

Introduction to Engineering & Design

Syllabus

Course Description: Students dig deep into the engineering design process, applying math, science, and engineering standards to hands-on projects. They work both individual and in teams to design solutions to a variety of problems using 3-D modeling software and use an engineering notebook to document their work.

Intro to Engineering and Design
Calallen High School

Prerequisite: none, 9-12

Student Required Supplies: Folder or binder to keep handouts

School Provided Materials: CHS Computers, CAD software, Engineering Notebook, tools

****Students will keep all equipment in the classroom! The tools, equipment, drafting pencils, rulers, calculators, and other equipment belong to the school and are not for student's use outside the room.**

Grading Policy:

In addition to the Calallen High School grading policy, student work will be assessed and graded based off student portfolio and student projects and student participation in group projects.

Evaluation and Assessment: Final grades are based off of a weighted grading scale.

Major Unit projects/Portfolio	60% of grade
Classwork	40% of grade

The grading scale for Calallen High School is as follows:

A = 90% – 100%

B = 89% - 80%

C = 79% - 70%

F = 69% - below

Requirements for Assignments:

Students will have the majority of class time for assignments as I realize the equipment and software is not available outside of school for students. However, if a student is not able to complete the project during class time, then it is the responsibility of the student to make arrangements with me to have access to the room to complete projects.

Instructor Disclaimer:

Despite careful planning, situations sometimes arise which can alter the subject matter being taught. The unit/schedule is tentative and subject to change.

Academic Integrity:

Academic Integrity is essential to a positive teaching and learning environment. All students are expected to complete coursework responsibilities with fairness & honesty. Failure to do so, by seeking unfair advantage over others or misrepresenting someone else's work with your own will result in disciplinary action. Students caught cheating will be dealt appropriate consequences after a meeting with the student, teacher, principal and parents to address this serious issue.

Classroom Expectations:

In addition to the Calallen Student Code of Conduct, the following is expected in the classroom:

- Respect, Responsibility, Trustworthiness, Caring/Kindness, Citizenship
- This is a Pre-Engineering Course and the level of expectation for mature, ethical behavior is increased and anything less will not be tolerated as it does not lead to the professional conduct expected in the "Real World."

If you choose not to follow the expectations or guidelines the following will take place:

RESULTS OF CHOICES

- Student/Teacher Conference
- Parent phone call
- Appropriate Consequences

Course Description

This course provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will use a variety of computer hardware and software applications to complete assignments and present projects. Upon completing this course, students will understand the various fields in engineering and architecture, be able to make informed decisions regarding a coherent sequence of subsequent courses. Further, students will have worked on a design team to develop a product or system. Students will use 3D modeling software and safely handle tools to create prototypes and concept sketches in order to communicate ideas and understand concepts.

Course Summary

Unit 1: Design and Problem Solving

Unit 2: Assembly Design

Unit 3: Thoughtful Design

Unit 4: Critical Thinking and Problem Solving