Bridges Career Academy
PLTW Engineering
Brainerd High School

Explore the variety of careers in engineering, design, manufacturing and digital electronics. Use design software, investigate engineering concepts, learn civil engineering design specifications and explore biotech engineering. Participate in hands-on projects and experiences.

Academic Courses

- Intro to Engineering Design
- Principles of Engineering
- Civil and Architectural Engineering
- Computer Science
- Environmental Sustainability

Career Experiences

- Learn from industry speakers
- Work with real life industry projects
- Tour local businesses
- Attend the Bridges Career Exploration Day or other regional career fairs

Completion Standards

COMPLETE

☑ **Intro to Eng. Design AND Principals of Eng.**

☑ **+ one course**

GRADES **B** ↑

ACT CAREER READINESS CERTIFICATE — GOLD

Earn a **certificate** and **green cord** at graduation

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Job Skills

In addition to having technical skills, employers expect workers in this industry to have these skills:

- Listening skills
- Manage tools and equipment
- Use critical thinking skills
- Effectively communicate
- Time management

Bridges Career Academies & Workplace Connection

www.BridgesConnection.org/Brainerd

PLTW Engineering Academy
Brainerd High School

Project Lead the Way Engineering Career Academy allows students to explore the variety of careers in engineering, design, manufacturing and digital electronics. Students will use design software, investigate engineering concepts, learn civil engineering design specifications and explore biotech engineering. Hands-on projects and experiences are an integral part of this Academy.

ACADEMY COURSES

Introduction to Engineering Design — 1 High School Credit and/or 3 College Credits
Students learn the 12-step engineering design process, basic use of Autodesk Inventor, basics of structural, visual and functional analysis. The course is project based, and students learn through presentations and projects.

Principles of Engineering — 1 High School Credit and/or 3 College Credits
This course helps students understand the field of engineering through project-based activities. Students are required to explore various technology systems and engage in design processes. Students will understand how and why math, science technology and engineering fit together.

Civil and Architectural Engineering — 1 High School Credit and/or 3 College Credits
Students will study of the design and construction of residential and commercial building projects. The course is an introduction to the varied factors involved in building design and construction including building components and systems, structural design, storm water management, site design, utilities and services, cost estimation, energy efficiency, and careers in the design and construction industry.

Computer Science — 1 High School Credit and/or 3 College Credits
Using Python as a primary tool and incorporating multiple platforms and languages for computation, this course aims to develop computational thinking, generate excitement about career paths that utilize computing, and introduce professional tools that foster creativity and collaboration.

Environmental Sustainability — 1 High School Credit and/or 3 College Credits
This STEM course combines research and design in a hands-on, project-based format. Major units of study include Clean Water for the World, Feeding our Growing Population/DNA Manipulation, and Sustainable Energy Sources. Students will explore how engineering techniques apply to living organisms; how biological engineering will contribute to feeding a growing human population.

COMPLETION STANDARD
Students wishing to receive a certification must complete Introduction to Engineering Design and Principals of Engineering courses and complete one additional class in the Academy. Students must pass classes with an average of at least 85% and, if offered, pass the nationally normed PLTW test with a score of 70% or better. Students will also participate in the ACT National Career Readiness Certificate (NCRC).

CAREER EXPERIENCES
Students will explore and research careers with industry speakers, attend Bridges Career Exploration Day, and other career fairs, tour local businesses, and work with real life industry projects.

JOB SKILLS
In addition to having technical skills, employers expect their workers to have other skills such as:
- Listening skills
- Manage tools and equipment
- Use critical thinking skills
- Effectively communicate
- Time management

CAREER OPTIONS: www.careerwise.minnstate.edu/careers
JOB OUTLOOK: www.careerwise.minnstate.edu/jobs
POSTSECONDARY PROGRAMS: www.careerwise.minnstate.edu/education

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