



Results by Standard

2024-2025 Technical Skills Assessment Precision Machining

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

Assessment: Precision Machining Number tested: 10	% Correct 21-22	% Correct 22-23	% Correct 23-24	% Correct 24-25
CONTENT STANDARD 1.0: PERFORM FUNDAMENTAL MACHINING SKILLS	68.37%	53.49%	61.11%	67.03%
Performance Standard 1.1: Comply with safe and efficient work practices	64.29%	63.33%	66.67%	64.10%
1.1.4 Operate lab equipment according to safety guidelines	64.29%	66.67%	83.33%	69.23%
1.1.13 Identify and wear appropriate clothing for lab/shop activities.	50.00%	73.33%	66.67%	84.62%
1.1.15 Locate and interpret material safety data sheets (MSDS).	78.57%	50.00%	50.00%	38.46%
Performance Standard 1.3: Perform job related mathematical calculations	72.86%	56.67%	70.00%	81.54%
1.3.1 Accurately perform job related decimal and fraction calculations.	100.00%	70.00%	83.33%	84.62%
1.3.2 Solve job-related problems using basic geometry.	78.57%	60.00%	83.33%	84.62%
1.3.3 Accurately measure a work piece and compare measurements with blueprint specifications.	78.57%	73.33%	83.33%	92.31%
1.3.4 Calculate the amount of material to be removed to obtain correct limits for secondary operations.	57.14%	46.67%	50.00%	76.92%
1.3.6 Convert measurements from English to metric and from metric to English units.	50.00%	33.33%	50.00%	69.23%
Performance Standard 1.4: Read, interpret and sketch blueprints	77.14%	61.33%	70.00%	69.23%
1.4.1 Interpret line types	57.14%	23.33%	33.33%	15.38%
1.4.2 Read and interpret title blocks	50.00%	63.33%	66.67%	69.23%
1.4.4 Read and interpret nomenclature	92.86%	63.33%	83.33%	92.31%
1.4.5 Make shop sketches	100.00%	86.67%	83.33%	84.62%
1.4.6 Read and interpret blueprints, including geometric dimensioning and tolerancing	85.71%	70.00%	83.33%	84.62%
Performance Standard 1.5: Demonstrate proficiency in machine planning	71.43%	43.33%	58.33%	61.54%
1.5.1 Identify proper order of operations.	78.57%	60.00%	83.33%	92.31%
1.5.4 Select proper tooling.	64.29%	26.67%	33.33%	30.77%
Performance Standard 1.6: Perform measuring operations	58.33%	42.78%	44.44%	56.41%
1.6.1 Read and measure with steel rules and calipers.	7.14%	13.33%	33.33%	30.77%

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Number tested: 10	21-22	22-23	23-24	24-25
1.6.2 Read and measure with micrometers.	75.00%	55.00%	50.00%	84.62%
1.6.3 Read and measure with Vernier tools.	71.43%	50.00%	33.33%	46.15%
1.6.4 Read and measure with dial indicators.	92.86%	73.33%	83.33%	92.31%
1.6.5 Measure using a surface plate.	28.57%	10.00%	16.67%	0.00%
CONTENT STANDARD 2.0: PERFORM BENCH WORK SKILLS	76.98%	77.04%	75.93%	73.50%
Performance Standard 2.1: Identify proper hand tools, usage, and application	100.00%	93.33%	83.33%	92.31%
2.1.1 Use proper hammer types.	100.00%	93.33%	83.33%	92.31%
Performance Standard 2.7: Deburr workpieces	73.21%	65.83%	70.83%	53.85%
2.7.1 Select proper deburring tool.	78.57%	70.00%	83.33%	61.54%
2.7.3 Demonstrate how to sharpen machinist scrapers.	71.43%	60.00%	50.00%	38.46%
2.7.4 Deburr work pieces to required tolerances.	71.43%	66.67%	75.00%	57.69%
Performance Standard 2.8: Use appropriate inspection gages	75.00%	84.17%	79.17%	88.46%
CONTENT STANDARD 3.0: SETUP AND OPERATE POWER SAWS	64.29%	33.33%	83.33%	61.54%
Performance Standard 3.1: Comply with safe and efficient work practices	64.29%	33.33%	83.33%	61.54%
3.1.2 Identify hazardous components of saws.	64.29%	33.33%	83.33%	61.54%
CONTENT STANDARD 4.0: SETUP AND OPERATE PEDESTAL GRINDERS	92.86%	80.00%	83.33%	69.23%
Performance Standard 4.1: Comply with safe and efficient work practices	92.86%	80.00%	83.33%	69.23%
4.1.1 Demonstrate the operation of pedestal grinders safety devices.	92.86%	80.00%	83.33%	69.23%
CONTENT STANDARD 5.0: HAND-SHARPEN CUTTING TOOLS	78.57%	73.33%	66.67%	84.62%
Performance Standard 5.1: Comply with safe and efficient work practices	78.57%	73.33%	66.67%	84.62%
5.1.1 Demonstrate knowledge of safety by completing a written safety test.	78.57%	73.33%	66.67%	84.62%
CONTENT STANDARD 6.0: SETUP AND OPERATE LATHES	73.71%	70.13%	70.67%	79.69%
Performance Standard 6.1: Comply with safe and efficient work practices	100.00%	80.00%	83.33%	84.62%
6.1.5 Explain the proper housekeeping and tool hazards	100.00%	80.00%	83.33%	84.62%
Performance Standard 6.4: Secure tools, tool holders, and fixtures or attachments	90.48%	95.56%	83.33%	84.62%
6.4.1 Describe the proper selection of tool holding devices.	92.86%	96.67%	83.33%	84.62%
6.4.2 Describe the use of tool holders, fixtures and attachments.	85.71%	100.00%	83.33%	84.62%
6.4.3 Describe the mounting of tool bits.	92.86%	90.00%	83.33%	84.62%
Performance Standard 6.5: Select and set feeds and speeds	58.93%	66.67%	70.83%	80.77%
6.5.1 Locate, speed and feed chart on each machine.	57.14%	67.78%	77.78%	87.18%
6.5.2 List spindle speed formula and calculate appropriate RPM.	64.29%	63.33%	50.00%	61.54%
Performance Standard 6.6: Setup lathes and face work pieces held in chucks	80.36%	75.00%	70.83%	86.54%
6.6.2 Calculate cutting speeds and feeds for facing operations.	35.71%	33.33%	66.67%	69.23%
6.6.3 Describe the procedures for facing.	95.24%	88.89%	72.22%	92.31%

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Number tested: 10	21-22	22-23	23-24	24-25
Performance Standard 6.7: Rough-cut and finish-cut with lathes	87.50%	75.83%	75.00%	88.46%
6.7.1 Calculate the correct speeds and feeds for the appropriate operation.	82.14%	63.33%	66.67%	76.92%
6.7.3 Define and make trial cuts.	85.71%	83.33%	83.33%	100.00%
6.7.4 Using appropriate measuring tools, measure work piece.	100.00%	93.33%	83.33%	100.00%
Performance Standard 6.14: Counter bore holes with lathes	57.14%	43.33%	66.67%	76.92%
6.14.4 Counter bore a hole in a work piece.	57.14%	43.33%	66.67%	76.92%
Performance Standard 6.15: Bores holes with lathes	92.86%	80.00%	75.00%	84.62%
6.15.2 Select the correct tool and tool holder for boring holes.	92.86%	80.00%	75.00%	84.62%
Performance Standard 6.17: Cut external threads with lathes	52.38%	50.00%	66.67%	58.97%
6.17.1 Describe the procedures for cutting external threads.	67.86%	58.33%	75.00%	53.85%
6.17.8 Determine compound off-set angle (right or left hand threads).	21.43%	33.33%	50.00%	69.23%
Performance Standard 6.19: Cut internal threads with lathes	54.76%	54.44%	50.00%	69.23%
6.19.1 Describe the procedures for cutting internal threads.	64.29%	53.33%	50.00%	53.85%
6.19.2 Explain the use of appropriate inspection gages.	78.57%	73.33%	66.67%	84.62%
6.19.8 Determine compound off-set angle (right or left hand threads).	21.43%	36.67%	33.33%	69.23%
CONTENT STANDARD 7.0: SETUP AND OPERATE MILLING MACHINES	78.20%	58.16%	68.42%	73.28%
Performance Standard 7.1: Comply with safe and efficient work practices	35.71%	16.67%	50.00%	38.46%
7.1.4 Operate lab equipment according to safety guidelines.	35.71%	16.67%	50.00%	38.46%
Performance Standard 7.2: Identify the parts of the horizontal and vertical milling machine and know their function	88.10%	64.44%	66.67%	74.36%
7.2.1 Describe the function of major parts.	88.10%	64.44%	66.67%	74.36%
Performance Standard 7.4: True up the head and align milling machine fixtures	75.00%	50.00%	50.00%	61.54%
7.4.1 Explain the safety precautions/procedures in alignment of heads.	78.57%	56.67%	66.67%	69.23%
7.4.5 Align a head of a milling machine.	71.43%	43.33%	33.33%	53.85%
Performance Standard 7.5: Select and set feeds and speeds for milling work	87.14%	60.00%	66.67%	83.08%
7.5.1 List the correct cutting speed and feed for various materials.	85.71%	60.00%	75.00%	88.46%
7.5.2 Set correct feeds and speeds on a milling machine for various materials.	88.10%	60.00%	61.11%	79.49%
Performance Standard 7.6: Square up work pieces with a table vise	73.81%	46.67%	55.56%	61.54%
7.6.2 Describe the procedures for setting-up and machining a work piece parallel and square.	73.81%	46.67%	55.56%	61.54%
Performance Standard 7.7: Perform end milling	80.36%	65.83%	83.33%	90.38%
7.7.2 Describe the procedures for setting up and end milling a flat surface.	76.19%	58.89%	83.33%	87.18%
7.7.3 Identify the correct cutting fluids for milling.	92.86%	86.67%	83.33%	100.00%
Performance Standard 7.8: Perform fly-cutting operations	76.19%	46.67%	72.22%	71.79%
7.8.2 Explain the purpose of fly-cutters.	85.71%	36.67%	66.67%	69.23%

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Number tested: 10	21-22	22-23	23-24	24-25
7.8.3 Calculate speeds, feeds, and determine depth of cut for fly-cutting surfaces.	78.57%	50.00%	66.67%	61.54%
7.8.4 Describe the procedures for fly-cutting surfaces.	64.29%	53.33%	83.33%	84.62%
Performance Standard 7.9: Drill holes with a milling machine	69.64%	61.67%	66.67%	65.38%
7.9.1 Describe the procedures for using milling machine dials for accurate table positioning.	100.00%	93.33%	83.33%	100.00%
7.9.4 Calculate the correct speed and feed.	42.86%	41.67%	50.00%	34.62%
7.9.5 Drill holes in a work piece to specified tolerances using a milling machine.	92.86%	70.00%	83.33%	92.31%
Performance Standard 7.10: Perform reaming operations	80.95%	73.33%	66.67%	79.49%
7.10.1 Explain the uses of centerdrills, drills, and reamers.	100.00%	83.33%	83.33%	84.62%
7.10.2 Calculate proper speeds and feeds for centerdrilling, drilling, and reaming operations.	100.00%	76.67%	66.67%	92.31%
7.10.3 Describe the procedures for centerdrilling, drilling, and reaming on a milling machine.	42.86%	60.00%	50.00%	61.54%
Performance Standard 7.12: Bore holes with milling machines	90.48%	58.89%	72.22%	69.23%
7.12.1 Explain the procedures for accurately adjusting a boring head.	85.71%	45.00%	66.67%	53.85%
7.12.2 Calculate speeds and feeds for boring operations.	100.00%	86.67%	83.33%	100.00%
Performance Standard 7.18: Use an edge finder and wiggler	82.14%	68.33%	75.00%	76.92%
7.18.1 Explain the correct care and use of an edge finder or wiggler.	82.14%	73.33%	83.33%	80.77%
7.18.2 Describe the procedures for touching off with an edge finder and a wiggler.	92.86%	66.67%	83.33%	76.92%
7.18.3 Locate the center of a work piece after locating it with a wiggler or edge finder.	71.43%	60.00%	50.00%	69.23%
Performance Standard 7.19: Position a table	64.29%	46.67%	72.22%	69.23%
7.19.3 Describe the procedures for keeping backlash out of lead screws.	60.71%	43.33%	75.00%	61.54%
7.19.5 Describe the procedures for drilling equally spaced holes.	71.43%	53.33%	66.67%	84.62%
CONTENT STANDARD 8.0: SETUP AND OPERATE DRILL PRESSES	71.43%	59.17%	66.67%	59.62%
Performance Standard 8.1: Comply with safe and efficient work practices	78.57%	73.33%	66.67%	69.23%
8.1.1 Demonstrate knowledge of safety by completing a written safety test.	78.57%	73.33%	66.67%	69.23%
Performance Standard 8.3: Center drill, drill and ream a hole in a work piece	69.05%	54.44%	66.67%	56.41%
8.3.1 Describe the procedures for center drilling and drilling holes.	64.29%	51.67%	75.00%	53.85%
8.3.2 Describe the procedures for reaming holes.	78.57%	60.00%	50.00%	61.54%