

KALAMAZOO VALLEY COMMUNITY COLLEGE

RELATED TRADE INSTRUCTION

WELDER

<u>COURSES</u>	<u>DESCRIPTION</u>	<u>CONTACT HOURS</u>	<u>CREDIT HOURS</u>
MATH 092	BASIC TECH MATH	48	3
MATH 106	TECH MATH 1	64	4
MSM 102	BASICS OF MECH TECH	32	2
WELD 120	INTRO TO WELDING	112	3
WELD 135	FAB & INSPECTION	64	4
WELD 140	SHIELD METAL ARC WELD-BASIC	112	3
WELD 155	BASIC INERT GAS WELDING	112	3
WELD 255	ADV INERT GAS WELDING	112	3
WELD 142	SHIELD METAL ARC WELD-ADV	112	3
WELD 240	SHIELD METAL ARC WELD-PIPE	112	3
TOTAL HOURS		880	31
OPTIONAL:			
MSM 260	METALLURGY/MECH TESTING	96	4
ELT 100	BASIC ELECTRICITY	32	2
MSM 120	FLUID POWER I	48	2
WELD 255	ADVANCED INERT GAS WELDING	112	3
WELD 265	AUTOMATED WELDING	112	3

Kalamazoo Valley Community College
Apprenticeship Department

SUGGESTED SCHEDULE OF WORK EXPERIENCE
for

WELDER APPRENTICES

APPROXIMATE HOURS

- | | |
|---|-------|
| 1. SHIELDED METAL ARC WELDING | _____ |
| A. Machine settings, polarity uses, voltage, amperages, cable size selection | |
| B. Electrodes identification and Uses coating flux analysis | |
| C. Actual welding time experience | |
| 1. Manual horizontal welding | |
| 2. Manual vertical up and down welding | |
| 3. Manual overhead welding | |
| 4. Manual pipe welding all positions | |
| 5. Hardfacing electrodes | |
| 2. GAS METAL ARC WELDING | _____ |
| A. Machine settings, polarity uses, voltage, amperage, slope and inductance uses | |
| B. Short arc, spray arc, pulse arc uses and selections | |
| C. Uses and selection of shielding gases | |
| D. Selection of alloy wires, solid and tubular, and flux cored | |
| E. Hardfacing wires | |
| F. Actual welding time experience | |
| 3. SUBMERGED ARC WELDING | _____ |
| A. Machine settings, polarity uses, voltage, amperage, slope and inductance uses | |
| B. Granular an agglomerated fluxes and their uses and selections | |
| C. Operation of flux recovery and processing equipment | |
| D. Care and operation of solid state electrical systems in submerged arc welding console and welding positioner | |
| E. Selection of solid wires and tubular wires and their uses | |
| F. Actual welding time and experience | |

(OVER)

- 4. GAS TUNGSTEN ARC WELDING _____
 - A. Machine settings, polarity uses, voltage, amperage, high frequency uses and gas functions and selection
 - B. Selection of shielding gases, and their effect on various metals and alloys
 - C. Actual welding time experience

- 5. OXYGEN ACETYLENE CUTTING AND WELDING _____
 - A. Selection of equipment and gas regulation, cylinder manifolding, pressure setting
 - B. Cylinder gas handling and physics of gases
 - C. "Safety in Welding an Cutting" (AWS handbook)
 - D. Actual time and experience torch cutting, torch welding of steels, brazing and fusion welding, machine torch cutting, hardface weld clading and powder spray torch fusewelding

- 6. METALIZING, FUSED METALIZING COATINGS and _____
ARC-SPRAY METALIZING
 - A. Setting up equipment and preparation of parts to be processed
 - B. Selection and identification of materials in wire form, powdered alloy form
 - C. Machine settings and operations
 - D. Actual time and experience

- 7. ELECTRICAL PRACTICES _____
 - A. Maintenance and repair of electric welding power source units
 - B. Basic wiring of primary electric current

DESCRIPTION WELDER

Welds metal components together to fabricate or repair products, such as machine parts, plant equipment, mobile homes, motors, and generators, according to layouts, blueprints, or work orders, using brazing and variety of arc and gas welding equipment: Welds metal parts together, using both gas welding or brazing and any combination of arc welding processes. Performs related tasks, such as thermal cutting and grinding. Repairs broken or cracked parts, fills holes, and increases size of metal parts. Positions and clamps together components of fabricated metal products preparatory to welding. May locate and repair cracks in industrial engine cylinder heads, using inspection equipment and gas torch. May perform repairs only. May be required to pass employer performance tests or standard tests to meet certification standards of governmental agencies or professional and technical associations.