



Celebrating 100 Years of Career Readiness

2018-2019

Technical Skills Assessment Pre-Engineering Technology

Results by Standard

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

Assessment: Idaho Pre-Engineering Technology Number tested: 121	% Correct 16-17	% Correct 17-18	% Correct 18-19
1) CONTENT STANDARD 1.0: LAB ORGANIZATION AND SAFETY PROCEDURES	84.31%	83.15%	84.99%
1) Performance Standard 1.1: General Lab Safety Rules and Procedures	88.72%	86.77%	88.90%
1.1.1 Describe general shop safety rules and procedures.	90.99%	86.64%	87.69%
1.1.2 Demonstrate knowledge of OSHA and its role in workplace safety.	88.29%	92.24%	97.69%
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)).	92.79%	89.22%	91.54%
1.1.4 Operate lab equipment according to safety guidelines.	83.78%	85.92%	86.15%
1.1.6 Utilize proper ventilation procedures for working within the lab/shop area.	98.20%	99.14%	98.46%
1.1.7 Identify marked safety areas and safety signage.	90.09%	89.66%	90.77%
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.	67.57%	73.28%	81.54%
1.1.9 Identify the location and use of eye wash stations.	98.20%	94.83%	99.23%
1.1.10 Identify the location of the posted evacuation routes.	98.20%	99.14%	100.00%
1.1.11 Identify and wear appropriate clothing for lab/shop activities.	96.85%	96.12%	96.54%
1.1.12 Secure hair and jewelry for lab/shop activities.	99.10%	97.41%	99.62%
1.1.13 Understand knowledge of the safety aspects of low and high voltage circuits.	32.43%	35.78%	41.15%
1.1.14 Locate and interpret safety data sheets (SDS).	79.28%	88.79%	90.00%
1.1.16 Follow verbal instructions to complete work assignments.	94.59%	99.14%	99.23%
1.1.17 Follow written instructions to complete work assignments.	98.20%	95.69%	98.08%
2) Performance Standard 1.2: Hand Tools	84.38%	86.78%	83.85%
1.2.3 Demonstrate the proper techniques when using hand tools.	78.38%	87.07%	73.08%
1.2.4 Demonstrate safe handling and use of appropriate tools.	87.39%	86.64%	89.23%
3) Performance Standard 1.3: Power Tools and Equipment	65.77%	64.31%	67.69%
1.3.3 Demonstrate the proper techniques when using power tools and equipment.	63.66%	60.63%	65.13%
1.3.4 Demonstrate safe handling and use of appropriate power tools and equipment.	68.92%	69.83%	71.54%

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2) CONTENT STANDARD 2.0: IMPACT OF ENGINEERING	87.39%	85.34%	90.77%
3) Performance Standard 2.3: Ethics in Engineering	87.39%	85.34%	90.77%
2.3.1 Knowledge of current professional engineering codes of ethics.	87.39%	85.34%	90.77%
3) CONTENT STANDARD 3.0: ENGINEERING DESIGN PROCESS	91.51%	93.23%	91.98%
1) Performance Standard 3.1: Design Process	91.51%	93.23%	91.98%
3.1.1 Identify and understand the common elements of a design process, including 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.	93.39%	94.25%	94.10%
3.1.2 Apply the steps of the design process to solve a design problem.	90.09%	92.46%	90.38%
4) CONTENT STANDARD 4.0: ENGINEERING DOCUMENTATION	75.18%	76.24%	78.60%
2) Performance Standard 4.2: Measuring and Scaling Techniques	78.66%	79.31%	81.46%
4.2.1 Identify industry standard units of measure.	73.57%	78.45%	81.92%
4.2.2 Convert between industry standard units of measure.	81.98%	77.59%	80.38%
4.2.3 Determine appropriate engineering and metric scales.	54.95%	69.83%	72.31%
4.2.4 Measure speed, distance, object size, area, mass, volume, and temperature.	69.97%	76.08%	76.54%
4.2.5 Determine and apply the equivalence between fractions and decimals.	90.27%	89.48%	89.85%
4.2.6 Demonstrate proper use of precision measuring tools.	78.83%	73.28%	79.62%
4) Performance Standard 4.4: Technical Drawings	61.26%	61.64%	65.00%
4.4.3 Identify industry standard symbols.	62.16%	65.23%	66.41%
4.4.4 Describe and construct various types of drawings (i.e., part, assembly, pictorial, orthographic, isometric, and schematic) using proper symbols.	58.56%	50.86%	60.77%
5) CONTENT STANDARD 5.0: MATERIAL PROPERTIES	67.57%	65.30%	70.96%
2) Performance Standards 5.2: Materials Strength	67.57%	65.30%	70.96%
5.2.1 Describe the various forms of stress (i.e., compression, tension, torque, and shear).	67.57%	65.30%	70.96%
6) CONTENT STANDARD 6.0: FUNDAMENTAL POWER SYSTEMS AND ENERGY PRINCIPLES	73.11%	75.39%	73.23%
1) Performance Standard 6.1: Power Systems and Energy Forms	69.11%	71.38%	68.67%
6.1.1 Define terms used in power systems (e.g., power, work, horsepower, watts, etc.).	59.46%	62.07%	58.46%
6.1.2 Identify the basic power systems.	64.86%	65.95%	68.85%
6.1.3 List the basic elements of power systems.	78.38%	81.90%	73.85%
6.1.4 Summarize the advantages and disadvantages of various forms of power.	75.68%	75.00%	58.46%
6.1.6 Define energy.	71.17%	71.84%	72.82%
6.1.7 Define potential energy and kinetic energy.	85.59%	86.64%	83.85%
6.1.8 Identify forms of potential energy and kinetic energy.	90.99%	89.66%	86.92%

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6.1.10 Identify units used to measure energy.	55.86%	55.17%	53.08%
2) Performance Standard 6.2: Basic Mechanical Systems	89.19%	94.83%	88.46%
6.2.4 Calculate mechanical advantage and drive ratios of mechanisms.	89.19%	94.83%	88.46%
3) Performance Standard 6.3: Energy Sources and Applications	78.89%	80.91%	78.57%
6.3.3 Measure circuit values using a multimeter.	65.77%	70.98%	65.38%
6.3.6 Compute values of current, resistance, and voltage using Ohms law.	91.44%	91.38%	88.85%
6.3.7 Solve series and parallel circuits using basic laws of electricity including Kirchhoffs laws. Test	86.04%	85.34%	88.08%
4) Performance Standard 6.4: Machine Control Systems	57.21%	58.84%	60.96%
6.4.3 Select appropriate input and output devices based on system specifications and constraints.	66.67%	70.69%	68.46%
6.4.4 Differentiate between the characteristics of digital and analog devices.	39.64%	46.55%	45.38%
6.4.5 Compare and contrast open and closed loop systems.	61.26%	59.05%	65.00%
5) Performance Standard 6.5: Basic Fluid Systems	80.97%	83.94%	81.35%
6.5.1 Define fluid systems (e.g., hydraulic, pneumatic, vacuum, etc.).	90.99%	93.10%	89.23%
6.5.5 Explain the difference between gauge pressure and absolute pressure.	75.90%	79.31%	74.42%
6.5.6 Discuss the safety concerns of working with liquids and gases under pressure.	84.38%	87.07%	87.95%