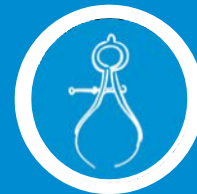


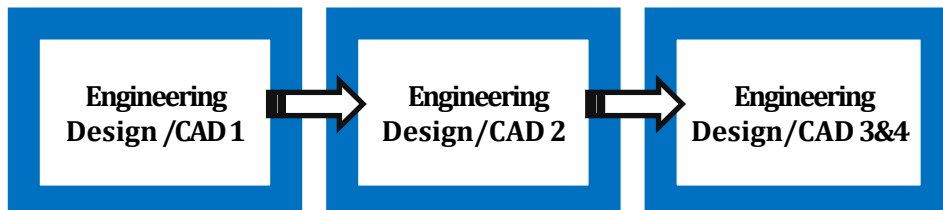
# Engineering Design & CAD Pathway

## Engineering and Architecture



PLEASANT VALLEY HIGH SCHOOL

### CTE Engineering Pathway Course Sequence



### Course Descriptions

#### Engineering Design/CAD 1 (Concentrator)

This year-long course focuses on the basic elements of **Engineering Design**, including **graphic language**, freehand sketching, lettering, and use of **drafting equipment**. Students also learn the **geometry of technical drawing**, and how to do **single plane** and **orthographic drawing**, as well as **pictorial presentations**, **sectional views**, and **auxiliary drawings**. Work in **Computer-Aided Drafting (CAD)** will include the **Cartesian Coordinate System** through 2D problems using **AutoCAD** software. Students can earn **Butte College credit** upon completing this course.

#### Engineering Design/CAD 2 (Capstone)

Year-long course for students who have successfully completed Engineering Design/CAD 1. Students will learn **3D Design Principles** using various **CAD systems**. Units of study will include Cartesian Coordinates, **Universal Coordinate System**, **planes/surfaces**, **wire-frames**, **surface models** and **solid models**. Students will also create **visual effects** with various materials and **lighting tools**. Solid models will be dimensioned, scaled and displayed in proper template form. All work will be assembled into a **student portfolio**. Students can earn **Butte College credit** upon completing this course.

#### Engineering Design/CAD 3 & 4 (Advanced)

Year-long course for students who have successfully completed Engineering Design 1 & 2. **Hands-on** learning in Engineering applications related to **parametric modeling**, **materials**, and **material properties**. Engineering **models**, **assemblies** and sub-assemblies will be **constructed** and **animated**. A series of projects and **reverse Engineering** assignments will be used to develop modeling skills and create **portfolios**.

#### LOCAL POST-SECONDARY OPTIONS:

Butte College

*AS Degree in Engineering  
AS in Drafting & CAD Tech.  
Certificate in Drafting & CAD  
Certificate in Architectural  
Drafting and Modeling*

CSU, Chico

*Civil Engineering  
Construction Management  
Concrete Industry Management  
Electrical Engineering  
Mechanical Engineering*

#### HIGH-WAGE CAREERS:

- \* Civil Engineer
- \* Mechanical Engineer
- \* Design Architect
- \* Electrical Engineer
- \* Product Engineer

Contact:

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Career and Technical  
Student Organization:



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