



2020-2021 Technical Skills Assessment Welding

Results by Standard

Legend (%)		
0-50%	51-75%	76-100%

Assessment: Welding	% Correct 17-18*	% Correct 18-19	% Correct 20-21*
Number tested: 114 *May contain results from Agriculture Welding			
CONTENT STANDARD 1.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES			
Performance Standard 1.1: Demonstrate general lab safety rules and procedures			
1.1.1 Describe general shop safety rules and procedures (i.e., safety test)	97.89%	97.11%	94.67%
1.1.2 Describe OSHA in workplace safety	84.94%	86.13%	84.26%
1.1.3 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities, i.e., personal protection equipment (PPE)	94.13%	92.77%	92.86%
1.1.4 Operate lab equipment according to safety guidelines	73.95%	73.41%	69.73%
1.1.5 Identify and use proper lifting procedures and proper use of support equipment (i.e., rigging, chains, straps, cables)	88.25%	87.28%	88.86%
1.1.6 Utilize proper ventilation procedures for working within the lab/shop area	94.28%	91.62%	89.47%
1.1.7 Identify marked safety areas	84.64%	83.82%	82.08%
1.1.8 Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment	73.49%	68.21%	74.21%
1.1.9 Identify the location and use of eye wash stations	91.11%	93.06%	91.16%
1.1.10 Identify the location of the posted evacuation routes	84.94%	75.14%	78.45%
1.1.11 Identify and wear appropriate clothing for lab/shop activities	48.49%	49.71%	57.87%
1.1.12 Secure hair and jewelry for lab/shop activities	90.06%	90.75%	90.80%
1.1.13 Demonstrate knowledge of the safety aspects of high voltage circuits	85.54%	84.68%	85.59%
1.1.17 Follow written instructions to complete work assignments	73.19%	72.25%	72.88%
1.1.18 Identify requirements for Hot Work Permits	36.45%	45.09%	43.70%
1.1.19 Identify what constitutes a confined space	58.89%	52.31%	58.35%
Performance Standard 1.2: Identify and utilize proper tools			
1.2.1 Identify hand tools and their appropriate usage	97.89%	93.06%	93.22%
1.2.3 Demonstrate safe handling and use of appropriate tools	61.75%	54.34%	60.53%

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Performance Standard 1.3: Identify and utilize power tools and equipment	78.41%	75.14%	71.83%
1.3.1 Identify power tools and equipment, and their appropriate usage	93.37%	91.33%	87.41%
1.3.2 Demonstrate safe handling and use of appropriate power tools and equipment	70.93%	67.05%	64.04%
CONTENT STANDARD 2.0: APPLY FUNDAMENTAL PRINT READING, MEASUREMENT AND LAYOUT/FIT-UP TECHNIQUES	63.60%	67.05%	66.02%
Performance Standard 2.1: Demonstrate print reading and sketching practices	61.60%	68.35%	65.56%
2.1.2 Identify and explain industry standard welding symbols	57.53%	62.72%	63.44%
2.1.7 Fabricate parts from a drawing or sketch	65.66%	73.99%	67.68%
Performance Standard 2.3: Utilize layout principles and practices	67.62%	64.45%	66.95%
2.3.3 Select appropriate materials to complete work assignment	60.84%	59.54%	63.92%
2.3.5 Layout parts using measurement practices	74.40%	69.36%	69.98%
CONTENT STANDARD 3.0: IDENTIFY PROPERTIES OF METALS	64.91%	67.05%	64.53%
Performance Standard 3.1: Identify material properties and science	64.91%	67.05%	64.53%
3.1.1 Identify the difference between ferrous and non-ferrous metals	64.91%	67.05%	64.53%
CONTENT STANDARD 4.0: APPLY SHIELDED METAL ARC WELDING (SMAW) TECHNIQUES	70.68%	67.63%	68.52%
Performance Standard 4.1: Safety procedures	61.14%	57.80%	58.60%
4.1.1 Identify and explain different types of welding current and polarity	61.14%	57.80%	58.60%
Performance Standard 4.2: Produce welds using SMAW on carbon steel	89.76%	87.28%	88.38%
4.2.2 Operate SMAW equipment	89.76%	87.28%	88.38%
CONTENT STANDARD 5.0: APPLY GAS METAL ARC WELDING (GMAW-S, GMAW) TECHNIQUES	61.92%	63.38%	61.67%
Performance Standard 5.1: Utilize safety procedures	65.81%	63.58%	65.86%
5.1.4 Demonstrate safe startup, shutdown, disassembly, and cylinder exchange procedures of GMAW equipment	65.81%	63.58%	65.86%
Performance Standard 5.2: Produce welds using GMAW-S on carbon steel	61.27%	63.34%	60.98%
5.2.1 Set up for GMAW-S operations	52.11%	52.60%	55.93%
5.2.2 Operate GMAW-S equipment	62.45%	64.35%	62.63%
5.2.3 Perform welds in the 1F position	61.45%	63.29%	60.77%
5.2.4 Perform welds in the 2F position	65.06%	65.90%	61.38%
5.2.7 Perform welds in the 1G position	62.95%	64.16%	65.38%
5.2.8 Perform welds in the 2G position	56.48%	60.12%	59.20%
5.2.9 Perform welds in the 3G position	66.87%	71.68%	59.81%
CONTENT STANDARD 6.0: APPLY FLUX CORED ARC WELDING (FCAW-G) TECHNIQUE	66.06%	63.58%	64.25%
Performance Standard 6.2: Produce welds using FCAW-G on carbon steel	66.06%	63.58%	64.25%
6.2.1 Set up for FCAW-G operations	78.01%	74.57%	73.85%

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6.2.2 Operate FCAW-G equipment	32.83%	28.32%	34.62%
6.2.9 Perform welds in the 3G position	87.35%	87.86%	84.26%
CONTENT STANDARD 7.0: APPLY GAS TUNGSTEN ARC WELDING (GTAW) TECHNIQUES	37.65%	40.46%	41.65%
Performance Standard 7.2: Produce welds using GTAW on carbon steel	37.65%	40.46%	41.65%
7.2.2 Operate GTAW equipment	37.65%	40.46%	41.65%
CONTENT STANDARD 8.0: APPLY THERMAL CUTTING PROCESSES	57.72%	63.27%	60.80%
Performance Standard 8.1: Demonstrate oxy-fuel gas cutting (OFC)	63.96%	70.71%	66.32%
8.1.1 Perform safety inspections of OFC equipment and accessories	49.80%	64.35%	54.72%
8.1.3 Demonstrate safe startup, shutdown, disassembly, and cylinder exchange procedures of OFC equipment	66.97%	67.82%	68.93%
8.1.5 Operate OFC equipment	81.33%	86.13%	84.75%
8.1.6 Perform straight, square edge cutting operations in the flat position	62.65%	67.63%	56.42%
Performance Standard 8.2: Demonstrate plasma arc cutting (PAC) on carbon steel and aluminum	29.67%	29.77%	35.96%
8.2.5 Set up for PAC operations	46.39%	47.98%	49.64%
8.2.6 Operate PAC equipment	12.95%	11.56%	22.28%
CONTENT STANDARD 9.0: IDENTIFY WELDING CODES, INSPECTIONS, AND TESTING PRINCIPLES	59.68%	64.49%	59.74%
Performance Standard 9.1: Identify welding codes, qualifications and certifications	59.74%	64.07%	58.72%
9.1.3 Explain the importance of quality workmanship	70.48%	72.83%	71.83%
9.1.5 Perform a visual inspection of fillet welds	49.00%	55.30%	45.60%
Performance Standard 9.2: Demonstrate welding inspection and testing principles	59.34%	67.05%	65.86%
9.2.3 Examine tack, root passes, intermediate layers, and completed welds	59.34%	67.05%	65.86%
CONTENT STANDARD 10.0: APPLY FABRICATION FUNDAMENTALS	64.05%	66.97%	64.35%
Performance Standard 10.1: Utilize base metal preparation fundamentals	66.15%	67.41%	68.77%
10.1.1 Clean base metal for welding or cutting	57.38%	60.12%	63.08%
10.1.2 Identify and explain joint design	89.16%	88.44%	87.29%
10.1.3 Select the proper joint design based on a welding procedure specification (WPS) or instructors direction	18.37%	25.43%	36.08%
10.1.4 Mechanically bevel the edge of a mild steel plate (i.e., hand beveller, grinder)	72.59%	72.25%	71.11%
Performance Standard 10.2: Demonstrate fabrication techniques	62.65%	66.67%	61.40%
10.2.1 Demonstrate proper setup of fabrication area, equipment, and materials	76.61%	79.96%	78.05%
10.2.2 Construct projects in the proper sequence	74.10%	78.81%	67.47%
10.2.3 Properly layout projects from welding prints	53.82%	60.89%	54.48%
10.2.4 Check work for accuracy	46.08%	47.01%	45.60%