

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 THE PERFORMANCE:**

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

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

Potential Elements of the Performance:

- identify proper eye protection as well as the need to wear it at all times while in the welding shop
- identify proper hand and face protection as well as the need to wear it during any and all cutting, heating or welding operations
- identify proper footwear and clothing
- identify the dangers associated with contact lenses, butane lighters, exposed metal jewelry, long hair and beards
- identify the location of commonly used welding tools, face shields and leather jackets
- identify personal safety equipment that must be supplied by the student
- locate and identify shop lighting and ventilation controls
- locate and identify emergency shop exits
- understand emergency shop evacuation procedures
- locate and identify manifold shut-off valves for the shop gas system

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

Potential Elements of the Performance:

- identification and general construction of cylinders
- pressure regulators
- manual valves
- manifold systems
- gages, hoses and torch body
- tip design based upon cutting, heating and welding operations
- cutting attachments
- flashback arrestors

3. ***Describe the principles of safe operation, care and maintenance of oxyacetylene heating and cutting equipment.***

Potential Elements of the Performance:

- cylinders
- pressure regulators
- manual valves
- manifold systems
- gages, hoses and torch body
- tips used for
 - cutting
 - heating
 - welding
- cutting attachments
- flashback arrestors
- manufacturer's instructions for proper equipment care and maintenance

4. ***Perform basic heating and cutting procedures following manufacturer's recommendations and perform assigned operations***

Potential Elements of the Performance:

- identify and select cutting, welding and heating tips based upon metal thickness and the manufacturer's recommendations
- select operating gas pressures based upon the torch manufacturer's recommendations
- perform a routine inspection of individual workstation to determine the condition of the torch body, hoses, regulators, threaded connections and tips
- ensure that all deficiencies are corrected prior to the commencement of shop activity
- pressurize and purge regulators, hoses, torch body and tips
- explain the dangers associated to the hazards of backfire and flashback
- explain the correct safe response to backfire and flashback
- perform specified procedures for flame ignition and adjustment
- identify and adjust gas flow in order to create
 - neutral flame
 - carburizing flame
 - oxidizing flame
- perform specified procedures for cleaning and shutting down their individual workstations

III. TOPICS:

1. Personal and Shop Safety
2. Construction and Safe Handling of Acetylene and Oxygen Gas Cylinders.
3. Setup and Operation of a Typical Oxyacetylene Workstation.
4. Flame Cutting and Heating Operations.

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)
- Pocket Note-pad (for shop demonstrations)
- Modules: Weld Bundle "N"

V. EVALUATION PROCESS/GRADING SYSTEM:

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

| Factor | Weight |
|--------------------------|---------------|
| Shop Assignments | 75 % |
| Theory Assignment / Test | 25 % |

The following grades will be assigned to students.

| 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. | |

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|----|--|
| 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. |

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

VI. SPECIAL NOTES:

Electronic Devices, cell phones are not permitted in classroom.

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.