

Grade 9 Exploration of Welding Technology (10S)

Course Code: 8377

Program: Senior Years Technology Education Program (SYTEP)

School: Swan Valley Regional Secondary School

Cluster: B – Heavy Industrial Technologies

Course Length: Approximately 25 instructional hours (5-week rotation)

Instructor: Mr. Jeremy Hicks

Course Description

Exploration of Welding Technology (10S) is an introductory course offered as part of the Grade 9 Cluster B – Heavy Industrial Technologies rotation at Swan Valley Regional Secondary School. During this five-week rotation, students are introduced to the welding trade through a combination of classroom instruction and hands-on shop activities.

Students develop an understanding of safe work practices, shop procedures, welding equipment, hand and power tools, measuring and layout, and introductory welding and fabrication techniques. The course also introduces students to careers in welding and the skilled trades while developing workplace habits and employability skills expected in industry.

Instruction is based on selected outcomes from the Manitoba Grade 9 Exploration of Welding Technology curriculum and has been adapted to suit the 25-hour exploratory rotation model.

Course Goals

Upon successful completion of this course, students will:

- Demonstrate safe work habits in the welding shop.
- Properly use required personal protective equipment (PPE).
- Identify common welding tools, equipment, and materials.
- Perform basic measuring, layout, cutting, and grinding operations.
- Demonstrate introductory welding skills.
- Complete a basic fabrication project.
- Develop teamwork, responsibility, communication, and workplace professionalism.
- Explore career opportunities within the welding industry.

Course Content

Shop Orientation and Safety (5 Hours)

Students are introduced to shop rules, personal protective equipment, emergency procedures, WHMIS, hazard recognition, safe work procedures, fire safety, and proper housekeeping practices. Safety expectations are reinforced throughout the course.

Welding Careers and Workplace Expectations (1 Hour)

Students explore career opportunities within the welding trade, apprenticeship pathways, workplace expectations, and the importance of employability skills.

Measuring, Layout and Shop Mathematics (2 Hours)

Students learn to accurately measure using metric and imperial systems while developing basic layout and marking skills required for fabrication projects.

Hand Tools and Shop Equipment (4 Hours)

Students identify, inspect, and safely operate common hand tools, portable power tools, grinders, drill presses, and other shop equipment used in welding and fabrication.

Introduction to Welding Processes (3 Hours)

Students are introduced to the basic principles of SMAW, GMAW, and oxy-fuel equipment through demonstrations and guided activities. Emphasis is placed on safe equipment operation and identifying appropriate applications for each process.

Basic Welding Skills (4 Hours)

Students develop introductory welding skills including machine setup, striking an arc, running weld beads, and following safe welding procedures under instructor supervision.

Fabrication Project (5 Hours)

Students complete the **Metal Dice Project**, applying measuring, layout, cutting, fitting, welding, grinding, and finishing techniques while demonstrating safe work habits and craftsmanship.

Review and Assessment (1 Hour)

Students complete final practical demonstrations, review course concepts, and reflect on their learning and future opportunities in welding.

Assessment

Student achievement will be evaluated using the following categories:

- **Classwork:** 20%
- **Practical Skill Demonstrations:** 30%
- **Tests and Quizzes:** 30%
- **Projects:** 20%

Assessment emphasizes both theoretical knowledge and practical skill development. Students are expected to demonstrate safe work habits, active participation, and quality workmanship throughout the course.

Required Personal Protective Equipment

Students are required to wear appropriate PPE during all shop activities. If the student does not have the following PPE, it will be provided to them.

- CSA-approved steel-toe boots or toe caps
- Safety glasses
- Hearing protection
- Welding gloves

Students who do not wear the required PPE may not be permitted to participate in shop activities.

Student Expectations

Students are expected to:

- Attend class regularly and arrive on time.
- Follow all shop safety rules and teacher instructions.
- Wear required PPE before entering the shop.
- Respect classmates, instructors, equipment, and facilities.
- Maintain a clean and organized work area.
- Participate fully in classroom and shop activities.
- Demonstrate responsibility, teamwork, and professionalism.
- Complete assignments and projects to the best of their ability.

Unsafe behavior may result in removal from shop activities until safety expectations have been met.

Cell Phone Policy

To maintain a safe and focused learning environment, students are required to hand their cell phones to the instructor at the beginning of each class. Cell phones will be securely stored for the duration of the class and returned to students at the end of the class period.

Students do not require personal cell phones during Grade 9 Welding Technology. School-issued laptops and classroom resources will be provided for any online learning activities, research, quizzes, or other educational tasks.

This policy helps minimize distractions, promotes student engagement, and supports a safe working environment within the welding shop.

Curriculum Alignment

This course addresses selected learning outcomes from the Manitoba Grade 9 Exploration of Welding Technology (8377) curriculum appropriate for a 25-hour exploratory rotation.

Areas of study include:

- Trade Safety
- Career Education
- Trade Communication
- Trade Mathematics
- Tools and Equipment
- Materials and Consumables
- Weld Processes and Quality Inspection