

# Sault College of Applied Arts and Technology Sault Ste. Marie

## Course Outline

HEAVY EQUIPMENT DIESEL

MET 100-2

Electric Arc Welding Objective:

MET 100-2

KCD Related x?olding

Electric Arc Welding Objectives

The student will be able to:

Understand the rating, drooping characteristic and controls of welding machines as well as maintenance needs.

Employ normal precautions regarding personal and shop safety

Use the A.W.S, and N.fi.M.A, classification for mild steel and low alloy-high strength electrodes \*

Recognize common weld faults and correct them.

Produce sound welds with emphasis on the following electrode

E 6010/].!

E 7016/18

E 7024/28

Use arc-air gouging equipment

Do basic maintenance & fabrication welding

Development of Volt-ampere Curve  
Explanation of - open circuit voltage  
- duty cycle  
- rated & Max. output  
- voltage drop inlines  
- magnet field  
- current adjustment  
- polarity  
- maintenance of equipment  
and accessories

#### Personal\_\_Safety\_

~ type of clothes, boots, gloves, hard hat  
- flash goggles, filter lenses  
- arc radiation, electric shock  
- venti.laticn  
- shoo safety  
- housekeePing rules  
- ground connections, stray currents throi  
gears, pistons, batteries, power tools

Selection of >-ild Steel Electrodes  
Mechanical "Properties & Operating  
Characteristics of:

E 6010/11  
E 6012/13  
E 7014/24,28  
E 70iG/ "P.;2?  
E 90i3  
E 12018

Selection of low alloy-high strength elec-  
trodes

#### Visual Defects

inclusions, porosity  
bead shape & size in relation to cracking  
under-bead cracking  
we Id term!nology

Bead & Weave - E 6 010 /11 on p l a t e in p o s i t i o :  
pad flat X horizontal-E7024/2S  
bead/\vG3ve/i:i:ad with E7016/1S in position

Multi-cass fillet vields with 3/16-6011 &  
5/32-7018 ; flat, horizontal & vertical u  
Butt Joint; 3/8 plate F3/F4 rods  
14GA metal - 1/8 E6013

Theory    Practical

	1	.Set-up and construction of Equipment Choice of current and polarity Air pressure, carbon electrodes. DIA & current relation Removal of Weld section Edge preparation for welding Cast iron cutting Post Cleaning needs
1	h.	J^Ap^J^1 f•rice .f-^--*-n<? ^on siderations_ - identification of basic metal - voidability of cast iron, T, Plate, aluminum, stainless' steel, Austenitic manganese, cutting edges - <b>Hard facing</b>