



CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

# MECHANICAL CADD DESSIN INDUSTRIEL CDAO

SECONDARY AND POST-SECONDARY /  
NIVEAU SECONDAIRE ET 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/mechanical-cadd/>

### 2.2 Purpose of the Challenge.

To evaluate each contestant's preparation for employment in the field of Engineering Design and Drafting using CAD and to recognize outstanding students for excellence & professionalism in their field.

### 2.3 Duration of contest.

12 hours

## 2.4 Skills and Knowledge to be tested.

- Must create a metric and inch B, D size and A1 title sheet at orientation from the given DXF file.<sup>9</sup>
- Select fasteners and other assembly components as required (pins, keys, snap rings, etc.).<sup>7,8</sup>
- Use CAD software to produce drawings that comply with the ASME Y 14.5M-1994 Standard.<sup>7,9</sup>
- Use CAD software to produce 3D parametric models.<sup>9</sup>
- Use measuring instruments.<sup>1</sup>
- Dimension and tolerance drawings to industry standards<sup>1, 8</sup>
- Creation of a mechanical animation video (post-secondary only)
- Create a rendered image of your final project.<sup>9</sup>
- Competitors should complete prior to the competition the practice samples of Prerequisite Modeling that will be posted on the Skills/ Compétences Canada web site.
- Competitors will be required to model parts and assemble parts from PDF or STP files<sup>7,9</sup>.

*Essential Skills - <sup>1</sup>Numeracy <sup>7</sup>Thinking (Problem Solving), <sup>8</sup>Document Use, <sup>9</sup>Digital*

## 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
Tool List	January, 2017
Practice Project Files	January, 2017

### 3.2 Tasks that may be performed during the contest

- Sketching, analyzing measurements and part measuring<sup>1</sup>
- Implement design changes by using problem solving, decision making and critical thinking skills<sup>7</sup>
- Detail Drawing from Assembly and Blueprint document Interpretation<sup>8</sup>
- Assembly from Details.<sup>9</sup>
- Parametric Modeling – Family of parts and/ or assemblies<sup>9</sup>
- Rendering<sup>9</sup>
- Printing part drawings as PDF<sup>9</sup>
- Import a STP (STEP) file<sup>9</sup>

#### Post secondary only

- Weldments<sup>7,8,9</sup>
- Sheetmetal<sup>7,8,9</sup>
- Surface Modelling<sup>9</sup>
- Mechanism Animations<sup>9</sup> manual or automatic, recoding animation will be required and may be done through the native software or a 3<sup>rd</sup> party software such as; Camtasia, Hypercam (free) and Snag It

*Essential Skills - <sup>1</sup>Numeracy <sup>7</sup>Thinking (Problem Solving) <sup>8</sup>Document Use <sup>9</sup>Digital*

## 4 EQUIPMENT, MATERIAL, CLOTHING

### 4.1 Equipment and material provided by Skills/Compétences Canada

- IBM-compatible micro-computer, monitor and mouse: All supplied equipment will be identical for each contestant.
  - Competitors are welcome to bring their own computer, with required CAD software, 3D mouse, keyboard, and pointing device. Contestant must have administrative rights to the computer and are responsible for the functioning of their own equipment.
- Software:  
SolidWorks Educational Edition 2016 and Inventor Educational Edition 2016 or 2017. If a competitor wishes to use any other software they must supply their own computer with legal copies of the software.

### 4.2 Equipment and material provided by the competitor

- USB Memory Stick:  
Each competitor is responsible to bring a 4GB (min) USB stick
- Music:  
Listening to music is allowed through headphones or earbuds but must be provided by a non-cellular network.
- Calculator
- Any reference materials (no photocopies, materials may be PDF documents or published books, journals, etc.)
- Pencils, Sketching Paper

Measuring Tools Recommended (all may not be required)

Any and/or all tools may be digital; as well they should be capable of measuring in both inch and metric.

- Calipers (6" mandatory), digital, dial or vernier
- Ruler(s)
- Radius Gauge Set (no limit on size)
- Protractor and/or Combination set
- Squares
- Thread Gauge (or taps/dies or bolts/nuts)
- Competitors can bring their own mouse and keyboard but they will be held responsible for their proper functioning.
- All other Equipment and material must be approved by the National Technical Committee minimum 7 days before the competition

### 4.3 Required clothing (provided by the competitor)

- N/A

## 5 SAFETY REQUIREMENTS

- 5.1 List of required personal protective equipment (PPE) provided by competitors
- No PPE required

## 6 ASSESSMENT

### 6.1 Point breakdown

<b>POINT BREAKDOWN</b>	<b>/100</b>
<b>SECONDARY</b>	
Design change & Parametric Modeling	25
Assembly & Detail Modeling	25
Drawing interpretation/modeling	25
Part Measurement	25
<b>POST-SECONDARY</b>	
Design change & Parametric Modeling	25
Assembly & Detail Modeling	25
Surface modeling	25
Part Measurement	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 Part Measurement task will be declared the winner. If a tie still exists the competitor with the highest mark in the Assembly & Detail Modelling 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 Organization	Name	Email address
Saskatchewan	Carson Gustafson	
Ontario	Fred Fulkerson	
Québec - Chair	Michel Michaud	michel.michaud@cegepmontpetit.ca
British Columbia	Daniel Illy	
Alberta	Don Yusep	