

48.0508 Welding Technology/Welder

Occupational Orientation and Safety 100

101 Prepare and mark time or job sheet, reports or records. 101

102 Perform housekeeping duties daily. 102

103 Follow verbal instructions to complete work assignments and rules. 103

104 Follow written instructions to complete work assignments and rules. 104

105 Demonstrate proper use and inspection of Personal Protection Equipment (PPE). 105

106 Demonstrate proper work area operation. 106

107 Demonstrate proper use of ventilation equipment. 107

108 Discuss proper Hot Zone operation. 108

109 Demonstrate knowledge of proper work actions for working in confined spaces. 109

110 Demonstrate knowledge of SDS sheets and precautionary labeling. 110

111 Demonstrate proper use and inspection of equipment used for each required welding and thermal cutting process. 111

112 Display familiarity with industrial and OSHA safety standards. 112

113 Demonstrate knowledge of oxyfuel safety procedures. 113

114 Demonstrate knowledge of arc welding safety procedures. 114

115 Demonstrate emergency action plan (all inclusive). 115

Principles of Welding 200

201 Identify major types of metals (ferrous and nonferrous) used in welding. 201

202 Describe the basic principles of heat, expansion and contraction as it relates to metals. 202

203 Select appropriate welding technique, equipment and supplies for a given metal or process. 203

204 Describe the industry accepted welding codes, standards and procedures and their use. 204

205 Identify various joint designs (joint geometry). 205

206 Clean and prepare materials for welding and/or cutting. 206

207 Demonstrate proper use of hand tools. 207

208 Demonstrate proper use of standard measuring and layout tools. 208

209 Demonstrate proper use of power equipment. 209

**Welding, Drawing, and
Weld Symbol
Interpretation** 300

301 Interpret basic elements of a drawing or sketch. 301

302 Interpret welding symbol information. 302

303 Fabricate parts from a drawing or sketch (class project). 303

304 Identify structural metals used in the metal fabrication field. 304

305 Demonstrate knowledge of basic metric conversion. 305

**Visual Examination,
Inspection, and
Testing** 400

401 Evaluate cut surfaces and edges of prepared base metal parts for testing. 401

402 Identify and evaluate weld discontinuities as per accept/reject criteria. 402

403 Demonstrate visual inspection and destructive and non destructive techniques. 403

**Shielded Metal Arc
Welding (SMAW)** 500

501 Perform safety inspections of SMAW equipment and accessories. 501

502 Make minor external repairs to SMAW equipment and accessories. 502

503 Set up and operate SMAW equipment. 503

504 Make fillet welds in all positions. 504

505 Make groove welds in all positions. 505

506 Pass performance test in all positions. 506

507 Perform qualification test. 507

**Gas Metal Arc Welding
(GMAW)** 600

601 Perform safety inspections of GMAW equipment and accessories. 601

602 Make minor external repairs to GMAW equipment and accessories. 602

603 Set up and operate GMAW equipment. 603

604 Make fillet welds in all positions. 604

605 Make groove welds in all positions. 605

606 Pass performance test. 606

**Flux Cored Arc Welding
(FCAW) 700**

701 Perform safety inspections of Flux Cored Arc equipment and accessories. 701

702 Make minor external repairs to Flux Cored Arc equipment and accessories. 702

703 Set up and operate FCAW equipment. 703

704 Make fillet welds in all positions. 704

705 Pass performance test. 705

706 Demonstrate a groove weld in all positions. 706

**Gas Tungston Arc
Welding (GTAW) 800**

801 Perform safety inspections of GTAW equipment and accessories. 801

802 Make minor external repairs to GTAW equipment and accessories. 802

803 Set up and operate GTAW equipment. 803

804 Make fillet welds, in all positions, on ferrous materials. 804

805 Pass performance test on ferrous materials. 805

806 Set up and operate GTAW on nonferrous materials. 806

807 Make fillet welds on nonferrous materials. 807

808 Pass performance test on nonferrous materials. 808

**Manual Oxyfuel Gas
Cutting (OFC) 900**

901 Perform safety inspections of OFC equipment and accessories. 901

902 Make minor external repairs to OFC equipment and accessories. 902

903 Set up for manual OFC operations on steel. 903

904 Operate manual OFC equipment. 904

905 Perform straight cutting operations on steel. 905

906 Perform shape cutting operations on steel. 906

907 Perform bevel cutting operations on steel. 907

908 Perform piercing operations on steel. 908

Mechanized Oxyfuel Gas Cutting (OFC) 1000

1001 Perform safety inspections of mechanized OFC equipment and accessories. 1001

1002 Make minor external repairs to mechanized OFC equipment and accessories. 1002

1003 Set up and operate OFC equipment on steel. 1003

1004 Perform straight cutting operations on steel. 1004

1005 Perform bevel cutting operations on steel. 1005

Manual Plasma Arc Cutting (PAC) 1100

1101 Perform safety inspections of PAC equipment and accessories. 1101

1102 Make minor external repairs to PAC equipment and accessories. 1102

1103 Set up and operate manual PAC operations on ferrous and nonferrous materials. 1103

1104 Perform shape cutting operations on ferrous and nonferrous materials. 1104

Manual Air Carbon Arc Cutting (CAC-A) 1200

1201 Perform safety inspections of CAC-A equipment and accessories. 1201

1202 Make minor external repairs to CAC-A equipment and accessories. 1202

1203 Set up and operate manual CAC-A gouging and cutting operations on steel. 1203

1204 Perform gouging and scarfing operations, to remove base and weld metal, on steel. 1204

Brazing and Soldering 1300

1301 Set up and operate silver oxyfuel brazing and silver soldering equipment. 1301

1302 Perform brazing and silver soldering operations. 1302
