



Bridges Career Academy

Engineering

Pequot Lakes High School

Use design software, investigate engineering concepts, learn civil engineering design specifications and explore biotech engineering using hands-on activities. Learn the fundamental principles of mechanics used to design almost everything — from jet airplanes to coffee pots to bicycles, and how design influences products such as shoes, carnival rides, and even doors.

Academic Courses

- Intro to Engineering Design
- Calculus I
- General Physics
- Architectural Design/Model Building

Career Experiences

- Complete a research project
- Tour local businesses
- Listen to industry speakers
- Attend the Bridges Career Exploration Day or other regional career fairs

Completion Standards

COMPLETE

ALL courses

GRADES **B** ↑

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



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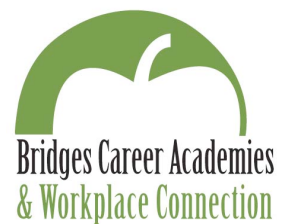
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Job Skills

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



www.BridgesConnection.org/PequotLakes

Engineering Career Academy

Pequot Lakes High School

Engineers design almost everything — from jet airplanes to coffee pots to bicycles. The Engineering Academy applies the fundamental principles of mechanics to design. Engineering is not limited to just machines; it influences products such as shoes, carnival rides, and even doors. Careers cross over into all disciplines, working on everything from artificial organs to massive manufacturing machines. Students will use design software, investigate engineering concepts, learn civil engineering design specifications and explore biotech engineering using hands-on activities.

ACADEMY COURSES

Introduction to Engineering Design — .5 High School and/or 3 College Credits

This course teaches problem-solving skills using a design development process. Models of product solutions are created analyzed and communicated using solid modeling computer design software. Students will enter the exciting world of engineering and design. Design problems will be given to the engineers and designers to solve using 3-D computer modeling and animation. The software used in this class is used in industry by actual mechanical designers and engineers.

Calculus I — .5 High School and/or 3 College Credits

This course is a review of the concept and properties of a function. There is an emphasis on graphing and behavior of a function. Limits are introduced and developed. The derivative of a function is defined and applies to algebraic and trigonometric functions. The course also covers the following topics; anti-differentiation and elementary differential equations, definite integral as a limit of a sum and as related to anti-differentiation via the Fundamental Theorem of Calculus applications to maximum, minimum and related rates, differentiation and integration of exponential and logarithmic functions.

General Physics — .5 High School and/or 4 College Credits

This is an algebra-based course that covers the mechanics and mechanical wave component of classical physics. The course covers kinetics, force, dynamics, gravitation, work and energy, waves and sound. The course emphasizes conceptual understanding and problem solving. The lab component is designed to reinforce conceptual understanding with hands-on experiences, measurements and opportunities for scientific writing. The course used digital data acquisition and simulations to help students visualize and understand abstract concepts.

Architectural Design/Model Building — .5 High School Credit

In this course students use hand drawings, industrial leading 3-D software and construction materials to design and build houses. Student will learn types of homes, styles of homes, current trends in residential design and learn about the housing market in the area.

COMPLETION STANDARD

Students wishing to receive a certification must complete all the courses with a grade of 'B' or better.

CAREER EXPERIENCES

Students completing this academy will complete a research project, listen to business and industry speakers, tour various businesses and attend the Bridges Career Exploration Day event and other regional career fairs.

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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