

**Charles H. Milby High School**  
**Principle of Applied Engineering Course Syllabus**  
2021 – 2022

**Teacher Name:** Ms. Mondesir

**Room #:** 1612

**Email:** [rebecca.mondesir@houstonisd.org](mailto:rebecca.mondesir@houstonisd.org)

**Course Description**

In the Principles of Applied Engineering, we will be following the PLTW Introduction to Engineering Design (IED) curriculum. Below is a summary of the course outline:

In IED, students explore engineering tools and apply a common approach to the solution of engineering problems, an engineering design process. Utilizing the activity-project-problem-based (APB) teaching and learning pedagogy, students will progress from completing structured activities to solving open-ended projects and problems that require them to develop planning, documentation, communication, and other professional skills especially in developing mechanical solutions.

Through both individual and collaborative team activities, projects, and problems, students will apply systems thinking and consider various aspects of engineering design including material selection, human-centered design, manufacturability, assemblability and sustainability. Students will develop skills in technical representation and documentation especially through 3D computer modeling using a Computer Aided Design (CAD) application. As part of the design process, students will produce precise 3D-printed engineering prototypes using an additive manufacturing process. Student-developed testing protocols will drive decision-making and iterative design improvements.

To inform design and problem solutions addressed in IED, students will apply computational methods to inform design by developing algorithms, performing statistical analyses, and developing mathematical models. Students will build competency in professional engineering practices including project management, peer review, and environmental impact analysis as part of a collaborative design team. Ethical issues related to professional practice and product development are also presented.

**Outline of Course Units**

<b>First Semester</b>	<b>Second Semester</b>
<u>Unit 1: Design and Problem Solving</u> Lesson 1.1 Design Basics Lesson 1.2 Visualization and Solid Modeling Lesson 1.3 CAD Fundamentals Lesson 1.4 Product Improvement	<u>Unit 2: Assembly Design</u> Lesson 2.1 Put It Together Lesson 2.2 Take It Apart Lesson 2.3 Material World Lesson 2.4 Fix It
	<u>Unit 3: Thoughtful Product Design</u> Lesson 3.1 Responsible Design Lesson 3.2 More Than Parts

**Grading Policy Summary:**

Grades will be computed using a weighted grading scale. The number of assignments in each category may vary from cycle to cycle, but the final grade will always be computed in the same manner:

Daily Classwork:	45%
Homework:	10%
Quizzes:	15%
Tests:	30%

**Submission of Late Work/Make-Up Work & Opportunities for Reassessment**

In accordance with HISD Secondary School Guidelines, page XV-27, students must be given opportunities to make-up or redo a class assignment for which the student received a failing grade. Teachers shall provide students an opportunity to redo/retake a test. Students will have one week (five school days) from the date the test is returned to the student and/or the grade is publicly posted. Students will receive the higher grade of the two tests. Teacher must document all opportunities given to students to make-up missing assignments and failing grades.

**Extra Help:**

I am available before or after school most days to answer questions or provide extra help if needed. Students should not hesitate to seek extra help if needed.