

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: WELDING
Code No, : MET 205-2
Program: MECHANICAL TECHNICIAN & TECHNOLOGIST
Semester: FOUR
Date: MAY 20, 1983
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New, Revision

APPROVED:

Chairperson ^ <•- d^mf^U^*
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Date

MECHANICAL TECHNICIAN & TECHNOLOGIST

MET 205

Major Topics:

	Shop	Theory
(1) Oxy-Acet - "Safety & Set-up"	1	2
(2) Oxy-Acet - Fusion Welding	2	1
(3) Oxy-Acet - Braze Welding	2	1
(4) Oxy-Acet - Flame Cutting	3	1
(5) Electric Arc - Safety & Set-up	1	2
(6) Shielded Metal Arc Welding	12	4
(7) Welding Processes	2	2
Sub-Total	(23)	(13)
Grand Total		36 hrs-

Reference Materials:

- | | |
|---|-----------|
| (1) New Lessons in Arc Welding | - Lincoln |
| (2) The Procedure Handbook of Arc Welding | - Lincoln |

Films:

- | | |
|---------------------------------------|-----------------------------|
| (1) Oxy-Acet Safety & Set-up | - Library Film-strip Centre |
| (2) Arc Weld Safety & Set-up | - Lincoln |
| (3) Electrode Manufacture & Selection | - Hobart |
| (4) Electric Arc Welding Processes | - Miller |

INTRODUCTION

This course is not designed to produce welders. It is intended to educate and develop safe working practices, recognition of proper procedures and the selection of equipment for the various welding processes discussed.

Course content is directed mainly to the shop environment where the "Hands On" experience can be developed.

Because of the large class sizes, caution must be exercised in the oxy-acet portion where equipment maintenance is extremely high. Consequently, most of this section is restricted to student demonstrations with Hands-On participation.

D.S.

OXY-ACET PORTION

Subjects:

- (1) Oxy-Acet Safety & Set-up
- (2) Oxy-Acet Fusion Welding
- (3) Oxy-Acet Braze Welding
- (4) Oxy-Acet Flame Cutting

Equipment Required:

- Hoses, Regulators, Welding Torch & Tips, Cutting Torch & Tips
- Welding/Cutting Goggles, Gloves, Jackets, Pliers and Safety Glasses
- Welding/Cutting Gases via Manifold System & Cylinders

Theory:

- Safe use and handling of above equipment
- Recognizing potential job hazards and equipment defects
- Heating of metals for fusion welding
- Heating of metals for braze welding
- Heating of metals for flame cutting
- Comparative strengths and uses of fusion vs. braze welds
- The cutability of metals

Projects:

- Shop demonstrations of above subjects with heavy use of student participation
- Making O.S. corner, SQ butt and lap welds on Ga metals
- Cutting and piercing of 1/4 and 3/8 Plate
- Cutting and bevelling same
- Setting up and shutting down of complete oxy-acet welding cutting station using manifold and portable gases

ARC WELDING PORTION

Subjects:

- (5) Electric Arc 'Safety & Set-up'¹
- (6) Shielded Metal Arc Welding
- (7) Welding Processes

Equipment Required:

- Cutting Torch & Tips, Cutting Goggles, Gloves, Jackets, Pliers, Safety Glasses, Arc Welding Shields.
- Cutting Gases via Manifold & Cylinders
- S.M.A.W., G.T.A.W., G.M.A.W- and F.C.A.W. Power Sources and Related Equipment

Theory

- Safe use and handling of above equipment
- Recognizing potential job hazards and equipment defects
- Basic arc welding machine types and categories
- Basic arc welding circuits
- Current and polarity selection
- Identification and selection of electrodes
- Weld defects
- Welding processes: ie. S.M.A.W., G.T.A.W., F.C.A.W., S.A.W.

Projects:

- Basic pad exercises using E6010, E6011, E7018, E7024
- Making flat, fillet welds
- Making flat U.S. corner welds
- Demonstration and student practice in use of,
 - (1) Radiograph line cutting and bevelling
 - (2) Fillet welds using G.M.A.W. and F.C.A.W.