



Bridges Career Academy

Engineering

Staples-Motley High School

Understanding of careers in the engineering, manufacturing and technology. Experience working with a variety of metals while designing, welding and fabricating projects. Develop a broad range of skills from understanding geo-referencing to repairing small engines. Project based, using real life activities. Gain entry-level employment or continue education.

Academic Courses

- Geographic Information Systems
- Small Gas Engine
- Beginning Welding Technology
- Introduction to Welding
- Introduction to Mechanics
- Power Mechanics

Career Experiences

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

Completion Standards

COMPLETE

3 of the 6 courses

GRADES **B** ↑

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



Engineering Career Academy

Staples-Motley High School

The Engineering Academy provides students with an understanding of the vast number of careers in the engineering, manufacturing and technology. Students experience working with a variety of metals while designing, welding and fabricating projects. In addition, students develop a broad range of skills from understanding geo-referencing to repairing small engines. The Academy is project based, uses real life activities, and allows students to work on both required and personal projects. When completing this academy, students will have skills to enter the work force or continue their education at a post-secondary institution.

ACADEMY COURSES

Geographic Information Systems — .5 High School Credit

This is a computer-based and geo-reference based course designed for students with interest in natural resources, engineering, historical, and social systems. Students in this course will be using Geographic Positioning Systems (GPS) in conjunction with Geographic Information Systems (ARCGIS 10.0) to create and manipulate maps that can be applied to thousands of geo-spatial situations to make decisions. This course examines principles, capabilities, and limitations of digitizing information partially using GIS. Students will also examine how GIS can be used in a variety of career fields which can improve your employability and wages in future career. GIS software analyzes selected environmental, social, and economic issues through spatial analysis.

Small Gas Engine — .5 High School and/or 3 College Credits

There are 10 million engines produced each year and all of them will need service and maintenance. If you are interested in working in the small engine industry or just want to know how to maintain your own equipment, this class is for you. The course is aimed at learning the basic principles of 2 and 4 cycle engines by hands-on experience with school supplied engines. Students will have the opportunity to bring in their own engines as well as chainsaw maintenance and safety.

Beginning Welding Technology — .5 High School Credit

This covers basic techniques used in the welding industry: oxyacetylene welding and cutting, shielded metal, gas metal, gas tungsten, arc welding, and plasma arc cutting. Students will spend considerable time in lab developing these skills while being exposed to basic shop practices and career exploration. Welding is a prerequisite for Introduction to Welding course.

Introduction to Welding (Advanced Welding) — .5 High School and/or 3 College Credits

This course will be offered second semester only. This is a project-oriented course where students will layout design, calculate material costs, repair and or fabricate personal projects. Further development of welding techniques with pipe, mild steel, aluminum and stainless steel using arc, MIG and TIG processes will also be options.

Introduction to Mechanics — .5 High School Credit

In this class students will learn the basics. First the students will have a chance to practice basic welding techniques used in oxyacetylene welding and arc welding. The students then move into a unit on small gas engines where they will learn the basic parts of a two-stroke and four-stroke engine. The students learn the basics in electricity, hooking up different types of light switches along with outlets. The final unit is plumbing; the students will have a chance to learn the basic terms along with applying those terms.

Power Mechanics — .5 High School Credit

Students who have successfully completed small gas engines may enroll in this class. Students will compete in the High Mileage Vehicle event sponsored by the Briggs and Stratton Company. Students will design, fabricate and test the high mileage vehicles.

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COMPLETION STANDARD

Students wishing to receive a certification must complete three of the six courses, earning a 'B' or better in each course.

CAREER EXPERIENCES

Students will explore and research careers with industry speakers, attend the Bridges Career Exploration Day event and other regional career fairs, tour the 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

