

SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

- WELDING

MET 100-2

Oxy-Acetylene Welding Objectives

H.E.D. (first semester)

MET 100-2

H.E.D. RELATED WELDING

OXY-ACETYLENE WELDING OBJECTIVES

BLOCK THE STUDENT WILL BE ABLE TO:

- 1- Understand the oxy-fuel gas flame characteristics.
2. Use Oxy-Acetylene welding equipment safely.
3. Make basic repairs.
4. Fusion weld basic joints in light gauge metal in position
5. Braze weld cast irons.
6. Braze and solder copper joints.
7. Cut plate and bars.
8. Safeguard against fires and explosives.
9. Heat treat a cold chisel.
10. Lay out angle iron frames and bend rounds.

Practica

'A. Acetylene Gas

- Manufacture
- Density
- Flammability Range
- Explosive Nature (Pressure, Copper, Ox-Acetylene Mixture)
- Storage in Tanks
- Tank construction withdrawal rates
- Backfire & Flashback prevention

B. Oxygen Gas

- Manufacture
- Physical & Chemical Characteristics
- Storage in Tanks
- Tank construction

C.

- Oxy-Acetylene flame characteristics and applications
- Oxygen-Propane Flame characteristics and applications
- Air-Acetylene Flame characteristics and applications

A. Assembly of Equipment

B. Regulator, Hose, Torch & Tip construction

C. Storage and Transportation of Equipment

D. Lighting The Torch, Pressure Adjustment

E. Tip changing & selection

F. Personal safety

G. Shop safety

Top: c

Per JG-11.3 Vc^c :::: :r:..t;icn M ••-'{J-"5
" 'f^?p_fX Practical "

3

- A. Replacement of O-Rings
 - Checking & Repair of Leaks
 - Reconditioning of tips
 - tightening of valves
 - Replacing faulty hoses

4

- A. Weld a bead without & with filler Metal; Forehand
 - Designation & Selection of Filler Metal
 - Edge Joint - no filler
 - Corner Joint - no filler
 - Lap joint
 - Tee Joint
 - Butt Joint
 - Pressure Test Box
- B. Recognition & Correction of 5 basic faults
- C. Distortion; causes & correction

5

- Braze Welding Definition
 - Advantages & disadvantages of process
 - types of cast irons
 - Joint Preparation
 - Use of Fluxes; Ventilation
- A. Brazing & soldering Definitions; Applications
 - B. Toxic Fumes from lead, cadmium, zinc, Beryllium, fluorides
 - C. Selection of Easy-flow fillers & fumes; silphos, Rosin and acid core solders
 - D. Suitability of metals & types of joints
 - E. Comparison of fusion & non-fusion welding

Periods

Topic Description

^ Refereno

- A. Chemistry of cutting; cutability of metals*
- freehand and guided cutting; circle cutting; piercing; bolt cutting; bevel cutting
 - cutting of pipe rounds & structurals
 - pressure & tip selection

- A. Welding & Cutting - on containers and hollow sections.
- on machinery
 - recognition of unsafe locations & jobs
 - fire prevention & fire fighting
 - types of fires

Forging Techniques

Grinding & filing

Heating, quenching and tempering

- 45 angle iron layout
- Coping & Notching
- One piece 90° bend layout on pipe
- Hot & Cold bending Methods or rounds & pipe
- Bend allowance and use of neutral axis