<table>
<thead>
<tr>
<th><strong>Duties</strong></th>
<th><strong>Tasks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Plan the Job</strong></td>
<td><strong>A.1</strong> Review prints, specs, WPS, materials etc.</td>
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<tr>
<td><strong>B. Prepare to Weld</strong></td>
<td><strong>B.1</strong> Set up weld machine</td>
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<td><strong>C. Perform Weld</strong></td>
<td><strong>C.1</strong> Use the proper technique</td>
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<td><strong>D. Inspect Weld</strong></td>
<td><strong>D.1</strong> Judge quality</td>
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<td><strong>E. Fix Bad Weld</strong></td>
<td><strong>E.1</strong> Grind / sand / torch bad portion</td>
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<td><strong>F. Maintain Safety</strong></td>
<td><strong>F.1</strong> Utilize P.P.E’s</td>
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<td><strong>G. Maintain Skills</strong></td>
<td><strong>G.1</strong> Confirm competency routine</td>
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<tr>
<td></td>
<td><strong>A.2</strong> Choose appropriate process</td>
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<td></td>
<td><strong>B.2</strong> Prep material</td>
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<td></td>
<td><strong>C.2</strong> Inspect visually continuously</td>
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<tr>
<td></td>
<td><strong>D.2</strong> Measure weld side</td>
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<td></td>
<td><strong>E.2</strong> Re-weld</td>
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<td></td>
<td><strong>F.2</strong> Maintain work area</td>
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<tr>
<td></td>
<td><strong>G.2</strong> Utilize training program</td>
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<td></td>
<td><strong>A.3</strong> Choose appropriate machine</td>
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<td></td>
<td><strong>B.3</strong> Assemble Job</td>
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<td></td>
<td><strong>C.3</strong> Clean while welding</td>
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<td></td>
<td><strong>D.3</strong> Label acceptable weld</td>
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<td></td>
<td><strong>E.3</strong> (loop to C)</td>
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<td></td>
<td><strong>F.3</strong> Confirm safe environment</td>
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<tr>
<td></td>
<td><strong>G.3</strong> Maintain certifications</td>
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<td></td>
<td><strong>F.4</strong> Remove burnables</td>
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<td></td>
<td><strong>G.4</strong> Gain new certifications</td>
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<td></td>
<td><strong>F.5</strong> Block and flash</td>
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<td></td>
<td><strong>F.6</strong> Guard for spark</td>
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<td></td>
<td><strong>F.7</strong> Ventilate work area</td>
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</tbody>
</table>
**Duties:** represent large areas of work in performance terms

**Tasks:** represent the smallest unit of job activity with a meaningful outcome

### Knowledge and Skills

- Read weld gauges
- Basic fabrication skills
- Blueprint reading
- Welding symbols
- Weld processes: stick, tig, mig
- Parts of weld
- Safety standards
- Basic metalwork skills
- Basic math - includes angles, conversions, metrics, fractions
- Operate welding machines
- Various welding positions
- Types of weld joints
- Weld discontinuities
  - Undercut
  - Porosity
  - Cold roll/ lap
  - Incomplete fusion
- Start & Stop
- Overlapping
- Weave & stringer
- Welding techniques
  - [CTW]
  - [ISO]
  - Travel angle vs. work angle
- What to look for in a weld
- Weld distortions causes
- Appropriate corrections
- Verbal communication skills
- Organizational skills
- Basic material types and sizes
- Equipment maintenance
- Understanding polarities AC/DC welding

### Tools and Equipment

#### Measuring tools

- Consumables
- - nozzles
- - gas
- - diffuser
- Various grinders and sanders
- Torch/ plasma
- Various saws
- Hand tools
- Welding hoods
- Layout tools
- Temperature sticks
- Heat gun
- Rose bud
- Clamps
- Hoist or crane
- Rigging
- Welding gauges
- Welding machines
- PPE - sleeves, gloves, earplugs, glasses, boots, face shields, burn resistant clothing
- Safety belts & harnesses
- Retractables
- Beam slides
- Cordonors
- Scissor lifts
- Fork truck
- Sky truck

### Acronyms

- ISO - isometric drawing
- WPS - welding procedures specifications
- TIG - tungsten inert gas
- GTAW - gas tungsten arc welding
- MIG - metal inert gas
- SMAW - shielded metal arc welding
- PPE - personal protection equipment
- CTW - contact to work distance
- ESO - Electrical stick out

### Behaviors

- Teamwork
- Respectful
- Problem solving
- Factual
- Reliable
- Accept constructive criticism
- Good listener
- Self-motivated
- Positive attitude/outlook
- Open communicator
- Initiative
- Go getter
- Strong work ethic

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**DACUM Panel**

Brad Crowl

Ron Pool, Alloy Supervisor/ Trainer

Craig Swan, Production Director

Matt Dufort, Welder

Kurt Richardson, Group Lead

**Certified DACUM Facilitators**

Toni Clegg

Business Information Technology Division Chairperson

Ginny Przygocki

Dean of Career Education and Learning Partnerships

**Produced for The Great Lakes Bay Region Welding Workforce**

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