



Precision Machining Technology

ELIGIBILITY

Open to active SkillsUSA members enrolled in vocational programs with entry-level skills as the occupational objective.

CLOTHING REQUIREMENTS

All contestants will be required to supply their own safety glasses or goggles and work shoes. All contestants must wear a short sleeved shirt or have their sleeves rolled up above the elbow. No contestant may wear short pants or pants with holes or torn sections. It is recommended that each student bring a shop apron (not required).

No student may wear anything identifying the school in which they represent.

EQUIPMENT AND MATERIALS SUPPLIED BY HOST

1. Clausing EVS Vertical Milling Machines & Accessories
2. Clausing -Metosa C1440 15" Lathes & Accessories
3. Floor Model Drill Press
4. Assorted drill bits for contestant choice
5. Coolant and cutting oil
6. Work benches and assorted hand tools (hammers, wrenches, files)
(Recommend all contestants familiarize themselves with controls prior to day of contest)

EQUIPMENT AND MATERIALS SUPPLIED BY CONTESTANT

1. Machinery's Handbook
2. 0-1" and 1-2" Outside Micrometers
3. 0-1" Depth Micrometer
4. 0-6" Vernier/Dial Caliper
5. 6" Rule
6. 6" or 12" Combination Set
7. Universal Dial Test Indicator
8. Scriber Edge Finder
9. Center Gage
10. 8-32 tap, 1/4-20 tap, 5/16-18 tap, 3/8-16 tap
11. 3/8 square tooling (HSS) pre-ground for turning, facing, 60 degree threading, and .125 wide grooving tool
12. 3/8" 4-flute endmill, 3/8" 2-flute endmill, 1/4" 2-flute endmill, 2 - #3 center drills.
13. Scientific Calculator
14. Several #2 pencils
15. One page resume
16. Proof of Training sheet
17. Safety Glasses/ goggles



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SCOPE OF THE CONTEST - (DEFINED BY THE NATIONAL COMPETITION REGULATIONS)

(District Competitions are meant to be a scaled down version of National Competition. It is important for the students to participate in a competition that will reflect a cross-section of the industry skills needed to prepare them for the state and national levels)

KNOWLEDGE PERFORMANCE

1. Each contestant will be required to demonstrate abilities in a variety of manual machining operations and their understanding of general Machining Theory.
2. Each contestant will be evaluated on SkillsUSA knowledge and skill specific technical knowledge through the use of written examinations. In the event of a tie, the judge(s) will use the results of the SkillsUSA knowledge written examination as a tiebreaker tool. If both contestants score the same on the SkillsUSA exam, an additional skill demonstration will be used for the tiebreaker.

Each competitor will have two and a half hours to complete the competition.

SKILL PERFORMANCE

1. **Orientation:**
 - a. The proctor will provide a 15 minute overview of the test components, workstations, procedures, rules, and safety factors. Each contestant should visit the equipment, have an understanding of the operations, locations of supplies and tools, and ask questions prior to beginning the contest. Any questions or concerns during the contest should be addressed directly through the Head Judge of the contest.
 - b.
2. **General Knowledge Written Test**
 - a. 20 minutes
 - b. The General Knowledge Written Test is a (20) multiple choice technical machining examination that should consume no more than (20) minutes of time. Contestants must use the answer sheet provided in their packets.
3. **Conventional Turning Performance Test**
 - a. 80 minutes
 - b. Using the information and specifications provided on the SkillsUSA TURNING engineering drawing blueprint, the contestant will create a process plan and manufacture as much of the given product as possible within the (80) minute time limit. Contestants are to use the blank process planning sheet forms provided in their packets. Proper safety practices must be followed at all times.



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4. Conventional Milling Performance Test

- a. 80 minutes
- b. Using the information and specifications provided on the SkillsUSA MILL engineering drawing the contestants will create a process plan and manufacture as much of the given product as possible within the (60) minute time limit. Contestants may use the blank process planning sheet forms provided in their packets. Proper safety practices must be followed at all times.

Precision Machining Scoring Sheet

Item Name	Description	Possible Points
Written Test		20
Conventional turning performance test		100
Conventional milling performance test		155
	Subtotal = 150	
No resume	Deduction -10	
Clothing Penalty	Deduction -10	
Safety Penalty	Deduction -5	
	TOTAL	

Note: No cell phones or other electronic devices may be used at any time during a competition; this includes using a calculator function on a cell phone for competitions in which calculators are permitted.

Note: Scorecards should only be used as guidance. Changes may occur.