Skills Compétences Canada
Vancouver2020

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

PRECISION MACHINING TECHNIQUES D'USINAGE

SECONDARY AND POST-SECONDARY /
NIVEAUX SECONDAIRE ET POSTSECONDAIRE

SCNC / OCMT
2020
VANCOUVER

Table of Contents

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:

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

These essential skills have been identified in section 2.4 and/or 3.2 of your Contest Description and if applicable, in 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 2020

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 metrology[1,9]
- Assembly of parts[8]
- Knurling
- Taper turning (external and/or internal)
- Associated calculations[1,9]
- 3 Jaw or 4 Jaw chuck

Essential Skills - [1]Numeracy, [7]Thinking (Critical, Decision Making), [8]Document Use, [9]Digital Skills

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Conventional Vertical Milling Machine may include:

- Conventional vertical milling
- Drilling, Reaming, C/sink, C/bore and Tapping[7]
- Pocket milling
- Use of offset boring head
- Applied metrology[1,9]
- Form Milling (dovetails, T-Slots, corner rounding, etc.) including calculations[1]
- Assembly of parts[8]
- Associated calculations[1,9]

Essential Skills – [1]Numeracy, [7]Thinking (Critical, Decision Making), [8]Document Use, [9]Digital Skills

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 or needle nose pliers
- Brass hammer
- 6-8 inch digital caliper
- 0 to 4 inch micrometers
- Depth micrometers
- Thread pitch micrometers

4.2 Equipment and material provided by the competitor

- 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

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.

4.2.1 Toolboxes Guidelines

One of the objectives of SCC is the sustainability of the Competition. As a result, the toolboxes brought by Competitors will be restricted to the following maximum specifications.

The Competitor toolbox must not exceed .1 meters^3 in volume. It can be multiple toolbox but the total of all toolbox, must not exceed the maximum volume indicated. There is no exception to this rule. If the Competitor toolbox is larger than what is indicated, the Competitor with the guidance of the NTC, will need to remove items from the toolbox and those items will not be used during the competition.

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 Personal protective equipment (PPE) provided by Skills/Compétences Canada

- Ear protection (optional)

5.3 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 Compliance with appropriate surface finish and deburring	95	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 competitors 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

Interpreter

If a competitor requires the help of an interpreter once onsite 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 might not be guaranteed.

8.1 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.

8.2 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.

8.3 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
Alberta - Chair	Gary Lindquist
Manitoba – Co-chair	Warren Palmer
Ontario	Jeff Oskam
Québec	Serge Fleury
Saskatchewan	Emmet Jacklin
Prince Edward Island	Ken Muirhead
Nova Scotia	Matt Wilson
New Brunswick	Bob Doucet
British Columbia	David Peare

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