

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON



COURSE OUTLINE

Course Title: WELDING

Code No.: MET018/MET611 Semester: 1

Program: MARINE & SMALL ENGINES/APPRENTICESHIP

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Date: OCT. 1998 Previous Outline Date: OCT. 1996

Approved:

K. DeRosario

Dean

Oct. 29/98

Date

Total Credits: 2

Prerequisite(s):

Length of Course: 16 HRS.

Total Credit Hours:

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& Technology, (705) 759-2554, Ext. 642.

Welding	MET018/MET019 MET611/MET711
COURSE NAME	COURSE NUMBER

I. COURSE DESCRIPTION:

This course has been designed to provide sound theoretical knowledge of the safe use and operation of typical oxyacetylene welding, cutting and heating equipment. It will include shop demonstrations and some practical application of the above equipment in order to reinforce learning.

n. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date.)

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

- 1) Communicate clearly and correctly in the written form, as well as demonstrate by means of practical shop assignments, a sound working knowledge of both personal and shop safety.

Potential Elements of the Performance:

- identify proper eye, hand, face protection
- identify proper footwear and clothing
- locate and identify shop ventilation devices
- locate and identify emergency fire exits
- identify the location of shut-off valves for the shop manifold gas system
- explain procedures for evacuation of shop areas in case of emergency
- describe the physical construction of both oxygen and acetylene cylinders
- identify the built-in safety devices for both oxygen and acetylene cylinders
- describe methods of identifying both oxygen and acetylene cylinders, hoses, regulators and fittings
- identify basic physical properties and dangers associated with oxygen gas
- identify basic physical properties and dangers associated with acetylene gas
- describe procedures for cylinder handling
- describe procedures for setting up, pressurizing, purging and shutting down a portable oxyacetylene station

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- 2) Communicate clearly and correctly in the written form, as well as demonstrate by means of practical shop assignments, a sound working knowledge of how to set up and operate a typical oxyacetylene work station.

Potential Elements of the Performance:

- perform a routine inspection of assigned workstations to determine the condition of torch body, hoses, regulators and tips
- correct deficiencies prior to the commencement of work
- understand the differences in construction and operation between a balanced pressure and an injector torch
- pressurize and purge regulators, hoses, torch body and tip
- explain the dangers associated to the hazards of backfire and flashback
- explain the correct safe response to backfire and flashback
- explain the correct versus unsafe flame ignition procedures
- adjust the oxyacetylene flame to produce flames designated as carburizing, neutral anozidizing
- describe procedures for the shutting down of the oxyacetylene torch, regulators and assigned workstation

- 3) Communicate clearly and correctly in the written form, as well as demonstrate by means of practical shop assignments, a sound working knowledge of how to perform both fusion and braze welding operations.

Potential Elements of the Performance

- describe potential fire, fume and explosion hazards associated to the fusion welding of metals
- identify proper fusion welding techniques
- perform appropriate pressure setting and flame adjustments for specific fusion welding exercises
- describe potential fire, fume and explosion hazards associated to the braze welding of metals
- identify proper braze welding techniques
- perform appropriate pressure settings and flame adjustment for specific braze welding exercises