

Engineering Design Syllabus Fall 2016

Welcome to Engineering Design! In this course, we will be diverging from a traditional science classroom and tinkering with the Maker Movement, where students build and create projects, designed to address real world problems. Our society is rapidly changing with new technology, issues, and jobs. With all of these changes, we must learn to adapt and develop the new skills that are crucial for societal development. Hence, engineers come into play analyzing problems and building solutions to solve them.

In order to address the large variety of issues in the world, there are many categories of engineering such as mechanical, chemical, bio, environmental, geotechnical, etc. Engineers must be knowledgeable in their content area in order to produce rationale solutions. This semester, we will be focusing on electrical and computer engineering, learning how to build different types of circuits and how to computer program. There will be a final semester project combining them using microcomputers called Arduinos.

**Topics we will cover include:**

Unit 0: Introduction to the Engineering Design Cycle

Unit 1: Circuits and Electrical Engineering

Unit 2: Arduinos and Computer Programming

**Standard Based Grading:**

This class uses Standard Based Grading to assess set standards. Standards are assessed during quizzes with four categories of grades:

1. = Low mastery (LM) – little to no understanding of main idea
2. = Approaching Mastery (AM) – basic understanding of main idea, with major gaps
3. = Mastery (M) – strong understanding of main idea, with minor conceptual errors
4. = High Mastery HM) – thorough understanding of main idea and

If you would like to improve your grade on a standard, you may retake a quiz as many times as needed, and your best grade will be inputted. Before retaking a quiz, complete a quiz correction.

**Grade breakdown:**

|  |  |
| --- | --- |
| Participation | |
| 5 | Actively and respectfully contributes to class discussion |
| 4 | Takes notes, respectfully listens, follows directions |
| 3 | Disengaged, sleeps in class, chats with neighbors |
| 2 | Disruptive, actively distracts neighbors |
| 1 | Hostile, resists teacher intervention |

* HW/classwork: 15%
* Labs: 10%
* Quizzes/tests: 30%
* Exhibitions: 40%
* Participation: 5%

**Class policies:**

* Quizzes can be made up any number of times. You must do a quiz correction before retaking a quiz.
* Late homework assignments will be deducted points.
* Late lab reports and exhibitions will be docked for each day it is late.
* Students who are absent for X days will have X+1 days to make up missing work. Afterwards, it will be considered late.
* Unless directed by the teacher, phones should never be out in the classroom. If your phone is out, your teacher will hold on to it. You may pick it up during lunch or afterschool. Refusal will prompt the teacher to notify the dean for an automatic Friday RT. If you need to take an urgent call or message, let your teacher know and she will excuse you.
* If you need to use the restroom, your teacher will hold on to your phone.

**Class expectations:**

Students are expected to always follow two essential rules in the classroom.

1. Respect
   * **The space.** Throw away your trash, push in your chair, and be careful with materials
   * **Others.** Give others the best opportunity to learn by listening intently, respecting their space and belongings, and putting your phone away.
   * **Yourself.** You deserve to have high expectations for yourself and always strive for better.
2. Safety
   * **Physical.** Please do not throw objects (unless instructed in a lab!)
   * **Social and emotional.** This is a judgement-free zone where we need to rely on each other to learn. This is a safe place to make mistakes. Use supportive language.

**Contact information:**

Email: [yenminy@eschs.org](mailto:yenminy@eschs.org)

Advisory: Rm 308 (science prep room)

Engineering Design: Rm 310 (Chem lab) [except on Fridays: Rm 317 (Desiree’s room)]

If you need additional help, come to my AfterSchool on Wednesday and Breakfast study on Thursday in the Barbara’s room (312).