

I. COURSE DESCRIPTION:

This course will build upon the set of skills developed by the successful completion of Welding–WLD121 by introducing students to common layout and fabrication techniques. Students will learn to read basic drawings and symbols in order to fabricate components to the specified size and shape. Weld quality will be verified by means of both guided bend tests and / or fillet fracture tests.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. *Identify and Select Personal Protective Equipment for Arc Welding Operations*

Potential Elements of the Performance:

- identify proper eye, hand and face protection
- identify proper footwear and clothing
- identify and select filter lenses
- describe the effects of exposure to ultra violet and / or infra red radiation
- locate and identify shop ventilation controls
- locate and identify emergency exits
- locate and identify manifold shut-off valves for the shop gas system
- identify hazards associated with the SMAW / GMAW process
- understand emergency shop evacuation procedures

2. *Demonstrate the ability to read Shop Drawings in order to obtain the information required to fabricate a component or components to size and shape.*

Potential Elements of the Performance:

- Identify and name structural steel shapes and plate to include
 - Angle Iron
 - Channel Iron
 - Standard Wide Flange
 - Plate
 - Sheet Metal
- Identify standard drawing abbreviations and details to include
 - N/S – F/S
 - ON CL
 - Major piece marks
 - Minor piece marks
 - Standard Material Designations
- Identify common welding symbols to include
 - AS – OS
 - Fillet Welds – length and size

- Groove Welds – preparation and size
- Field / Shop Welds
- Intermittent and Staggered Welds – length and pitch
- Locate General Notes to required identify materials, welding process, electrodes and hole diameter

3. *Demonstrate the ability to fabricate components to size from information provided by simple shop drawings and / or sketches.*

Potential Elements of the Performance:

- Organize and create a clean work area appropriate to the size and type of fabrication project involved
- Determine the required hand and measuring tools
- Fabricate jigs, lugs and strong backs required to maintain alignment and minimize distortion
- Fabricate components to the specified tolerance in order to ensure proper fit up and installation

4. *Demonstrate the ability to perform GMAW procedures as well as identify and correct weld defects .*

Potential Elements of the Performance:

- produce fillet and groove welds on both thin gauge and thick metals
- perform adjustments to voltage and wire feed speed in accordance with the demands of base metal thickness and joint design
- change / replace rolls of electrode wire
- change / replace shielding gas cylinders
- perform in-service adjustments to wire drive rolls, contact tip and nozzle
- identify the potential for weld defects and problems
- take the necessary steps to correct weld defects

5. *Demonstrate the ability to perform SMAW procedures as well as identify and correct weld defects .*

Potential Elements of the Performance:

- produce fillet and groove welds on metal of various thickness
- perform adjustments to welding amperage in accordance with the demands of base metal thickness and joint design
- identify the potential for weld defects and problems
- take the necessary steps to correct weld defects

III. TOPICS:

1. Safety and Set up
2. Read Shop Drawings and Sketches
3. Basic Fabrication

4. Shielded Metal Arc Welding
5. Gas Metal Arc Welding
6. Weld Quality and Testing

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- CSA Approved (Impact Resistant) Safety Glasses
- CSA Approved (6 inch High Cut) Safety Work Boots
- CSA Approved (Gauntlet Type) Welding Gloves
- Appropriate Work Wear (see Welding Shop Guidelines)
- Modules: Course Pack WLD200

V. EVALUATION PROCESS/GRADING SYSTEM:

Part 1 NOTES:

1. Re-writes are NOT allowed for any written assignment, quiz or test.
2. Repeats are NOT allowed for any shop test
3. Course attendance is mandatory. One percent (1 %) per hour will be deducted from the final course grade for apprentices with more than 4 hours of unexcused* absence.

[Any absence without a written, valid reason will be deemed unexcused.]

Valid reasons would include:

- Doctor's note
- Apprenticeship Ministry note
- Family Death or Serious Illness supported by a written note.

Part 2 Final Course Grades:

The final course grade will be determined by means of the following list of weighted factors:

Factor	Value
Shop Assignments	60 %
Theory Quiz & Test	40 %
Attendance	-1% per Unexcused Hour
Shop Clean-up	-1% per Incident

The following semester grades will be assigned to students in postsecondary courses:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade "C", (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.