

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**SAULT  
COLLEGE**

**COURSE OUTLINE**

**COURSE TITLE:** Trade Practices  
**CODE NO. :** MTF100 **SEMESTER:** ONE  
**PROGRAM:** Metal Fabricator Technician / Welding Techniques  
**AUTHOR:** Steve Witty  
**DATE:** Sept 2010 **PREVIOUS OUTLINE DATED:** Nov 2009

**APPROVED:**

*“Corey Meunier”*  
Chair

**DATE**

**TOTAL CREDITS:** TWO  
**PREREQUISITE(S):** N/A  
**HOURS/WEEK:** TWO

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**I. COURSE DESCRIPTION:**

Trade Practices- Will cover in depth, general safety, hand and power tools and trade calculations.

**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 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 and fabrication sector.

- forge welding
- resistance welding
- gas welding
- fusion welding
- welding defined
- fabrication methods defined

Explain material handling components and 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

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Explain the safe use and operation of equipment.

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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 reportsfires

## 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 and 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 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
- 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 of basic geometry and perform basic "geometric shapes" calculations.

- angular measurements and calculations
- right angle triangle
- Pythagorean theorem
- 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 MTF 100

**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:

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

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
F (Fail)	59% and below	0.00

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:

##### **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.

#### VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.