

2012 NOVA SCOTIA SKILLS COMPETITION – SCOPE DOCUMENT

03 – PRECISION MACHINING

Post-Secondary Levels

PURPOSE OF THE CHALLENGE

DURATION: 8 HOURS

Assess the contestant's precision machining skills and trade knowledge through practical testing at the post secondary level. Select Nova Scotia Candidate for National Skills competition.

Important Note: The 2012 Machining competition will be held at the Pictou Campus of the Nova Scotia Community College 39 Acadia Ave, Stellarton, NS. Ph. (902) 752-2002 on March 22, 2012 at 8:00 A.M.

Note: The contest will be open to six (6) NSCC candidates, two (2) each from Institute campus, Kingstec Campus and Pictou Campus as selected by instructors and a (maximum) of (2) candidates from apprenticeship. There are a maximum of eight (8) seats in this competition. Preference will be given to candidates under twenty-one years of age.

The technical chair may fill vacant seats from a waiting list at Skills Nova Scotia or from NSCC candidates.

SKILLS AND KNOWLEDGE TO BE TESTED

The contest will occur over a one-day period. The contest will consist of a 3-hour lathe project, and a 3-hour milling project. The practical sections of the contest involve, machining a project using a conventional engine lathe and machining a second project using a conventional milling machine. Measuring may be in Metric or Imperial. Machines will be assigned on a draw basis.

PRACTICAL SKILLS and KNOWLEDGE:

Conventional Engine Lathe may include

- External and/or internal cylindrical turning
- Taper turning (internal and/or external)
- External & internal threading (metric or imperial)
- Grooving (external)
- Drilling & Reaming
- Knurling
- Applied metrology

Conventional Vertical Milling Machine may include

- Conventional vertical milling
- Drilling, Reaming and Tapping
- Angular milling, including calculations
- Pocket milling
- Reaming, Drilling & Tapping
- Applied metrology

Important Note: Qualified contestants may test drive machinery on an appointment basis, prior to one day before the contest. Please contact the Technical Chair for an appointment

THEORETICAL SKILLS and KNOWLEDGE:

- Applied Knowledge
- Applied Trade Calculations

Note: The measuring system may be metric or imperial.

03 – PRECISION MACHINING

Post-Secondary Levels

EQUIPMENT, TOOLS, SUPPLIES, CLOTHING

The following will be supplied to each contestant:

- All necessary milling machine cutters and holders.
- All necessary turning tools other than those required by the competitor as outlined on diagram.
- Contestants may be required to share some of the supplied tools and equipment.

The following items must be supplied by each contestant:

- CSA approved safety glasses and safety boots or shoes.
- Shop coat or equivalent (optional).
- Measuring Tools as per Information Sheet attached with Diagrams
- Lathe Tools as per Information Sheet attached with Diagrams
- A non-programmable scientific calculator.

Contestants may bring the following optional items:

- Measuring and cutting tools.
- Hand tools.
- Machinists reference materials (Hand book, drill charts etc.)

Project Materials:

- Turning Project – Brass, Aluminum or Steel.
- Milling Project – Brass, Aluminum or Steel.

Each contestant will be supplied with a maximum of two work piece blanks for the lathe and milling machine projects.

Note: If a second work piece blank is required the contestant will lose 10% of the total project mark.

Diagram:

- A Diagram without dimensions will be available to qualified contestants provided via Skills Nova Scotia, one week prior to the contest.

Safety Orientation:

Prior to the start of the competition contestants and coaches will be provided with a comprehensive safety orientation, which will include machine operations. This orientation will be a minimum of 15 minutes for each machine.

POINT BREAKDOWN/1000 TOTAL

	TURNING	MILLING
• Compliance with occupational health and safety regulations	100	100
• Project Completion or Rework	100	100
• Compliance with appropriate surface finish and deburring	100	100
• Compliance with part assemble where applicable	100	100
• Compliance with dimensions, tolerances and fits as specified in plans	<u>600</u>	<u>600</u>
Scored out of 1000	1000	1000

Note: The turning project and the milling project will be averaged for the final mark out of 1000.

03 – PRECISION MACHINING

Post-Secondary Levels

TIME TABLE

Place:

The Precision Machining Skills Nova Scotia Contest will be held at the Pictou Campus of the Nova Scotia Community College 39 Acadia Ave, Stellarton, NS. PH. (902) 752-2002

Time Frame:

- **The contest will start promptly at 8:00 am, March 22, 2012 (Late competitors may be disqualified)**
- 8:00 to 8:15 Explanation of contest rules and procedure
- 8:15 to 8:30 Machine Orientation
- 8:30 to 11:30 Part 1 of Contest
- 11:30 to 11:45 Clean Up
- 11:45 to 12:15 Lunch (Provided)
- 12:15 to 12:30 Machine Orientation
- 12:30 to 3:30 Part 2 of Contest
- 3:30 to 3:45 Clean Up
- 3:45 to 4:30 Judging
- Medal Awards (TBA)

Provincial Technical Council (PTC):

John MacLellan – (902-752-2002) Pictou Campus Nova Scotia Community College, 39 Acadia Ave, Stellarton, N.S.
Glenn Baxter – (902-752-2002) Pictou Campus Nova Scotia Community College, 39 Acadia Ave, Stellarton, N.S.

Note: If there are any questions concerning the type of equipment or other inquiries please contact John MacLellan or Glenn Baxter.
