

| Unit/<br>Standard Number              | <u>High School Graduation Years 2019, 2020 and 2021</u><br><br><b>Welding Technology/Welder<br/>CIP 48.0508<br/>Task Grid</b> | <b>Proficiency Level<br/>Achieved:<br/>(X) Indicates<br/>Competency<br/>Achieved to Industry<br/>Proficiency Level</b> |
|---------------------------------------|---|--|
| <b>Secondary Competency Task List</b> |   |  |
| <b>100</b>                            | <b>OCCUPATIONAL ORIENTATION AND SAFETY</b>  |  |
| 101                                   | Complete time or job sheet, reports or records.   |  |
| 102                                   | Perform housekeeping duties daily.  |  |
| 103                                   | Follow verbal instructions to complete work assignments and rules.  |  |
| 104                                   | Follow written instructions to complete work assignments and rules.   |  |
| 105                                   | Inspect and use Personal Protection Equipment (PPE) daily.  |  |
| 106                                   | Maintain proper organization and operation of work area   |  |
| 107                                   | Demonstrate proper use of ventilation equipment.  |  |
| 108                                   | Discuss proper Hot Work operation.  |  |
| 109                                   | Demonstrate knowledge of proper work actions for working in confined spaces.  |  |
| 110                                   | Identify Safety Data Sheets (SDS) and precautionary labeling.   |  |
| 111                                   | Inspect welding and thermal cutting equipment for safe operation.   |  |
| 112                                   | Display familiarity with industrial and OSHA safety standards.  |  |
| 113                                   | Identify oxyfuel safety procedures.   |  |
| 114                                   | Identify arc welding/cutting safety procedures.   |  |
| 115                                   | Follow emergency action plan (all inclusive).   |  |
|                                       |   |  |
| <b>200</b>                            | <b>PRINCIPLES OF WELDING</b>  |  |
| 201                                   | Identify major types of metals (ferrous and nonferrous) used in welding.  |  |
| 202                                   | Describe the basic principles of heat, expansion and contraction as it relates to metals.                                     |  |
| 203                                   | Select appropriate welding technique, equipment and supplies for a given metal or process.                                    |  |
| 204                                   | Describe the industry accepted welding codes, standards and procedures and their use.   |  |
| 205                                   | Identify various joint designs (joint geometry).  |  |
| 206                                   | Clean and prepare materials for welding and/or cutting.   |  |
| 207                                   | Demonstrate proper use of hand tools.   |  |
| 208                                   | Demonstrate proper use of standard measuring and layout tools.  |  |
| 209                                   | Demonstrate proper use of power equipment.  |  |
|                                       |   |  |
| <b>300</b>                            | <b>WELDING, DRAWING, AND WELD SYMBOL INTERPRETATION</b>   |  |
| 301                                   | Interpret basic elements of a drawing or sketch.  |  |
| 302                                   | Interpret welding symbol information.   |  |
| 303                                   | Fabricate parts from a drawing or sketch (class project).   |  |
| 304                                   | Identify structural materials used in the metal fabrication field.  |  |
| 305                                   | Perform basic metric conversion.  |  |
|                                       |   |  |
| <b>400</b>                            | <b>VISUAL EXAMINATION, INSPECTION, AND TESTING</b>  |  |

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| 401                   | Evaluate cut surfaces and edges of prepared base metal parts for testing.  |  |
| 402                   | Identify and evaluate weld discontinuities as per accept/reject criteria.  |  |
| 403                   | Perform visual inspection, destructive and non destructive testing.        |  |
|                       |  |  |
| <b>500</b>            | <b>SHIELDED METAL ARC WELDING (SMAW)</b>                                   |  |
| 501                   | Perform safety inspections of SMAW equipment and accessories.              |  |
| 502                   | Make minor external repairs to SMAW equipment and accessories.             |  |
| 503                   | Set up and operate SMAW equipment.   |  |
| 504                   | Make fillet welds in all positions.  |  |
| 505                   | Make groove welds in all positions.  |  |
| 506                   | Pass performance test in all positions.                                    |  |
| 507                   | Perform qualification test.  |  |
|                       |  |  |
| <b>600</b>            | <b>GAS METAL ARC WELDING (GMAW)</b>  |  |
| 601                   | Perform safety inspections of GMAW equipment and accessories.              |  |
| 602                   | Make minor external repairs to GMAW equipment and accessories.             |  |
| 603                   | Set up and operate GMAW equipment.   |  |
| 604                   | Make fillet welds in all positions.  |  |
| 605                   | Make groove welds in all positions.  |  |
| 606                   | Pass performance test.   |  |
|                       |  |  |
| <b>700</b>            | <b>FLUX CORED ARC WELDING (FCAW)</b>                                       |  |
| 701                   | Perform safety inspections of Flux Cored Arc equipment and accessories.    |  |
| 702                   | Make minor external repairs to Flux Cored Arc equipment and accessories.   |  |
| 703                   | Set up and operate FCAW equipment.   |  |
| 704                   | Make fillet welds in all positions.  |  |
| 705                   | Pass performance test.   |  |
| 706                   | Demonstrate a groove weld in all positions.                                |  |
|                       |  |  |
| <b>800</b>            | <b>GAS TUNGSTEN ARC WELDING (GTAW)</b>                                     |  |
| 801                   | Perform safety inspections of GTAW equipment and accessories.              |  |
| 802                   | Make minor external repairs to GTAW equipment and accessories.             |  |
| 803                   | Set up and operate GTAW equipment.   |  |
| 804                   | Make fillet welds, in all positions, on ferrous materials.                 |  |
| 805                   | Pass performance test on ferrous materials.                                |  |
| 806                   | Set up and operate GTAW on nonferrous materials.                           |  |
| 807                   | Make fillet welds on nonferrous materials.                                 |  |

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|--------------------------|---|--|
| 808                      | Pass performance test on nonferrous materials.                                    |  |
|                          |   |  |
| <b>900</b>               | <b>MANUAL OXYFUEL GAS CUTTING (OFC)</b>   |  |
| 901                      | Perform safety inspections of OFC equipment and accessories.                      |  |
| 902                      | Make minor external repairs to OFC equipment and accessories.                     |  |
| 903                      | Set up for manual OFC operations on steel.  |  |
| 904                      | Operate manual OFC equipment.   |  |
| 905                      | Perform straight cutting operations on steel.                                     |  |
| 906                      | Perform shape cutting operations on steel.  |  |
| 907                      | Perform bevel cutting operations on steel.  |  |
| 908                      | Perform piercing operations on steel.   |  |
|                          |   |  |
| <b>1000</b>              | <b>MECHANIZED OXYFUEL GAS CUTTING (OFC)</b>                                       |  |
| 1001                     | Perform safety inspections of mechanized OFC equipment and accessories.           |  |
| 1002                     | Make minor external repairs to mechanized OFC equipment and accessories.          |  |
| 1003                     | Set up and operate OFC equipment on steel.  |  |
| 1004                     | Perform straight cutting operations on steel.                                     |  |
| 1005                     | Perform bevel cutting operations on steel.  |  |
|                          |   |  |
| <b>1100</b>              | <b>MANUAL PLASMA ARC CUTTING (PAC)</b>  |  |
| 1101                     | Perform safety inspections of PAC equipment and accessories.                      |  |
| 1102                     | Make minor external repairs to PAC equipment and accessories.                     |  |
| 1103                     | Set up and operate manual PAC operations on ferrous and nonferrous materials.     |  |
| 1104                     | Perform shape cutting operations on ferrous and nonferrous materials.             |  |
| 1105                     | Perform gouging and scarfing operations, to remove base and weld metal, on steel. |  |
|                          |   |  |
| <b>1200</b>              | <b>MANUAL AIR CARBON ARC CUTTING (CAC-A)</b>                                      |  |
| 1201                     | Perform safety inspections of CAC-A equipment and accessories.                    |  |
| 1202                     | Make minor external repairs to CAC-A equipment and accessories.                   |  |
| 1203                     | Set up and operate manual CAC-A gouging and cutting operations on steel.          |  |
| 1204                     | Perform gouging and scarfing operations, to remove base and weld metal, on steel. |  |
|                          |   |  |
| <b>1300</b>              | <b>RESERVED</b>   |  |
| 1301                     | RESERVED  |  |
| 1302                     | RESERVED  |  |