

Introduction to Engineering Design (IED)

2021 – 2022

Instructor	Mrs. Livia Castro
Room Number	G211
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Class Time	Period1 and Period 2
Tutoring Hours	FLEX TIME
Course Description & Objectives	<p>Introduction to Engineering Design (IED) is a high school engineering course in the PLTW Engineering Program. 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' progress from completing structured activities to solving open-ended projects and problems that require them to plan, document, communicate, and develop other professional skills.</p> <p>Through both individual and collaborative team activities, projects, and problems, students apply systems thinking and consider various aspects of engineering design including material selection, human-centered design, manufacturability, assemblability and sustainability. Students 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 produce precise 3D-printed engineering prototypes using an additive manufacturing process. Student-developed testing protocols drive decision-making and iterative design improvements.</p> <p>To inform design and problem solutions addressed in IED, students apply computational methods to inform design by developing algorithms, performing statistical analysis, and developing mathematical models. Students build competency in professional engineering practices including project management, peer review, and environmental</p>

impact analysis as part of a collaborative design team. Ethical issues related to professional practice and product development are also presented.

Course Units

Unit 1 Design and Problem Solving
Unit 2 Assembly Design
Unit 3 Thoughtful Product Design
Unit 4 Making Things Move

Course Requirements

Students will need to bring the following items to class daily:

- Pen or Pencil
- Folder
- Engineering Notebook
- Scientific Calculator

Course Expectations

1. Check PowerSchool, Google Classroom, and school email account daily
2. All assignments must be in on time
- Student must schedule time for retakes
3. Communicate ideas clearly both orally and in writing
4. Actively participate in classroom activities and team projects
5. Use technology appropriately to solve problems

Grading Policy

Summative assignments are worth 80% of the grade and Formative assignments are worth 20% of the grade.

Grading Scale: A+ (97-100%), A (93-96%), A-(90-92%), B+(87-89%), B (83-86%), B-(80-82%), C+(77-79%), C (73-76%), C-(70-72%), D+(67-69%), D (63-66%), D-(60-62%), F (0-59%).

- Projects are a VERY important part of the PLTW Curriculum. Most projects will be done in teams of 2 or 3 students. Each student will keep project documentation in their engineering notebook. Project grades are based on team and individual performance.

- Assignments receiving a grade of 80% or below can be redone in order to achieve a grade of 80%.

I conform: _____ (Student's Full Name / Signature / Date)
<https://tinyurl.com/ncfkmks3>

I attest: _____ (Parent's Full Name / Signature / Date)
<https://tinyurl.com/ncfkmks3>