

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE: TRADE PRACTICES

CODE NO. : MTF100

SEMESTER:

PROGRAM: METAL FABRICATOR TECHNICIAN/WELDING
TECHNIQUES

AUTHOR: STEVE WITTY

DATE: JAN 2010 **PREVIOUS OUTLINE DATED:** JAN 2009

APPROVED:

“Corey Meunier”

CHAIR

DATE

TOTAL CREDITS: TWO

PREREQUISITE(S): N/A

HOURS/WEEK: TWO

Copyright ©2009 The Sault College of Applied Arts & Technology
Reproduction of this document by any means, in whole or in part, without prior written permission of Sault College of Applied Arts & Technology is prohibited.
For additional information, please contact Corey Meunier, Chair
School of The Natural Environment, Technology & Skilled Trades
(705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

Describe the safe material handling operations, Industrial Safety Acts, and potential workplace hazards in accordance with government safety regulations, manufacturer's recommendations and approved industry standards

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. *General Safety***Potential Elements of the Performance:**

- Discuss the history and growth of the welding and fabrication sector
- Explain material handling components and techniques and inspection methods
- Describe the necessary personal protection against common shop and construction hazards
- Explain the safe use and operation of equipment
- Describe Workplace Hazardous Materials Information System (WHMIS)
- Describe the Occupational Health and Safety Act (OHSA)
- Identify potential Workplace Hazards

Discuss the history and growth of the welding fabrication sector

- Forge welding
- Resistance welding
- Gas welding
- Fusion welding
- Fabrication methods defined

Explain material handling components, techniques, and inspection methods

- Rigging/hoisting/material handling
- Equipment selection, tuggers, cable clamps, chain block hoists, chokers, connectors, ropes, chains, slings, devices, hooks and plate clamps, spreaders, turning weldments, cranes, hand signals, mobile, jib, overhead, forklifts, jacks

Describe the necessary personal protection against common shop and construction hazards

- Electrical shock
- Water and electricity
- Good ground connection
- Cable connection
- Fumes and gases – appropriate helmet and filter plates
- Flow meters
- Spatter
- Ozone
- Fire, heat and burns
- Sparks
- Appropriate clothing
- Radiation – ultra violet, infra red, white light
- Noise
- Fall protection
- Falling objects

Explain the safe use and operation of equipment

- Storage and handling of compressed gas cylinders
- Power tools, hand tools, fabricating equipment, automated equipment
- Lockout
- Scaffolding
- Safety harness

Describe the Workplace Hazardous Materials Information System (WHMIS). Right to know legislation.

- Safe handling of products
- Hazardous materials
- Material Safety Data Sheets (MSDS)

Describe the Occupational Health and Safety Act (OHSA)

- Legislation
- Responsibility of employer and employee

Identify potential workplace hazards [.5/0]

- Confined spaces
- Oxygen depletion
- Moving equipment, tripping hazards
- Emergency responses
- Incident reports/fires

2. ***Hand and Power Tools***

Potential Elements of the Performance:

- Describe the application and use of small hand and power tools
- Use welding measuring tools
- Use fit-up measurement tools

Describe the application and use of small hand power tools

- **Small Hand Tools**
- Chipping hammer, wire brush, side cutters, hammer, cold chisel – pliers, vise grips, hack saw, scalers
- **Pneumatic Powered Hand Tools**
- **Electric powered hand tools**
- Wheel grinders, pedestal grinders, disc grinders, portable drills
- Bench grinders, abrasive cut-off saws, die grinders, drill press, nibblers

Use welding measuring tools

- Fillet gauge, contour gauge , throat gauges

Use fit-up measurement tools

- Measuring tape, ruler, vernier, micrometer, level, centre head, combination square, protractor, bevel angle, calibration

3. ***Trade Calculations***

Potential Elements of the Performance:

- Define the fundamentals of basic arithmetic and perform the applied calculations
- Explain the procedures and perform calculations
- Explain fundamental formulas and perform basic calculations
- Explain the fundamentals of systems of measurement and perform calculations
- Explain the fundamentals of basic geometry and perform basic “geometric shapes” calculations

Define the fundamentals of basic arithmetic and perform the applied calculations

- Adding, subtracting, multiplying, and dividing
- Exponents and square root
- Mathematical calculations (work orders, estimates, invoices, use of calculators)

Explain the procedures and perform calculations

- Fractions and decimals
- Converting fractions to decimals and decimals to fractions
- Percentages

Explain fundamental formulas and perform calculations

- Perimeter, circumference, area, volume, mass, and pressure

Explain the fundamentals of systems of measurement and perform calculations

- Difference between metric and imperial systems of measurement
- Use of conversion tables and charts

Explain the fundamentals basic geometry and perform basic “geometric shapes” calculations

- Angular measurements and calculations
- Right angle triangle
- Pythagorean theory
- 3-4-5 triangle

III. TOPICS:

1. General Safety
2. Hand and Power Tools
3. Trade Calculations

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Impact Resistant Safety Glasses (CSA Approved)
- High Cut (6 inch) Safety Work Boot (CSA Approved)
- Weld Gloves (CSA Approved)
- Modules: Course Pack MTF100

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

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

Valid reasons would include:

- Doctor’s 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:

<i>Factor</i>	<i>Value</i>
Theory Quiz & Test	100 %
Attendance	-1% per Unexcused Hour

The following semester grades will be assigned to students:

<i>Grade</i>	<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.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.