



2018

SCNC

SKILLS CANADA
NATIONAL COMPETITION

OCMT

OLYMPIADES CANADIENNES
DES MÉTIERS ET
DES TECHNOLOGIES



SkillsCompétences
Canada
Edmonton2018

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

PRECISION MACHINING TECHNIQUES D'USINAGE

SECONDARY AND POST- SECONDARY /
NIVEAUX SECONDAIRE ET POSTSECONDAIRE



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1 THE ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY

SCC is currently working with Employment and Social Development Canada (ESDC) in order to bring awareness to the importance of Essential Skills that are absolutely crucial for success in the workforce. Part of this ongoing initiative requires the integration and identification of Essential Skills in contest descriptions, projects, and project documents. The next phase and very important aspect of our Essential Skills (ES) initiative is to provide an ES report card to each competitor at the Skills Canada National Competition. The purpose of the ES report card is to inform the competitor about their current level of essential skills based on their competition scores. With this knowledge, the competitor will be made aware which essential skill may require improvement. Full implementation is expected in the next Skills Canada National Competition.

The following 9 skills have been identified and validated as key essential skills for the workplace in the legend below:

¹Numeracy, ²Oral Communication, ³Working with Others, ⁴Continuous Learning, ⁵Reading Text, ⁶Writing, ⁷Thinking, ⁸Document Use, ⁹Digital

These essential skills have been identified with in section 2.3 and/or 3.2 of your Contest Description. The top three Essential Skills for your area of competition have been identified on your Project and all other supporting project documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated work role(s) or occupation(s).

<http://skillscompetencescanada.com/en/skills/manufacturing-engineering/precision-machining/>

2.2 Purpose of the Challenge.

Assess the contestant's precision machining skills and trade knowledge through practical testing at the secondary & post-secondary levels.

2.3 Duration of contest.

7 hours

2.4 Skills and Knowledge to be tested.

The contest will occur over two days. The contest will consist of 7 hours of practical machining. The contest involves machining a project using a conventional engine lathe and a conventional vertical milling machine.

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents.

DOCUMENT	DATE OF DISTRIBUTION VIA WEBSITE
Test Project	April, 2018

3.2 Tasks that may be performed during the contest

Conventional Engine Lathe may include

- External and internal cylindrical turning
- External and Internal threading
- Grooving (external and/or internal)
- Applied metrology¹
- Assembly of parts⁸
- Knurling
- Taper turning (external and/or internal)
- Associated calculations¹
- 3 Jaw or 4 Jaw chuck

Essential Skills - ¹Numeracy, ⁸Document Use

Conventional Vertical Milling Machine may include

- Conventional vertical milling
- Drilling, Reaming C/sink, C/bore and Tapping⁷
- Pocket milling
- Use of offset boring head
- Applied metrology¹
- Form Milling (dovetails, T-Slots, corner rounding, etc.) including calculations¹
- Assembly of parts⁸
- Associated calculations¹

Essential Skills – ¹Numeracy, ⁷Thinking (Critical, Decision Making), ⁸Document Use.

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

The dimensioning system or equipment may be metric or imperial (Dependant on machine availability).

- Competitors may be required to share supplied tools and equipment (dependant on availability)
- All cutting tools
- May include, Low carbon steel
- May include, Brass
- May include, Bronze
- May include, Aluminum
- Each contestant will be supplied with the material to complete one lathe and one milling machine project.
- Machine may or may not be equipped with DRO (digital readout)
- 6" or 8" Slip joint pliers
- 6-8 inch digital caliper
- 0 to 4 inch micrometers
- Depth micrometers

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.

4.2 Equipment and material provided by the competitor

- Competitors will **not** be allowed to use their own cutting tools
- Steel rule
- Dead-blow hammer
- Center gauge
- File, file card and or deburring tools (no abrasives permitted)
- Metric and inch hex keys
- 12 inch adjustable wrench
- Set of feeler gauges
- Dial indicators-magnetic (back and/or magnetic base)
- Dial test indicator
- Edge finder
- Parallel set
- Telescoping gauges
- Machinist's Ready Reference/Machinery's Handbook (optional)
- Other reference material (optional)
- Scrap paper
- A scientific / machinist calculator (optional)
- Thread pitch gauge and thread wires
- Solid square
- Protractor
- Felt marker
- Flashlight

4.3 Required clothing provided by the competitor.

- Shop coat or equivalent (optional)

5 SAFETY REQUIREMENTS

5.1 Safety workshop

Upon arrival at the Skill area, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety and environmental rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

5.2 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada

- Ear protection (optional)

5.3 List of required personal protective equipment (PPE) provided by the competitor

- CSA approved safety shoes
- Safety glasses

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN / 100 TOTAL	Turning	Milling
Compliance with occupational health and safety regulations	5	5
Compliance with dimensions, tolerances and fits as specified in plan	85	85
Compliance with appropriate surface finish and deburring	10	10

7 CONTEST SPECIFIC RULES

Contest specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from contest to contest. Any additional contest rules will be reviewed during the competitors orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
Use of technology - personal laptops, tablets and mobile phones	<ul style="list-style-type: none"> • Competitors are not allowed to bring personal laptops tablets or mobile phones into the skill area • National Technical Committee (NTC) members, Interpreters and judges are allowed to use personal devices into the skill area
Drawings, recording information	<ul style="list-style-type: none"> • Competitors, Interpreters, NTC members and or judges are not permitted to take drawings or recorded information out of the skill area until conclusion of the Competition Day 2
Tools / Infrastructure	<ul style="list-style-type: none"> • Competitors are required to use micrometers and calipers supplied by Skills/Compétences Canada

8 ADDITIONAL INFORMATION

8.1 Consecutive translation

If consecutive translation is required on site, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service might not be guaranteed.

8.2 Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in overall surface finish will be declared the winner. If a second tie occurs, the competitor with the highest score in the external thread form and finish will be declared the winner. If a third tie occurs, the competitor with the highest score in the internal thread form and finish will be declared the winner.

8.3 Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, NTC shall change a maximum of 30% of the work content. Please refer to the Competition Rules.

8.4 Competition rules

Please refer to the [competition rules](#) of the Skills Canada National Competition.

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organization	Name
Alberta - Chair	Gary Lindquist
Manitoba	Warren Palmer
Ontario	Jeff Oskam
Québec	Serge Fleury
Saskatchewan	Emmet Jacklin
Prince Edward Island	Ken Muirhead
Nova Scotia	Matt Wilson

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Marilou Leduc (mariloul@skillscanada.com).