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2018

SCNC

SKILLS CANADA
NATIONAL COMPETITION

OCMT

OLYMPIADES CANADIENNES
DES MÉTIERS ET
DES TECHNOLOGIES



skillsCompétences
Canada
Edmonton2018

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

MECHANICAL ENGINEERING CAD DESSIN INDUSTRIEL DAO

SECONDARY AND POST-SECONDARY /
NIVEAUX 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 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 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/skills/information-technology/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.

- Prior to the competition, the competitor shall create metric A3 and inch B size templates with title block containing the information provided in the example that will be posted on the Skills/Compétences Canada web site, and bring these items on a USB storage device for orientation.^{8,9}
- Select fasteners and other assembly components as required (pins, keys, snap rings, etc.).^{7,8}
- Use CAD software to produce drawings that comply with the ASME Y 14.5M-1994 Standard.^{7,9}
- Use CAD software to produce 3D parametric models.⁹
- Use measuring instruments.¹
- Dimension and tolerance drawings to industry standards^{1, 8}
- Create a rendered image of your final project.⁹
- Prior to the competition, competitors should complete the practice project samples of that will be posted on the Skills/ Compétences Canada web site.
- Competitors will be required to model parts and assemble parts from physical measurement, drawing files (PDF) and/or model files^{7,9}.

Essential Skills - ¹Numeracy ⁷Thinking (Problem Solving), ⁸Document Use, ⁹Digital

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, 2018
Metric A3 and inch B size template with tile block	January, 2018

3.2 Tasks that may be performed during the contest

- Sketching, analyzing measurements and part measuring¹
- Implement design changes by using problem solving, decision making and critical thinking skills⁷
- Detail Drawing from Assembly and Blueprint document Interpretation⁸
- Assembly from Details.⁹
- Parametric Modeling – Family of parts and/ or assemblies⁹
- Rendering⁹
- Exporting drawings as PDF⁹
- Import a STP (STEP) file⁹
- Weldments^{7,8,9}
- Sheetmetal^{7,8,9}
- Surface Modelling⁹

Essential Skills - ¹Numeracy ⁷Thinking (Problem Solving) ⁸Document Use ⁹Digital

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Table, chair and 120VAC power

4.2 Equipment and material provided by the competitor

- USB storage device 4GB (min)
- Competitors must bring their own computer, monitor (two recommended, three max), and peripherals (3d navigator allowed). Contestant must have administrative rights to the computer and are responsible for the functioning of their own equipment.
- A legally licensed 3D parametric CAD modeling and surfacing software (including the applicable help files) must be installed on the competitor's computer and brought to the competition.
- Competitors must ensure a legally obtained version of Microsoft Excel is installed on their computer
- If competitors are bringing a computer or laptop from their school (instead of their personal computer), please ensure that the computer is unlocked so documents and possibly software can be saved/installed to the hard drive and technology support can be provided onsite. This may require access to CMOS settings.
- Calculator
- Any reference materials (no photocopies, materials may be PDF documents or published books, journals, etc.)
- Pencils, Sketching Paper
- Recommended measuring tools can be seen below; however, competitors are welcome to bring additional hand tools if they wish (automated or camera measuring devices are not permitted). Any and/or all tools may be digital and should be capable of measuring in both inch and metric.
 - 8" Calipers, 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)

5 SAFETY REQUIREMENTS

5.1 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.

5.2 List of required personal protective equipment (PPE) provided by competitors

- No PPE required but hearing protection may be preferred
- All competitor provided equipment must comply with UL and CSA standards

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
SECONDARY	
Design change & Parametric Modeling	25
Assembly & Detail Modeling	25
Drawing interpretation/modeling	25
Part Measurement	25
POST-SECONDARY	
Design change & Parametric Modeling	25
Assembly & Detail Modeling	25
Surface modeling	25
Part Measurement	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 competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
Hardware	<ul style="list-style-type: none"> Computers must remain onsite from orientation to conclusion.
Software	<ul style="list-style-type: none"> Software must be legally obtained and not require an internet connection.
Malfunction	<ul style="list-style-type: none"> If your hardware/software malfunctions you will be provided the equivalent down time to complete the competition up to a maximum of 60 minutes per day.
Use of technology - Music	<ul style="list-style-type: none"> Competitors are allowed to listen to music through headphones or earbuds but must be provided by a non-cellular network.

8 ADDITIONAL INFORMATION

8.1 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.

8.2 Previous competitions are available as practice projects - competitors should regularly check the Skills/Compétences Canada website to access the latest practice projects and contest information.

8.3 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.

8.4 Competition rules

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

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organization	Name
Ontario	Jeremy Braithwaite
Québec	Michel Michaud
British Columbia - Chair	Daniel Illy
Alberta	Carson Gustafson
Manitoba	Nino Caldarola
Yukon	David Lister

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Marilou Leduc (mariloul@skillscanada.com).