**Engineer Your World Syllabus**

[www.engineeryourworld.org](http://www.engineeryourworld.org)

 @UTeachEngineer

Welcome to Engineer Your World! This class will engage you in authentic engineering practices in a project-based learning (PBL) environment. Learning is scaffolded over a series of engaging and socially relevant explorations and design challenges. The curriculum focuses on creating a 1) narrative of engineering, 2) building engineering design skills, 3) developing engineering habits of mind, and 4) introducing engineering fields and professions.

This course is aligned with TEKS [§130.373](http://ritter.tea.state.tx.us/rules/tac/chapter130/ch130o.html%22%20%5Cl%20%22130.373): Engineering Design and Problem Solving.

**Instructor:** **Mrs. Cortez** **Conference**: 9:40am – 10:25am

Science Lab #2

 pcortez@hollandisd.org

 254-657-2523

**Academic Calendar (tentative\*)**

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| **Curriculum Series** | **Duration** | **\*Schedule** |
| **Unit 1: Introduction to Engineering** | 5 days | 8/28 - 9/5 |
| **Unit 2: Designing for Customers- Customer Needs (***Exploration***)**  | 7-8 days | 9/6 - 9/15 |
| **Unit 3: Discovering Design- Pinhole Camera (***Design Challenge***)**  | 28 days | 9/18 - 10/27 |
| **Unit 4: Understanding Data: Designing Coffee (***Exploration***)** | 10 days | 10/31 – 11/10 |
| **Unit 5: Designing with Data- Safer Buildings (***Design Challenge***)** | 34-35 days | 11/13 - 12/20\* |
|  |  | *Winter Break* |
| **Unit 6: Reverse Engineering (***Design Challenge***)**  | 24 days |  |
| **Unit 7: Programming- Electronic Music (***Exploration***)** | 10-15 days |  |
| **Unit 8: Systems Engineering- Aerial Imaging (***Design Challenge***)** | 38 days |  |
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**Evaluation and Grading Policy**

We have a lot to accomplish this year; thus the rigid schedule. If you're going to miss class it is **your** responsibility to make arrangements for late work and missed time both with the instructor and your teammates. Late work will **not** be accepted unless **you** schedule a conference with the instructor. There is **no** opportunity to make up missed weekly notebook checks unless **you** make prior arrangements.

Design challenge grades will not be curved. Projects and presentations are graded on many different aspects (i.e., both process and product) providing opportunities for success despite failure in other areas.

1. Individual Assessments (homework, minor, and major grades)

Individuals will be graded on notebooks and assessments. There will both content assessments (quizzes, tests, and homework) as well as peer and self-assessments.

1. Engineer Notebook (**MAJOR GRADE**)

You are required to keep an up-to-date engineer notebook throughout the year representing a significant portion of your overall grade. Notebooks are required in professional practice: they are important legal documents and document the history of your work. Notebooks are invaluable when writing project reports.

* 1. Physical notebooks:

Use your engineer notebook to document all of your work and contributions towards your team's project. Do not use the notebook for lecture notes. Notebooks are working documents, but they must provide a comprehensible trail for your product development effort. Don’t stress perfection, if you make a mistake just cross it out and move on!

Save the first two pages for a table of contents. Please be sure to write the date on each page when you make entries and use indelible ink. Make sure to include titles and sub-titles for coherent organization. Organize your mess!

* 1. Online notebooks:

In addition to a physical notebook, you will submit digital images of two pages from your notebook every week through Google docs. Which pages to be submitted will be determined by the instructor. Please review the detailed instructions on how to digitally submit your notebook and the grading rubric.

1. Team Design Challenges (major grades)

Everyone on the team will be scored for i) final design quality, ii) team documentation/written reports, and iii) team presentation.

**Materials**

* Engineer notebook must be a 9-3/4" x 7-1/2" bound composition book. I recommend graph ruled or college rule with 100 sheets.
* Three ring binder 1” width: for organizing lecture notes, graded work, additional resources.
* Black or blue pen for all notebook entries.
* For design challenges you are highly encouraged bring your own materials outside of class.

**Disclosures:**

1. The curriculum for “Engineer Your World” was written and design by the Cockrell School of Engineering at the University of Texas at Austin. You will be asked to be a participant in a research study with respect to this course. More information and consent forms will be provided.

Participation is entirely voluntary and your choice, in no way, will influence your grade or ability to participate in this class.

1. Student safety is my foremost concern. You will be using electrical components, heating elements, cutting tools, and possibly power tools to complete design challenges. I will not tolerate theft, destruction, senseless play, and miss-use of such items. Be safe, not sorry.

**If you prove to be irresponsible and jeopardize safety, you will not be grant access to tools. If you become a persist problem, you will be banned from class.**

**Advice:**

Have fun, get nerdy, and don't take yourself too seriously! One thing you're going to have to accept is not being perfect the first time around. If you accept the lack of perfection you will learn a whole lot more. Jump right in and learn, reflect, evaluate, and then jump again. Failure lets you know where the problems are!

Yes, there is a lot of work but the work is fun and scaffolded for success. You are primarily graded on the habits of the mind, not the final product.

**Keep up with your engineer notebook!**

Stay busy; there is always something to do.

Manage your time well and learn to make quick decisions as team even if you don't agree. Get over it, continue to work together. Regroup after failure and promote encouragement and ideas not blame and problems.

**Engineering is a process, its progressive…**