



Engineering & STEM Opportunities

Courses Offered:

Introduction to Engineering Design

An engaging, fun, real-world studio where students from all backgrounds use a design-thinking approach to think, discover and design like an engineer. Together, we will dig deep into the engineering design process and be prompted with hands-on projects like designing a new toy or improving an existing product.

⇒ IED is a prerequisite for future PLTW courses

Principles of Engineering

This course exposes students to some of the major concepts they will encounter in postsecondary engineering courses. Students employ engineering and scientific concepts in the solution of engineering design problems.

Biotechnical Engineering

This course engages students in engineering design problems related to biomedical engineering, cardiovascular engineering, genetic engineering, agricultural engineering, biotechnology, biomedical devices, and bioethics.

Digital Electronics

Digital electronics is the foundation of all modern electronic devices such as mobile phones, MP3 players, laptop computers, digital cameras, and high-definition televisions. Students are introduced to the process of combinational and sequential logic design, engineering standards, and technical documentation.

Civil Engineering and Architecture

This course introduces students to various aspects of civil engineering and architecture. Topics include, but are not limited to, building components and systems, structural design, road design, storm water management, site design, utilities and services, cost estimation, and energy efficiency.

Why take a PLTW elective?

- To experience “real-world” hands-on projects;
- To prepare for future college engineering programs;
- To gain exposure to multiple areas of engineering study;
- To experience cutting edge technologies and software;
- To meet and work with engineers from various industries in the area;
- To receive college credit, scholarship opportunities, and engineering experience; and
- To explore the field of engineering before deciding on a college and major.

PLTW courses develop and enhance:

- An interest in engineering, medical, or technological fields;
- A mindset for innovation;
- Design and problem-solving skills;
- Hands-on, project-based learning;
- Project-management skills;
- Professional computer and equipment operating skills;
- The connection between art, design, mathematics, and science; and
- A desire to help others and improve the quality of life.

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Facts and College Options:



create.



make.



solve.



build.



analyze.



grow.

PLTW Facts:

- **PLTW works.** When surveyed, **85%** of the high school seniors in the program indicated their primary area of study after high school would be in engineering, technology or computer science.
- PLTW helps influence and engage women in engineering. **Female student participation** in PLTW courses exceeds or is comparable to participation in college engineering programs.
- In college, a high percentage of engineering majors drop out or change their major because they did not experience engineering in high school. **PLTW students have an 85% student retention rate** in the 2nd year compared to **40% nationwide.**
- Observations by independent entities have shown that PLTW **increases student aptitude in STEM fields** and **increases retention rates in college engineering programs.**
- **The University of Wisconsin-Madison** suggests that students who take PLTW courses achieve **higher test scores** in non-STEM subject areas.
- PLTW students exceeded the average academic growth rate over one year of non-PLTW students in science concepts, processes and in mathematics.
- Currently, there are over **1,300,000 engineering jobs available** in the U.S. without trained people to fill them. We need more engineers!



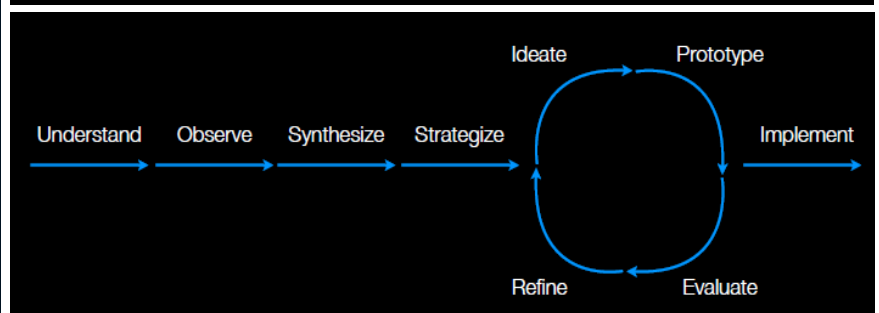
College Planning and Options:

Any Project Lead the Way course taken at New Trier has a designated PLTW title listed on the transcript. Students who earn a "B" average or higher in their PLTW course are eligible to register for college credit and Dual Credit at participating schools.

Each PLTW course qualifies for Dual Credit. See our Dual Credit webpage.

Some schools do not give direct college credit. However, they look for high school pre-engineering courses (PLTW) on a student's transcript. They also encourage students to discuss their experiences in those courses in their essays.

Please see your instructor for more information.



PLTW Course Offerings @ New Trier:	Level Options	9th	10th	11th	12th
Introduction to Engineering Design*	Elective Credit	X	X	X	X
Principles of Engineering (Mechanical)*	9, 4		X	X	X
Civil Engineering and Architecture	9, 4		X	X	X
Digital Electronics	9, 4		X	X	X
Biotechnical Engineering	9, 4		X	X	X
Research, Design & Digital Fabrication	Elective Credit		X	X	X

* Denotes prerequisite option for other engineering courses