



Bridges Career Academy

Manufacturing

Swanville High School

Understand careers in manufacturing. Experience working with a variety of metals, while designing, welding, machining and building machines. Learn skills in mechanical designing using blueprint reading, engine operations, measuring, and shop safety. Project-based, using real life activities. Design and build a high mileage car for competition. Gain entry-level employment or continue education.

Academic Courses

- Welding I
- Basic Metals/Metal Fabrication I
- Basic Metals/Metal Fabrication II

Career Experiences

- 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 ↑

ATTENDANCE

90%

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



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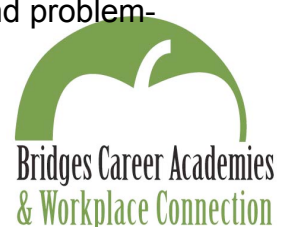
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Job Skills

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

- Understanding planning and time management
- Be an active member of a team
- Use critical thinking and problem-solving skills
- Work precisely and manage tools and equipment
- Understand blueprints
- Work safely



www.BridgesConnection.org/Swanville

Supported in part by Sourcewell (formerly NJPA)

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The Metals Design Academy provides students with an understanding of the vast number of careers in the world of manufacturing today. Students will experience working with a variety of metals, while designing, welding, machining and building machines. Skills in mechanical designing using blueprint reading, engine operations, measuring, and shop safety are essential elements of the courses. The academy is project based, uses real life activities and allows students to design and build a high mileage car for competition. When completing this academy, students will have skills to enter the workforce or go on to higher education.

ACADEMY COURSES

Welding I — 2 High School Credits

This course is designed for any student who may have an interest in welding. Subjects covered will be stick, TIG, MIG wire feed, oxyacetylene welding and cutting, welding aluminum, repair projects, and the basic operation of a plasma cutter. Students will be able to select and construct a project of their own as they develop welding skills.

Basic Metals/Metal Fabrication I — 2 High School Credits

This course will introduce the students to career related occupations in the manufacturing trades. Some math will be involved in writing up their material list and figuring the final cost, as well as, drafting their project orthographically before they are allowed to start their project. Machine operation and safety will be emphasized and basic projects can be constructed. This class is designed for hands-on-builders. Students will learn basic welding techniques such as oxy-acetylene and plasma cutting, Arc, TIG and MIG wire feed welding. Curriculum includes learning about aerodynamics, metal cutting fabrication and small engine and drive systems. Students will design and build a car for the MN Supermileage competition.

Basic Metals/Metal Fabrication II — 2 High School Credits

This class is designed for students who have completed Basic Metals/Metal Fabrication I course successfully. Students will continue to challenge themselves by learning more advanced welding skills and metalworking skills as well as enhancing their design skills as they plan and design personal metal projects. Students will also design and build a car for the MN Supermileage competition.

COMPLETION STANDARD

Students wishing to receive a certification must complete all courses, earning a minimum of a 'B' average in all courses. Students may appeal before a board of administrators and teacher. In addition, students in one semester must have 90% attendance (which equates to two days of unexcused absences). If students turn in late work, each day that it is late, 10% will be dropped from their score. Students that have excused absences will have one day for each absence. Unexcused absences will have one-day total to turn in assignments.

CAREER EXPERIENCES

Students will explore and research careers with industry speakers, work with professionals in the industry, tour local businesses and participate in Bridges Career Exploration Day.

JOB SKILLS

In addition to having technical skills, employers expect their workers to have other skills such as:

- Understanding planning and time management
- Be an active member of a team
- Use critical thinking and problem-solving skills
- Work safely
- Work precisely and manage tools and equipment
- Understand blueprints

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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