

# Plymouth Public Schools' Science and Technology/Engineering Program College Prep 1 Engineering Design Process Course Syllabus

## STE2063 Engineering Design Process College Prep 1

Semester course intended for students in grades 9 through 12 worth 2.5 credits

### Course Description

This laboratory course will engage students with essential questions about technology, engineering, science, and decision-making. It will provide hands-on experience with the Engineering Design Process and further the introduction of the students to key physics concepts related to careers in technology and engineering. The prerequisite includes departmental recommendation.

### Instructional Objectives

Students will independently and collaboratively:

1. Engage in scientific inquiry and engineering design through the use of science and engineering practices.
2. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to answer a question or solve a problem.
3. Draw evidence from literary or informational texts to support analysis, reflection, and research.
4. Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.
5. Engage in sophisticated design problems that build from middle school technology/engineering standards.

### Themes and Topics

Engineering design is applied to complex societal challenges in order to define design problems and develop solutions. Major topics include:

1. Analyzing challenges
2. Identifying design problems to improve
3. Determining criteria and constraints
4. Breaking complex problems into more manageable problems
5. Evaluating solutions
6. Planning prototypes and designing solutions
7. Documenting and presenting solutions
8. Evaluating possible solutions and providing feedback for further improvement

### Text and Instructional Materials

*Engineering the Future: Science, Technology, and the Design Process*. Emeryville, CA: Key Curriculum Press, 2008.

### Cheating/Plagiarism

The excerpt from the Plymouth Public Schools' Student Handbook on plagiarism and copyright infringement states, "Existing copyright law will govern the use of material accessed through network. The user will not plagiarize works found on the Internet. Plagiarism is taking the ideas or writings of others and presenting them as if they were yours. All copyrighted material used must have the express written permission of the person or organization that owns the copyright. Any student who has cheated on any academic exercise will receive no credit for that exercise. Plagiarism is a form of cheating. A parent/guardian will be notified by the involved teacher in all instances of cheating. The investigation of the claim of cheating and plagiarism will involve the student, teacher, and administration."

### Grading Policy and Assessment

Levels of proficiency on various tasks and assignments determine student grades. During each grading term, students' grades will be based upon the following:

- 30% Class Work and Homework
- 70% Assessments

The final course average (semester) will be calculated as follows:

- 45% Term Grade (first of the semester)
- 45% Term Grade (second of the semester)
- 10% Final Exam