

SAULT COLLEGE of APPLIED ARTS and TECHNOLOGY  
SAULT STE MARIE, ON



Sault College

Course Outline

**Course Title** WELDING (Trade Practices & Procedures)  
**Course Code** CVC6010  
**Program** Level 1 Commercial Vehicles and Equipment  
**Author** Dennis Clément-Socchia  
**Date** Feb 2003 **Previous Outline Dated** N / A

**Approved** \_\_\_\_\_  
Dean Date

**Total Credits** N / A

**Prerequisites** None

**Length of Course** 4 Weeks @ 2 Hrs / Week

**Total Credit Hours** N/A

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**Patricia Gibbons, Dean**

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**I. COURSE DESCRIPTION:** This curriculum is based upon the Welding Curriculum designed for Heavy Equipment and Truck Coach Apprentices and approved by the Ministry of Training, Colleges and Universities. No changes should be made to it without prior examination of the specific Learning Outcomes / Content of the Ministry document.

**II. LEARNING OUTCOMES AND ELEMENTS OF PERFORMANCE**

Upon successful completion of this course, clients will have been given the opportunity to :

**1. *Identify equipment and procedures required to assure personal safety while engaged in shop activities.***

Potential Elements of Performance:

- identify proper work boots, gloves and eye protection
- identify recommended fabrics and materials for personal protective clothing
- understand the general organization and layout of the welding shop facility
- locate and identify shop lighting and ventilation controls
- locate and identify emergency exits
- identify and select proper shades of welding / cutting lens
- identify, select and adjust helmets for proper fit and vision
- understand procedures for evacuation of shop areas in the case of emergencies

**2. *Describe the functions, construction features, types and application of oxyacetylene heating and cutting equipment.***

Potential Elements of Performance:

- cylinders
  - o identification
  - o general construction
- pressure regulators
- manual valves
- manifold systems
- gages and hoses
- torch body
- tips
  - o cutting
  - o heating
  - o welding
- cutting attachments
- flashback arrestors

**3. Describe the principles of operation of oxyacetylene heating and cutting equipment.**

Potential Elements of Performance:

- cylinders
- pressure regulators
- manual valves
- manifold systems
- gages and hoses
- torch body
- tips
  - o cutting
  - o heating
  - o welding
- cutting attachments
- flashback arrestors

**4. Describe the manufacturer's system maintenance procedures for oxyacetylene heating and cutting equipment.**

Potential Elements of Performance:

- cylinders
- pressure regulators
- manual valves
- manifold systems
- gages and hoses
- torch body
- tips
  - o cutting
  - o heating
  - o welding
- cutting attachments
- flashback arrestors

**5. Identify the purpose and fundamentals of heating and cutting practices.**

Potential Elements of Performance:

- eye, face hand, foot and clothing protection required for a specific task
- oxy-fuel gases
- cylinder handling
- set-up, ignition and shut-down practices
- fire prevention
- unsafe personal items (jewellery, matches and butane lighters)
- flashback and backfire
- removing damaged or broken fasteners

- using heat to free seized fasteners
- 6. ***Perform basic heating and cutting procedures following manufacturer's recommendations and perform assigned operations.***

Potential Elements of Performance:

- perform a demonstration of correct oxygen and acetylene pressure settings
- perform a demonstration of ignition procedures
- select heating and cutting tips
- observe tip angle, travel speed and work to tip distance
- demonstrate awareness of potential for damage to surrounding materials from heating or cutting operations
- identify potential risk for altering metallurgical properties
- perform appropriate pressure settings, ignition and flame adjustments for specific heating and cutting tasks
- remove damaged or broken fasteners
- perform heating and removal procedures of seized fasteners

### III. TOPICS

**Clients may expect the following list of topics to be covered during this course of instruction.**

1. Identify equipment and procedures required to assure personal safety while engaged in shop activities.
2. Describe the functions, construction features, types and application of oxyacetylene heating and cutting equipment.
3. Describe the principles of operation of oxyacetylene heating and cutting equipment.
4. Describe the manufacturer's system maintenance procedures for oxyacetylene heating and cutting equipment.
5. Identify the purpose and fundamentals of heating and cutting practices.
6. Perform basic heating and cutting procedures following manufacturer's recommendations and perform assigned operations.

### IV REQUIRED STUDENT RESOURCES / TEXT and MATERIALS

CSA Approved (Impact Resistant) Safety Glasses  
CSA Approved (8 inch High Cut) Safety Work Boots  
CSA Approved (Gauntlet Type) Welding Gloves  
Appropriate Work Wear ( see Welding Shop Guidelines)  
Pocket Note-pad (for Shop Demonstrations and Discussion)

Text: Principles of Industrial Welding

## **V. FINAL GRADE DETERMINATION**

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

<b>Factor</b>	<b>Weight</b>
Theory Test	80%
Employment Readiness *	20%

\* see page 2 of the printed handout "Welding Department Guidelines"

## **VI. GRADING SYSTEM**

The following system of grades will be used for Apprenticeship Training.

<b>Grade</b>	<b>Definition</b>
A+	95 - 100 %
A	85 - 94 %
B	75 - 84 %
C	60 - 74 %
D	50 - 59 %
F	0 - 49 %

## **VI. SPECIAL NEEDS**

1. **Special Needs:** If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.
2. **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.
3. **Plagiarism:** Students should refer to the definition of academic dishonesty in their Student Rights and Responsibilities manual. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including

expulsion from the course/program, as may be decided by the professor/dean. 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.

4. 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.
5. Substitute course information is available in the Registrar's office.

**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will only be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.