

# Introduction to Engineering Design • 2024-2025

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Welcome to Ms. Trojanowski's Introduction to Engineering Design class!

## Course Overview:

Introduction to Engineering Design (IED) is a high school level course that is appropriate for 9th or 10th grade students who are interested in design and engineering. The major focus of the ID course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. ID gives students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB-learning challenges students to continually hone their interpersonal skills, creative abilities and understanding of the design process. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

The course assumes no previous knowledge, but students should be concurrently enrolled in college preparatory mathematics and science. Students will employ engineering and scientific concepts in the solution of engineering design problems. In addition, students use a 3D solid modeling design software package to help them design solutions to solve proposed problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community.

Introduction to Engineering Design is one of three foundation courses in the Project Lead The Way high school pre-engineering program. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

## The course of study includes:

- Design Process
- Modeling
- Sketching
- Measurement, Statistics, and Applied Geometry
- Presentation Design and Delivery
- Engineering Drawing Standards
- CAD Solid Modeling
- Reverse Engineering
- Consumer Product Design Innovation
- Marketing
- Graphic Design
- Engineering Ethics
- Virtual Design Teams

- Students are expected to utilize the Canvas daily for access to all assignments and resources, and to utilize Canvas to complete most assignments for this class.
- Your child will have access to sufficient resources to master ALL standards and objectives. I will provide all of the instruction and support necessary.
- Internet access is required.
- Students should ask critical questions about the content and use all resources available!

Student Initials \_\_\_\_\_ Parent Initials \_\_\_\_\_

### Daily Materials:

1. Engineering Notebook and pencil/pens (Provided)
2. MyPLTW Website (This is our virtual text book)
3. Canvas (Our virtual classroom)

Student Initials \_\_\_\_\_ Parent Initials \_\_\_\_\_

### Competency-Based Learning:

70% Competencies (projects and tests)

30% Classwork (attendance and effort)

If you fail a competency, you are expected to re-do it.

- Review the lessons from the chapter or project
- Take notes and correct your work
- Schedule an appointment to re-take the competency during lunch or after school.

You are responsible for making up work missed due to absences and for rescheduling competencies if necessary. ***Cheating will result in a score of zero.***

Student Initials \_\_\_\_\_ Parent Initials \_\_\_\_\_

### Grading:

Grades for all assignments are awarded on a 5-point scale, then weighted by category.

Grading Scale:		Grade Distribution:
90% - 100%	A	70% Competencies (projects and tests) 30% Classwork (attendance and effort)
80% - 89%	B	
70% - 79%	C	
60% - 69%	D	
0% - 59%	F	

Student Initials \_\_\_\_\_ Parent Initials \_\_\_\_\_

### Citizenship and Appropriate Use:

1. Citizenship grades will be in accordance with the Canyon Hills High School Citizenship Rubric. A copy of this rubric will be posted on Canvas.
2. Students agree to respect and handle all materials and resources with care.
3. Students will use electronic devices respectfully and responsibly.
4. Students will be prompt and prepared and will use the restroom before class.
5. Students can check their citizenship grades at any time by contacting Ms. Trojanowski.

Student Initials \_\_\_\_\_ Parent Initials \_\_\_\_\_

### LATE ASSIGNMENT POLICY

- Assignments that are turned in late will be subject to a loss of 10% per day up to a maximum of 50% before receiving a 0, unless a doctor's note or other legitimate document is provided.
- No late work will be accepted after the unit assessment.
- If a student is absent, it is her/his responsibility to receive the missed work and instructions from Canvas or directly from the teacher (depending on the assignment)

Some make up work may be difficult to complete at home without the necessary computer programs, most of which are free to install. See your instructor for more information.

#### **CELL PHONES**

Complying with San Diego Unified and Canyon Hills High School policy, cell phones may not be out during class.

#### **OFFICE HOURS**

Office hours will be during lunch and available upon request.

#### **CLASSROOM EXPECTATIONS**

Students are expected to demonstrate professionalism in the classroom. This includes the following:

- Students will arrive to class on time or they will be marked tardy.
- Students will treat their teacher, classmates, and classroom with respect.
- No food or drinks are allowed in class.

#### **WORKSHOP SAFETY**

All students must pass the safety tests and adhere to the safety guidelines outlined in the WORKSHOP SAFETY CONTRACT (Attached).

**I have read the class Syllabus and understand Ms. Trojanowskis' policies and expectations:**

Student Name (Print): _____	Parent Name (print): _____
Student Signature: _____	Parent Signature: _____
Student Phone: _____	Parent Phone: _____
Student Email: _____	Parent Email: _____

## WORKSHOP SAFETY CONTRACT

Please read this form carefully.

I, \_\_\_\_\_, authorize my student to use approved power tools in activities related to engineering projects for IED, POE, or Green UP at Canyon Hills High School under the direction of Cora Trojanowski, the engineering instructor. I understand that using these types of tools can be dangerous and can create certain risks, including, but not limited to personal injury, illness, death, or property damage. I choose to allow my student to use these types of tools and do hereby release and forever discharge and hold harmless Canyon Hills High School and the Cora Trojanowski from any and all liability, claims, and demands of whatever kind of nature which arise from using power tools in the classroom.

I understand that proper safety handling and training will be provided to my son/daughter, including both a written test and a hands on practical examination to ensure that all safety rules are clearly understood and will be followed. My student will not be allowed to use power tools until both tests have been passed AND a copy of this contract, signed by a parent/guardian is returned to the instructor.

Please read the following rules with your student.

### Safety Rules

1. An instructor must be present during all laboratory work.
2. Always approach workshop experiences in a serious and courteous manner.
3. Leave backpacks, purses, and other such items in the classroom. Take only notebooks into the workshop area.
4. Confine long hair, jewelry, and sweater draw strings while in the workshop.
5. Wear shoes that cover the toes, rather than sandals, in the workshop. (If you need close toed shoes, please let the instructor know and we will provide you with a pair).
6. Wear appropriate eye protection, as directed by the instructor, whenever you are in the workshop.
7. Know the location and operation of the emergency eyewash station, fire extinguisher, and exits.
8. Report any accident to the teacher immediately, no matter how minor. Included are reports on any burn, scratch, cut, or damaged equipment and materials.
9. NO RUNNING in the workshop!!!
10. Only one student within the yellow and black lines at a time.
11. Only use only those materials and equipment authorized by the instructor.
12. Eating or drinking in the workshop is not permitted.
13. Students are not permitted in workshop storage rooms or teachers' workrooms without the approval of the teacher.
14. All waste must be immediately deposited into the appropriate waste container as directed by the instructor.
15. Violations of these rules may result in a loss of daily points and/or loss of workshop privileges

**Please fill out the following information acknowledging that you have read and agree to the terms of the Workshop Safety Contract and Safety rules.**

Date \_\_\_\_\_

Print name of student \_\_\_\_\_

Student Signature \_\_\_\_\_

Print parent/guardian name \_\_\_\_\_

Parent/guardian signature \_\_\_\_\_

Parent/guardian phone \_\_\_\_\_

Emergency Contact and relationship to student (if someone other than parent)\_\_\_\_\_