



SCNC
SKILLS CANADA
NATIONAL
COMPETITION



OCMT
OLYMPIADES
CANADIENNES
DES MÉTIERS
ET DES
TECHNOLOGIES



SkillsCompétences
Canada
Halifax2019

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

INDUSTRIAL
MECHANIC/MILLWRIGHT
MÉCANICIEN-MONTEUR
INDUSTRIEL

POST- SECONDARY / NIVEAU 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 in section 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)

<http://skillscompetencescanada.com/en/careers/manufacturingengineering/industrial-mechanics-millwright/>

2.2 Purpose of the Challenge

To test the knowledge and skills of each competitor in the areas of: blueprint reading, precision hand layout, precision fitting skills, use of hand tools (drills, hand taps, files, broaching, etc.) precision machining (lathe), “CLIMAX” key-seat cutter (key-seats), MIG welding and fabrication, use of (“Swagelok”) tube bending hand tools, stainless steel tube bending, predictive maintenance and laser shaft alignment (Fixturlaser SMC & NXA Pro), centrifugal or positive displacement pump, speed increaser or gear reduction gearbox disassembly, inspection, recording and reassembly.

2.3 Duration of contest.

12 hours

2.4 Skills and Knowledge to be tested.

Mark breakdown: 100% practical.

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
No other documents will be posted online	

3.2 Tasks that will be performed during the contest

- Perform hand tool operations.
- Perform precision hand layout operations.
- Read and interpret blueprints.⁸
- Perform and demonstrate using the supplied hand tools the required skills to bend stainless steel tubing to the given specifications to fit a mechanical component.^{7,8}
- Use a Centre Lathe to produce detail part's (C.R.S.) (parallel turning, chamfering, shoulder turning and undercutting) to required tolerances (± 0.001 "¹)
- Use a CLIMAX key-seat cutter to produce keyseats in machined shafting to required tolerances (± 0.005 "^{1,7})
- Perform the disassembly, inspection, recording and reassembly of a centrifugal or positive displacement pump and a speed increaser or gear reduction gearbox.⁷
- Perform Predictive Maintenance protocols and a Laser Shaft Alignment including a Thermal Growth Offset.⁷
- Knowledge of Imperial measurement and ANSI symbols required¹
- All competitors will be required to sign a declaration stating they have not written a certificate of qualification examination, or hold journeyman status in a related trade.

*Essential Skills – ¹Numeracy, ⁷Thinking (Critical, Problem Solving, Significant Use of Memory),
⁸Document Use*

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- All required components, tools and equipment.
- Fixturlaser NXA Pro will be supplied and will be used for the alignment challenge
- “Swagelok” tube bending tools and components will be used for the stainless steel tube bending challenge.

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

- No tools or equipment permitted

4.3 Required clothing provided by the competitor.

- Dressed in an appropriate manner with no visible Logos (Provincial attire is acceptable)
- Long hair must be tied back
- No loose clothing

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

- N/A

5.3 Personal protective equipment (PPE) provided by competitors

- Safety Glasses (**Clear Lens Only**)
- CSA approved Safety shoes/boots
- Mechanics gloves may be used. (Optional)
- **Note:** Competitors will not be allowed to compete if the above items are not brought and used.

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
Fabrication & MIG Welding Precision hand layout, use of hand tools Precision Machining (Centre Lathe) “CLIMAX” key-seat cutter Stainless Steel Tube Bending	50
Predictive Maintenance & Laser Shaft Alignment with Thermal Growth Offset	25
Perform the disassembly, inspection, recording and reassembly of a centrifugal or positive displacement pump and a speed increaser or gear reduction gearbox	25

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
Safety	<ul style="list-style-type: none"> • Proper PPE must be worn at all times when on the contest floor
Electronic devices	<ul style="list-style-type: none"> • Electronic devices are not allowed onsite. This includes cell phones
Time management	<ul style="list-style-type: none"> • Tardiness will not be tolerated
Food and beverage	<ul style="list-style-type: none"> • No alcohol or drugs allowed • No energy drinks allowed

8 ADDITIONAL INFORMATION

8.1 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.

8.2 Ties

- Tiebreaker #1: In the event of a tie, the competitor with the highest score in the Laser Alignment Section of the Preventative Maintenance challenge will be declared the winner.
- Tiebreaker #2: If a second tie occurs, the competitor with the highest score in the Tube Bending Section of the Machining, Weld, Fab & Mech Assembly challenge will be declared the winner.
- Tiebreaker #3: If a third tie occurs, the competitor with the highest score in the Pump Section of the Pump/ G/Box challenge 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

Refer to the [competition rules](#) of the Skills Canada National Competition which can be found on our website.

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organisation	Name
British Colombia – Co-Chair	Robert Braun
Manitoba	Dan Zvanovec
Ontario - Chair	Craig Brazil
Quebec	Normand Lavoie
Nova Scotia	Jon Lowthers
Saskatchewan	Neil Dielschneider
Newfoundland & Labrador	Steve Wells
Alberta	Roger Tokay
New Brunswick	Shannon Savoy

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