. If you are too sick to email me, then contact me once you are feeling better (but before you return to school.)

AI Policy
The use of AI or other automated technologies to complete assignments is not allowed unless explicitly authorized by the teacher. When authorized, the student must use proper quotes, footnotes or attribution to avoid an academic integrity violation. If you have any questions about what is allowed, please speak with your teacher in advance.

The MOST Important Things

1. Ask lots of questions! Curiosity is the cornerstone of engineering.
2. All ideas, even those that seem ridiculous or outlandish, are welcome here.
3. Engineering is my passion, and I'm always happy to discuss it with you. I look forward to exploring it with all of you in this class!