



ENGINEERING DESIGN AND DEVELOPMENT (EDD)

PLTW ENGINEERING CAPSTONE COURSE

MR. VEENEMAN

Prerequisites: Introduction to Engineering Design, Principles of Engineering, and Digital Electronics

Grade: 12

Length of Course: 1 year

Credit: 1

Course Discription

Engineering Design and Development (EDD) is the senior capstone course in the Project Lead the Way high school pre-engineering program at Marshfield High School. This is an engineering research course in which students will work in teams to research, design, test, and construct a solution to an open-ended engineering problem. Students will attempt to solve this problem using the design process and the knowledge and skills gained in previous PLTW courses. The team presents and defends their solution to a panel of outside reviewers at the conclusion of the course. This course also engages students in time management and teamwork skills; a valuable set of skills for students in the future.

The possibilities for this course are endless. Students are encouraged to use their imaginations as well as the skills gained in previous courses to come up with an innovative idea to help solve a current problem. PLTW students are doing amazing work and some have even received patents for their creations.

Textbooks:

There is no required textbook for this course. All course content can be accessed through the Project Lead the Way learning management system at www.mypltw.org. Students can access all definitions, notes, and assignments through this site using their username and password.

All class work, notes, and sketching will be kept in the Engineering Notebook. This will be an important percentage of the students' grade. It will be graded on consistency, neatness, and organization.

In addition, students will be using www.innovationportal.org to create an online portfolio throughout the year.

Materials:

Engineering Notebook (supplied by instructor) 1 GB (or more) Flash Drive

Pencils Pens Highlighter Scientific Calculator

Students are expected to have ALL supplies daily.

The Engineering Design and Development course of study includes:

- The Design Process
- Intellectual Property
- Research
- Problem Identification, Validation, and Justification
- Teamwork
- Project Management
- Design Specifications
- Concept Testing
- Design Proposal
- Virtual Solutions
- Building a Prototype

- Testing a Prototype
- Test Evaluation and Refinement
- Documentation
- Presenting the Process and Results

Class Time- The class will not always run as conventional classes do. Students may need to use class time to make phone calls to professionals/Experts or businesses. They may need to run to the local hardware store, Walmart, etc. There will be times when the design process may require students to use the expertise of several other teachers and classrooms in the building.

Homework- There will be many times/hours spent working on things that cannot possibly be done during class or in a classroom setting. Students should expect to use after school hours to conduct surveys contact engineers, professionals or experts in the field of their design problem.

There will be several presentations to a selected panel of people/professionals. Presentations will showcase progress throughout the design process.

DATES TO REMEMBER:

Gallery Walk- Parent Teacher Conferences: Oct. 17 or Oct. 19

Professional presentation- December, date and time TBA

Gallery Walk- Night of the Arts: April, date TBA

End-Of-Course (EOC) Exam – None

Grades

Grades will be based on multiple design steps and process throughout the course. The Engineering Notebook documentation will also be graded.

All grade points will have a total of 20 points possible.