

Principles of Engineering Syllabus

Course Description/Goals:

Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation. This course is a required STEM course.

Course TEKS/Objectives:

Students enrolled in Engineering Design and Presentation demonstrate knowledge and skills of the design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Through implementation of the design process, students transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and learn what is required to gain and maintain employment in these areas.

<https://tea.texas.gov/academics/curriculum-standards/teks-review/127i-rule-adopt-with-header.pdf>

Course Outline:

Semester 1	Semester 2
<ul style="list-style-type: none">● Engineering Design Process● Collaborative Modeling and Product Design● Material Choice & Testing● Simple /Compound machines● Mechanisms● Introduction to Robotics● Robotics in Action	<ul style="list-style-type: none">● Artificial Intelligence● Electrical Circuits● Fluid Power● Kinematics● Statics● Renewable Energy● Transportation