



2018

# SCNC

SKILLS CANADA  
NATIONAL COMPETITION

# OCMT

OLYMPIADES CANADIENNES  
DES MÉTIERS ET  
DES TECHNOLOGIES



**SkillsCompétences**  
Canada  
Edmonton2018

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

# INDUSTRIAL MECHANIC / MILLWRIGHT MÉCANICIEN – MONTEUR INDUSTRIEL

POST- SECONDARY /  
NIVEAUX 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 2017 Skills Canada National Competition.

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

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

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/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, hand layout, use of (“Swagelok”) tube bending hand tools, fitting skills, stainless steel tube bending, precision machining (lathe), fluid power (pneumatics) and Laser shaft alignment (Fixturlaser).

### 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 competition document will be released prior to the competition	

3.2 Tasks that will be performed during the contest

- Perform hand tool operations
- Read and interpret blueprints, schematics (pneumatics and precision turning)<sup>8</sup>
- Create, draw, build and troubleshoot a pneumatic circuit to perform a required task<sup>7, 8</sup>
- Perform and demonstrate using the supplied tools the required skills to bend stainless steel tubing to the given specifications to fit a mechanical component<sup>1</sup>
- Use a Centre Lathe to produce detail part's (parallel turning, taper turning and internal boring) to required tolerances ( $\pm 0.001$ "<sup>1, 7</sup>
- Perform a Laser Shaft Alignment including a Thermal Growth Offset
- Knowledge of Imperial measurement and ANSI symbols required<sup>1</sup>
- All competitors will be required to sign a declaration stating they have not written a certificate of qualification examination, or hold journey person status in a related trade.

*Essential Skills – <sup>1</sup>Numeracy, <sup>7</sup>Thinking (Critical, Problem Solving), <sup>8</sup>Document 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.

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)

## 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.

- Welding Helmet

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

- Safety Glasses (Clear Lens Only)
- CSA approved Safety shoes/boots
- Welding Helmet will be supplied.  
(Competitor's may bring their own Welding Helmet)
- Work gloves

**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
Precision Machining (Centre Lathe)	25
Laser Shaft Alignment with Thermal Growth	25
Fluid Power (Pneumatics Circuit Design, Build & Troubleshoot)	25
Stainless Steel Tube Bending	25

## 7. ADDITIONAL INFORMATION

### 7.1 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.

### 7.2 Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in the Laser Shaft Alignment section will be declared the winner. If a second tie occurs, the competitor with the highest score in the Precision Machining criteria will be declared the winner. If a third tie occurs, the competitor with the highest score in the Stainless Steel Tube Bending criteria will be declared the winner.

### 7.3 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.

### 7.4 Competition rules

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

## 8. NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organisation	Name
British Columbia	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: Marilou Leduc (mariloul@skillscanada.com).