Skills Compétences Canada

CONTEST DESCRIPTION

Industrial Mechanics

POST-SECONDARY

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

The Government of Canada has updated the previous Essential Skills framework to the new Skills for Success model in response to the evolving labour market and changing skill requirements. This model outlines nine fundamental skills Canadians need to thrive in work, education, training, and daily life.

Skills/Compétences Canada aims to highlight the importance of these skills, vital for success in trade and technology careers. Competitors can see how Skills for Success are integrated into contest descriptions, projects, and project documents. Recognizing these skills during the competition helps competitors match tasks with specific skills necessary for success and understand how these skills apply within their trade or technology programs and future careers.

The nine key Skills for Success, validated for workplace success, are:

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 are detailed in sections 2.3 and/or 3.2 (to be completed by SCC) of your Contest Description and, if relevant, 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/industrial-mechanic/

2.2 Purpose of the Challenge

To test the knowledge and skills of each competitor in the areas of: blueprint reading, fluid power (pneumatics) ISO schematics, precision hand layout, precision fitting skills, use of hand tools, hand drills etc., install mechanical components, centrifugal pump disassembly and reassembly, MIG welding and fabrication, stainless steel tube bending, predictive maintenance and laser shaft alignment (Fixturlaser SMC & NXA Pro).

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 on the Skills/Compétences Canada website.

DOCUMENT	DATE OF DISTRIBUTION
Project	Distributed on Competition Days
Skills Sets	December 2024

3.2 Tasks that may be performed during the contest.

- Perform hand tool operations.[1,7]
- Perform precision hand layout operations.[1,7]
- Read and interpret blueprints.[5]
- Perform and demonstrate using the supplied hand tools the required skills to bend stainless steel tubing to the given specifications to fit mechanical components.[5,7]
- Install supplied pneumatic components and build the required circuit as per given instruction. [1,5,7]
- Perform Predictive Maintenance (Balancing) tasks and a Laser Shaft Alignment including a Thermal Growth Offset.[5,7,9]
- Disassembly and reassembly of supplied centrifugal pump.[7]
- Perform fabrication and welding tasks as per given blueprints. (Symbols Adapted to Scope of CSA W59 Standard. Canadian Welding Bureau.)[5,7]
- Knowledge of Imperial measurement and ANSI symbols.[1]
- ISO Fluid Power (pneumatic) schematic drawings standards.[5]

All competitors will be required to sign a declaration stating they have not written a certificate of qualification examination or hold journeyperson status in a related trade.

Skills for Success – [1]Numeracy, [5]Reading, [7]Problem Solving, [9]Digital

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

All required components, tools and equipment.

- Fixturlaser NXA Pro & Fixturlaser SMC Balancing Tool will be supplied and will be used for the predictive maintenance and alignment challenge.
- “Swagelok” tube bending tools and components will be used for the stainless-steel tube bending challenge.

- Festo Didactic Pneumatic or hydraulic components.
- Industrial equipment (Centrifugal Pump, mechanical transmission, compressor, etc...)
- Predictive Maintenance and Balancing Rig.

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.

- N/A

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 HEALTH AND SAFETY

5.1 Safety program

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

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

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

- Grinding Face shields
- Mechanics Gloves

- Ear plugs
- Safety Glasses
- First Aid Kit

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

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

- CSA approved safety shoes/boots
- Mechanics gloves may be used. (Optional - at the discretion of the National Technical Committee members)
- Competitors may bring their own certified welding gloves

Notes:
Competitors will not be allowed to compete if the above items are not brought and used.

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

6 ASSESSMENT

6.1 Point breakdown

Note: This list is subject to change.

TASKS	/100
Fabrication & MIG Welding Precision hand layout, use of hand tools	25
Predictive Maintenance (Balancing) & Laser Shaft Alignment with Thermal Growth Offset	25
Fluid Power (Pneumatics or hydraulic) & Stainless-Steel Tube Bending	25
Mechanical Component Installation & industrial equipment Disassembly and Reassembly	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
(EX:Use of technology - personal laptops, tablets and mobile phones)	• Electronic devices are not allowed onsite. This includes cell phones.
(Ex:Drawings, recording information)	• Not permitted
(Ex:Tools / Infrastructure)	• Proper PPE must be worn at all times when on the contest floor • Tardiness will not be tolerated • No alcohol or drugs 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 may not be guaranteed.

8.2 Ties

- Tiebreaker #1: In the event of a tie, the competitor with the highest score in the Balancing 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 Welding portion of the welding and fabrication section will be declared the winner.
- Tiebreaker #3: If a third tie occurs, the competitor with the highest score in the Stainless-Steel Tube Bending section 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
Quebec	Mohamed Flyes – Co-Chair
Ontario	To be confirmed
Manitoba	Mike Williams
Saskatchewan	Neil Dielschneider
Alberta	Jason Parnell – Chair
British Columbia	Carey Simpson

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