Skills Compétences Canada
Vancouver2022

CONTEST DESCRIPTION

Precision Machining

VIRTUAL SECONDARY

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

In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success *(former Essential Skills)* model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are absolutely crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The next phase and very important aspect of our Skills for Success (SfS) initiative is to provide a *Skills Report Card* to each competitor at the Skills Canada National Competition. The purpose of the report card is to inform the competitor about their current level of nine identified Skills for Success based on their competition scores. With this knowledge, the competitor will be made aware which 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 skills for success for the workplace in the legend below:
[1]Numeracy, [2]Communication, [3]Collaboration, [4]Adaptability, [5]Reading, [6]Writing, [7]Problem Solving, [8]Creativity and Innovation, [9]Digital

These Skills for Success have been identified in section 2.4 and/or 3.2 of your Contest Description and if applicable, in your Project and supporting documents.

2 CONTEST INTRODUCTION

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

https://www.skillscompetencescanada.com/en/skill_area/precision-machining/

2.2 Purpose of the Challenge

Assess the contestant's precision machining skills and trade knowledge through practical testing.

2.3 Duration of contest

During the SCNC 2022, the secondary category will be hosted virtually on May 19 and 20, 2022.
The competition for your skill will consist of a total of 7 hours.
A detailed schedule will be posted on our website.

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 on the Skills/Compétences Canada website

DOCUMENT	DATE OF DISTRIBUTION
Project ISOMETRIC	December 2021

3.2 Tasks that may be performed during the contest

Conventional Engine Lathe may include:

- External and internal cylindrical turning[1,7]
- External and Internal threading[1,7]
- Grooving (external and/or internal) [1,9]
- Applied metrology[5]
- Assembly of parts[7]
- Knurling[8]
- Taper turning (external and/or internal) [1,7]
- Associated calculations[1,9]
- 3 Jaw or 4 Jaw chuck

Conventional Vertical Milling Machine may include:

- Conventional vertical milling[7,9]
- Drilling, Reaming, C/sink, C/bore and Tapping[,7]
- Pocket milling[7,9]
- Use of offset boring head[9]
- Applied metrology[5]
- Form milling (dovetails, T-Slots, corner rounding, etc.) including calculations [1,7]
- Assembly of parts[7]
- Associated calculations[1]

Skills For Success - [1]Numeracy, [5]Reading, [7]Problem Solving, [8]Creativity and Innovation, [9]Digital

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by the competitor and/or host facility

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 or needle nose pliers
- Brass hammer
- 6–8-inch digital caliper
- 0-to-4-inch micrometers
- Depth micrometers
- Thread pitch micrometers
- Competitors will not be allowed to use their own cutting tools
- Steel rule
- Scriber
- Dead-blow hammer
- Center gauge
- File, needle files, 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
- Adjustable 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

4.2 Required clothing provided by the competitor

- Shop coat or equivalent (optional)

5 HEALTH AND SAFETY

5.1 Safety program[2,3]

SCC has implemented a comprehensive safety program as health and safety is an integral part of our competitions. Our safety program includes guidelines and procedures to make the work environment in each skill area safer.

5.1.1 Safety manual[2,3]

As part of our program a safety manual has been created to monitor and document health and safety within each skill area. It includes a definite plan of action designed to prevent accidents. The safety manual will be provided for every skill and these instructions must be followed and respected by all participants and officials at the SCNC.

5.1.2 Safety workshop[2,3]

During orientation, 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 COVID-19 Protocol[2,3]

The COVID guidelines already in place within the participants' jurisdiction would need to be followed during the SCNC. It is the responsibility of the participants (Competitor, Proctors, NTC members, and anyone onsite during the competition) to ensure that the COVID guidelines are respected.

5.3 List of required personal protective equipment (PPE) provided by the competitor and/or host facility[2,3]

- Ear protection (optional)
- CSA approved safety shoes
- Safety glasses

Note: Competitors who do not have the required protective equipment will not be allowed to participate in the competition

Skills For Success – [2]Communication, [3]Collaboration

6 ASSESSMENT

6.1 Point breakdown

Note: This list is subject to change.

TASKS	/100
Compliance with occupational health and safety regulations	5
Compliance with dimensions, tolerances and fits as specified in plan Compliance with appropriate surface finish and deburring	95

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 competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
Use of technology - personal laptops, tablets and mobile phones	• 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 devises in the skill area
Drawings, recording information	• 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	• Competitors are required to use micrometers and calipers supplied by Skills/Compétences Canada

8 ADDITIONAL INFORMATION

8.1 Interpreter

If a competitor requires the help of an interpreter during the competition, 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 may not be guaranteed.

8.2 Ties

- Tiebreaker #1: The competitor with the highest score in overall surface finish will be declared the winner.
- Tiebreaker #2: The competitor with the highest score in the external thread form and finish will be declared the winner.
- Tiebreaker #3: The competitor with the highest score in the internal thread form and finish will be declared the winner.

8.3 Competition rules

Refer to the competition rules of the Skills Canada National Competition which can be found on our website.

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

MEMBER ORGANIZATION	NAME
Nova Scotia	Zack Chaisson
Quebec	Serge Fleury
Ontario	Jeff Oskam - Chair
Manitoba	Glen Hawker
Saskatchewan	Emmet Jacklin - Co-Chair
Alberta	Graham Greenhall
British Columbia	David Peare
New Brunswick	Curtis Yeomans

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Nathalie Maisonneuve (nathaliem@skillscanada.com).