



2024-2025 Technical Skills Assessment Pre-Engineering

Results by Standard

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

Assessment: Pre-Engineering	% Correct
Number tested: 117	24-25
CONTENT STANDARD 2.0: LAB/WORKPLACE SAFETY AND TOOL USE	92.54%
Performance Standard 2.1: Safety	93.89%
2.1.1 Describe the role of the Occupational Safety and Health Administration (OSHA).	94.26%
2.1.2 Comply with requirements for personal protection equipment (PPE).	96.45%
2.1.3 Describe material handling, storage, use, and disposal requirements.	92.62%
2.1.5 Interpret safety signage for hazards, evacuation routes, and safety areas.	90.98%
2.1.6 Identify the location and the types of fire extinguishers and other fire equipment.	95.08%
Standard 8: 2.1.8 Describe the requirements for using eye-wash stations.	97.54%
	90.89%
Performance Standard 2.2: Tool Identification and Safe Use	
2.2.1 Identify hand tools and power tools, including precision measuring tools.	95.90%
2.2.3 Match tools to their intended use and purpose.	90.78%
2.2.4 Perform a safety check before using tools.	89.75%
CONTENT STANDARD 4.0: ENGINEERING DESIGN PROCESS	76.23%
Performance Standard 4.1: Design Process Concepts	92.49%
4.1.1 Apply the steps of the design process to solve a design problem (i.e., define the problem, generate concepts, develop a solution, develop a design proposal, construct and test a prototype, refine the design, evaluate a solution, and communicate the processes and results).	92.49%
Performance Standard 4.2: Measuring and Scaling	80.41%
4.2.1 Identify imperial/standard and metric/SI units of measure and level of accuracy requirements for an engineering problem/design.	80.33%
	82.79%
4.2.2 Convert between imperial/standard and metric/SI units of measure in an engineering problem/design.	
4.2.3 Determine scale on a blueprint.	81.35%

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4.2.4 Apply algebraic and geometric calculations to determine size, mass, volume, and surface area in an engineering problem/design.	75.25%
4.2.5 Convert between fractions and decimals in an engineering problem/design.	94.13%
4.2.6 Report measurements by using and reading precision measuring tools.	66.07%
Performance Standard 4.3: Technical Sketching and Drawing	70.73%
4.3.1 Communicate ideas, using freehand sketching (e.g., pictorial, multi-view) and annotations.	76.50%
4.3.2 Produce drawings from sketches.	73.36%
4.3.6 Identify basic industry standard symbols on sketches, drawings, and blueprints.	70.22%
given an engineering design.	64.55%
Performance Standard 4.4: Engineering Documentation	60.04%
4.4.2 Maintain documentation during the engineering design process.	49.18%
4.4.4 Create project-management timelines for an engineering design.	58.81%
4.4.5 Write a technical report for an engineering design.	65.30%
CONTENT STANDARD 5.0: MATERIALS	79.34%
Performance Standards 5.2: Materials Strength	79.34%
5.2.1 Describe the various forms of stress (e.g., compression, tension, torque, and shear) and how it affects materials selection for an engineering design.	79.34%
CONTENT STANDARD 6.0: FUNDAMENTAL POWER SYSTEMS AND ENERGY PRINCIPLES	83.97%
Performance Standard 6.1: Basic Mechanical Systems	89.34%
6.1.7 Assemble a basic mechanical system.	89.34%
Performance Standard 6.2: Power Systems and Energy Forms	81.76%
6.2.1 Identify the types of basic power systems, components, and related terminology (e.g., energy, potential energy, kinetic energy, power, work, horsepower, watts).	78.14%
Performance Standard 6.3: Energy Sources and Applications	86.39%
6.3.5 Describe the relationship of voltage, current, and resistance.	86.39%
Performance Standard 6.4: Automation Systems	73.77%
6.4.2 Select appropriate input and output devices, based on system specifications and constraints.	67.21%
6.4.4 Compare open and closed loop systems.	77.05%
Performance Standard 6.5: Basic Fluid Systems	90.57%
6.5.2 Identify the components of fluid systems and their functions.	86.89%
6.5.6 Describe the safety concerns of working with liquids and gases under pressure.	94.26%