Engineering Design & Development Syllabus

Course Description/Goals:

The knowledge and skills students acquire throughout PLTW Engineering come together in this capstone course as they identify an issue and then research, design, and test a solution, ultimately presenting their solution to a panel of engineers. Students apply the professional skills they have developed to document the design process and solution.

Course TEKS/Objectives:

Engineering Design and Presentation I is a continuation of knowledge and skills learned in Principles of Applied Engineering. Students enrolled in this course will demonstrate knowledge and skills of the design process as it applies to engineering fields using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students will use a variety of computer hardware and software applications to complete assignments and projects. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas

https://tea.texas.gov/about-tea/laws-and-rules/sboe-rules-tac/sboe-tac-currently-in-effect/ch130o.pdf

Course Outline:

Semester 1	Semester 2
-What is a Capstone Project? -Identification and Justification of a Problem -Documentation and Analysis -Presentation and Justification of Solution Requirements -Design Concept Generation, Analysis and Selection -Application of STEM Principles and Practices	- Construction of a Viable Prototype - Prototype Testing and Data Collection Plans - Testing, Data Collection and Analysis - Documentation of External Evaluation - Presentation of Designers Recommendations

-Consideration of Design Viability	- Presentation of the Project and Portfolio - Reflection of Project goals