# PLTW – Introduction to Engineering Design

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Introduction to Engineering Design (IED) is a high school level course that is appropriate for 9th or 10th grade students who are interested in design and engineering or another technical career. The major focus of the IED course is to expose students to a design process, professional communication and collaboration methods, design ethics, and technical documentation. IED gives students the opportunity to develop skills in research and analysis, teamwork, technical writing, engineering graphics, and problem solving through activity-, project-, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB-learning challenges students to continually hone their interpersonal skills and creative abilities while applying math, science, and technology knowledge learned in other courses to solve engineering design problems and communicate their solutions. IED also allows students to develop strategies to enable and direct their own learning, an ultimate goal of education.

No previous knowledge is assumed, but students should be concurrently enrolled in college preparatory mathematics and science courses in order to facilitate the use and understanding of appropriate math and science concepts necessary for the successful completion of IED coursework. In addition, students will use industry standard 3D solid modeling software to facilitate the design and documentation of their solutions to design problems and challenges. As the course progresses and the complexity of the design problems increase students will learn more advanced computer modeling skills as they become more independent in their learning, more professional in their collaboration and communication, and more experienced in problem solving.

Introduction to Engineering Design is one of the foundation courses in the Project Lead The Way high school pre-engineering program. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

The course of study includes:

- Design Process
- Technical Sketching and Drawing
- Engineering Documentation and Drawing Standards
- Measurement and Statistical Analysis
- Applied Geometry
- 3D CAD Solid Modeling
- Reverse Engineering
- Product Design
- Engineering Ethics
- Virtual Design Teams
- Presentation Design and Delivery

PROJECT LEAD THE WAY PLTW

**COMMUNICATION:** I believe that good communication is the key to helping your child do their best. Here are a list of different systems that you will be able to use to monitor your child's progress.

- **Class Website** - I have a created a class website that I put, lesson plans, quizzes, exams, and other supplemental materials for students to help them with the curriculum.

**http://mrslaing.weebly.com/**

- **Remind101** – An anonymous texting program to send out reminders, due dates, supply needs, and upcoming events. **Please go to our class website above to enroll!**
- **Learning Management System** - Project Lead The Way has created the LMS to replace programs like Edmodo and Blackboard, this system will house all course materials. Ask your child to login and show you the LMS. Note: I will not be using the LMS grade book.
- **PowerSchools** – This is our grading and attendance system. Every student has their own login to PowerSchools. This is the best way to keep up to date with how your child is doing in their classes.
- **Google Voice** – I have a google voice phone number that you may call or text message at any time if you have questions. The number is (920) 343-6415 and is also listed on my website.

| **Grading for PLTW courses:** | | **Grading Scale:** |
|---|---|---|
| **Engineering Notebook** | **30%** | **A** = 100 – 93 |
| **Quizzes / Exam** | **10%** | **B** = 92 – 85 |
| **Projects / Problems** | **30%** | **C** = 84 – 77 |
| **Midterm** | **10%** | **D** = 76 – 70 |
| **End of Course Exam / Final** | **20%** | **F** = Below a 70 |

**Required Supplies:**

- **Engineering Notebook** (required) – composition notebook with ¼ inch graph paper (you can normally find these at any office supply store)
- **Pens or Pencils** – students will be writing in their engineering notebooks EVERYDAY, they will need good pencils or pens for class. (I highly recommend several different colors) I do NOT recommend markers as they bleed through the pages
- **Headphones** – students with watch several short instructional videos and tutorials that require them to have headphones.
- **Flash drive** – students will need a flash drive to carry classwork and projects back and forth between home and school.
- **Project Specific Supplies** – Each unit I will send home requests for odds and ends to help with our project, both the students and I appreciate anything you are able to help with.

**Parents/Guardians**

- Please review the classroom expectations and procedures with your child
- If your child has any conditions that I need to be aware of, please notify me ASAP
- Please feel free to contact me at any time if you would like to check on your child's progress.

----------Please detach and return----------

Student Name (Print Clearly) Signature: Date:

Parent/Guardian Name (Print Clearly) Signature: Date:

Phone / Email: