Overview

Welcome to Engineering by Design!! This is an algebra-based course that explores the workings of everyday objects and phenomena, while focusing on the career of engineering itself.

Goals

The main objective of this course is to inspire appreciation of engineering in the world around us. Over the course of the year you will:

- Use your newly gained knowledge and insight to understand how the world around us works
- Become competent at using deductive reasoning and problem solving skills to tackle a variety of problems
- Learn how to design and construct models suited for a specific task
- Master the art of writing dry scientific lab reports and blueprints

These goals reflect the belief that all students can and must learn enough science to assume their role as concerned citizens equipped with necessary information and decision-making skills in modern society.

Topics Covered

1. Career information
2. Tools, safety, work ethic
3. Blueprints
4. 3D CAD
5. Alternative Energy
6. Wireless Data Transfer
7. Logic Gates
8. Custom circuitry
9. Product Design
10. Circuitry
11. Microprocessors
12. Current Technologies

Evaluation

You will be graded on a great number of assignments, as it is my belief that practice makes perfect, and that we all learn and express ourselves differently.

Quizzes (32%), Projects & Labs (32%), Homework/In-Class Assignments (32%), Classroom Participation & Performance (CPP) (4%).

Materials

Please bring the following to class everyday, we will be relying on their use heavily:
- Notebook
- Binder
- Writing utensil
- Calculator, preferably TI83+

Possible Projects

[Unit: Design Process]
Build a structure (possibly bridge, tower, or dam) and document the design

[Unit: Energy]
Build an energy efficient stove

[Unit: Electronics]
Night light, generator, phone charger

[Unit: Data Transfer]
Wireless aerial photography “drone”

[Unit: Product Design]
Toy, Bamboo 2 person boat