



Syllabus

Product Design & Engineering

Course description and goals:

Product Design & Engineering (PDE) is a UC-approved engineering course offered as part of Tustin High School's T-Tech Technology & Engineering Academy. As a natural progression from traditional 2D and 3D CAD programs, PDE offers students the ability to use the same high-level tools used by industry professionals in engineering and industrial product design. These tools include SolidWorks 3D CAD modeling software as well as the latest in additive and subtractive manufacturing technology with products from AirWolf 3D, Stratasys Dimension, 3D Systems, Roland, MakerBot, Epilog Laser, and more. During the course of the class, students will be able to design a product *and* create a physical prototype of that product. Upon completion of the course, each student will also have a finished resume and portfolio of all their work and will be given the opportunity to take the *Certified SolidWorks Associate (CSWA)* exam, an industry-level professional certification. Passing the CSWA will give students a clear advantage in the technology workplace and college-level engineering curricula.

Standards: Pursuant to California CTE *Engineering & Architecture* standards 1.0 - 11.5 and *Engineering Design Pathway* Standards C1.0 - C11.2.

Prerequisites: PDE is only open to 10th and 11th grade students who have been accepted into the T-Tech Engineering & Technology Academy. A Geometry grade of "C" or better is also required.

Materials: Recommended Supplies – Dedicated design notebook and pencil, laptop computer.

Grading Policy:

Semester grades will be computed by the following formula:

Classwork & Projects	60%
Tests, Quizzes & Presentations	20%
Class Participation & Group Work	20%

Letter grades will be earned according to the following scale:

90% - 100%	A
80% - 89%	B
70% - 79%	C
60%- 69%	D
Below 60%	F

Grades are posted regularly online via the Tustin High School *Parent Portal*. All students and parents should be routinely checking progress online and notify the instructor immediately if there is a discrepancy.

T-Tech Academy – It is imperative to remember that a student's grades and attendance will greatly impact his or her ability to continue within the academy - all students will be required to re-apply for admission to T-Tech at the end of each school year.

Classwork, Projects & Attendance – PDE is a project-based class, which means there will be very little homework in the traditional sense. However, attendance and class participation become extremely important. If a student is absent and does not make up the projects missed, his or her grade and that of the group may be negatively affected.

Students will be required to take notes daily and keep all notes, sketches and design ideas in a dedicated Engineering Notebook provided by the instructor.

Behavior — All Tustin High School guidelines for behavior will be strictly enforced in class, including rules for attendance, tardiness and the use of electronic devices for non-academic purposes. Although students should feel free to work together and consult each other for extra help with their homework, outright cheating will not be tolerated. Each student will receive clarification on expected behaviors during the first days of school.

Office hours -- Mr. Hernandez is available most days before school, during 6th period, after school, and at other times by appointment. Students are encouraged to seek help at the first sign of difficulty. Parents are also encouraged to check their student's progress regularly via the Parent Portal and to contact the instructor with any concerns. Email is the best and quickest method of communication but you can also leave a message at the office or classroom extension. Students and parents will also be able to subscribe to the T-Tech *Remind* app, alerting them via text message or email on T-Tech matters including homework, meetings, etc. The T-Tech Google Classroom page will also be a vital part of the class and students are expected to check it daily.

Phone: 730-7414, Ext. 526

Room: Science Center #5206, T-Tech Shop room 605

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Expected School-wide Learning Results

The Tiller Family is a “Team” that produces graduates who:

Think critically across the curriculum through:

Integrating WICOR strategies

Creating and developing high quality products

Analyzing multiple sources

Effectively communicate:

Using a wide range of media and technology

By taking personal, social, and civic responsibility

Fostering positive interactions with our diverse population

Advance literacy:

While innovating, discovering, and taking risks

Through synthesis and analysis of a rigorous curriculum

By exploring cultural, scientific, global, and visual competencies

Manage time and resources effectively by:

Prioritizing, planning and achieving results

Using real-world tools

Balancing physical and mental fitness

To the student: The Constitution of the State of California requires that we provide a public education to you free of charge. Your right to a free education is for all school/educational activities, whether curricular or extracurricular, and whether you get a grade for the activity or class. Subject to certain exceptions, your right to a free public education means that we cannot require you or your family to purchase materials, supplies, equipment or uniforms for any school activity, nor can we require you or your family to pay security deposits for access, participation, materials, or equipment. Under certain circumstances, students involved in extracurricular programs, clubs and/or sports may be required to attend fundraising events held by the program, sport or club just as you may be required to attend any other event put on by that program, club or sport. However, you will not be required to raise funds as a condition of participation.