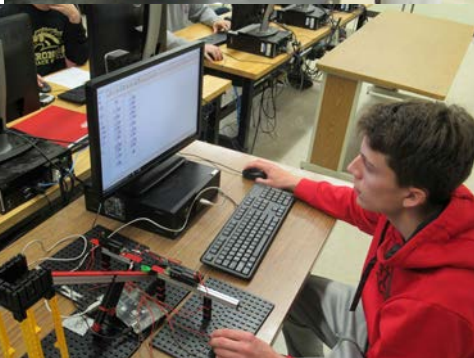




# Pre-Engineering (PLTW)

Wilbur H. Palmer  
Career and Technical  
Education Center

**Project Lead The Way (PLTW), a national program where students understand the relevance of math and science by engaging in hands-on, real world projects. Students understand how the skills they are learning in the classroom can be applied in everyday life. Students develop many of the skills professionals need to succeed in today's economy. Some examples include problem solving, research and design, and data collection and analysis skills. It also provides study skills for time management as well as resource management. Students gain an understanding of the potential impact their ideas and products may have on society. It is a solid foundation for college study in Engineering.**



**Sample Occupations for Pre-Engineering Graduates** (Source: Bureau of Labor Statistics- Occupational Outlook Handbook)

Job Title	Projected Openings Through 2026	Average Salary
Chemical Engineers	2,500	\$102,160
Nuclear Engineers	700	\$105,810
Computer Hardware Engineers	4,000	\$115,120
Industrial Engineers	25,100	\$85,880

For More information: Contact your Local School Counselor OR

Wilbur H. Palmer CTE Center  
@Alvirne High School

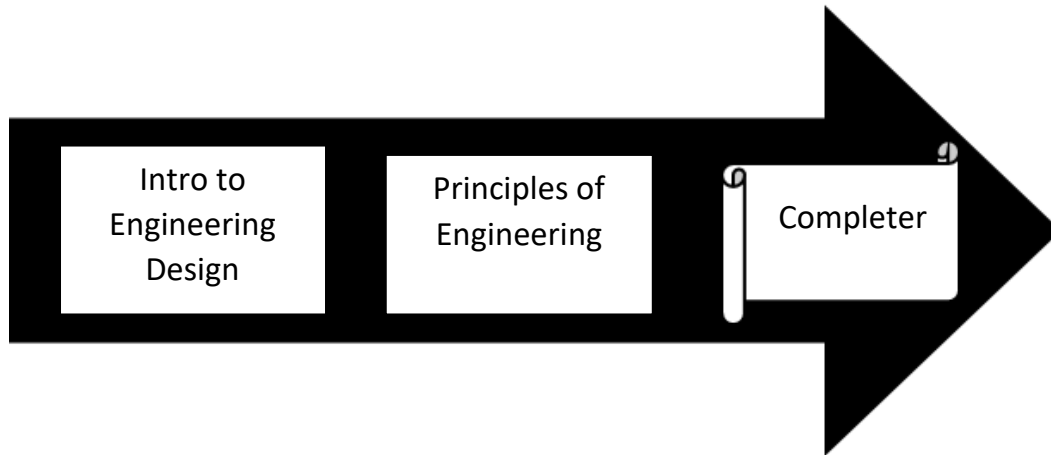
200 Derry Road

Hudson, NH 03051

tel.: 886-1260 x75010

web: <https://cte.sau81.org/>

# Pre-Engineering Program Path



**Overall Course Description:** Alvirne High School offers a pre-engineering program called Project Lead The Way (PLTW). Alvirne's Project Lead The Way program is certified by PLTW. Project Lead The Way (PLTW) is the leading provider of rigorous and innovative Science, Technology, Engineering, and Mathematics (STEM) education curricular programs used in middle and high schools across the U.S. PLTW's comprehensive curriculum for engineering and biomedical sciences has been collaboratively designed by PLTW teachers, university educators, engineering and biomedical professionals and school administrators to promote critical thinking, creativity, innovation and real-world problem solving skills in students. The hands-on, project-based engineering courses for high schools and middle schools and biomedical sciences courses for high schools engage students on multiple levels, expose them to areas of study that they typically do not pursue, and provide them with a foundation and proven path to college and career success. The PLTW curriculum is founded in the fundamental problem-solving and critical-thinking skills taught in traditional career and technical education (CTE), but at the same time integrates national academic and technical learning standards and STEM principles. Reference: [www.pltw.org](http://www.pltw.org)

## Course Descriptions

### **Introduction to Engineering Design:** *Grades 10 or 11; year long course; CTE755*

Students will develop three-dimensional solid models by sketching simple geometric shapes and using a solid modeling computer software package. Students will work within a problem-solving design process and learn how it is used in industry to manufacture a product. Use a Computer-Aided Design System (CAD) & Inventor™ (CSG) to analyze and evaluate the product design. The techniques learned and equipment used is state-of-the-art and currently being used by engineers throughout the US.

**\*Prerequisite:** Successful completion of ICT Literacy.

**\*Freshmen are eligible if they have completed the middle school PLTW courses and with department chair approval.**

### **Principles of Engineering:** *Grades 11 or 12; year-long course; CTE756*

Students will develop the basic skills used in the engineering field to solve problems. They will use a Computer-Aided Design System (CAD) & Inventor™ (CSG) to analyze and evaluate the product design. The techniques learned and equipment used is state-of-the-art and currently being used by engineers throughout the US. The use of math as well as modeling skills will be employed to solve problems along with skills honed from IED. Students can earn articulated credit at NHTI, Concord.

**\*Prerequisite:** Successful completion of Algebra 1 and Introduction to Engineering Design

**\*Successful completion of this yearlong course will satisfy one elective science requirement for graduation**