



CONTEST DESCRIPTION

Aerospace technology

POST-SECONDARY

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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 all other supporting project documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated role(s) or occupation(s).

<http://skillscompetencescanada.com/en/skills/transportation/aerospace-technology/>

2.2 Purpose of the Challenge.

To assess the contestants skills and knowledge in performing tasks in the aerospace industry. Challenges reflect the skill level of a graduate student from any Canadian Aircraft Maintenance Engineer Category M Program. There is no requirement that competitors have previously completed an AME M Program.

2.3 Duration of contest.

10 hours

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 produced prior to the competition	

3.2 Tasks that may be performed during the contest

Each module will be two hours in length. In some cases, duration may be reduced to accommodate scheduling issues. Five modules will be selected from the following list based on availability of equipment. Competitors will be notified of module selection during competition orientation. Examples are provided for reference purposes only and may not be reflective of actual tasks.

Field Damage Repair (2 hours)

- Determine repair requirements in accordance with standard practices (AC43.13) and/or supplied engineering information ^{7, 8}
- Fabricate repair parts ^{1, 7}
- Install repair parts ⁷
- Example: Punctured skins, cut wiring, etc.

Sheet Metal Fabrication (2 hours)

- Fabricate a part based on supplied documentation and standard practices (AC43.13)⁸
- Demonstrate ability to correctly calculate a layout (Bend Radius, Bend Allowance, Set Back, etc.) ¹
- Example : Corner Section, Hat Channel

Composite Inspection/ Simulated repair (2 hours)

- Inspect damage and determine appropriate repair in accordance with standard practices and/ or supplied engineering documentation^{7,8}
- Complete all repair stages with a full layup of materials including vacuum bagging.

System Troubleshooting (Electro-Mechanical) (2 hours)

- Read and interpret technical documents ⁸
- Determine repair and/or modification requirements ⁷
- Perform the required repair and/or modification as applicable ⁷
- Perform functional tests as appropriate ⁷
- Demonstrate an understanding of system function
- If required, work alongside another competitor completing a different module on the same aircraft/training aid ³

- Example: Aircraft Flap System, Janitrol Heater

Aircraft Inspection (1-2 hours)

- Read and interpret technical documents⁸
- Perform requested maintenance activities⁷
- Complete a defect report detailing finding if required⁶
- Perform functional tests as appropriate⁷
- Example: 100 hour Inspection Tasks, Daily Inspection Tasks

Reciprocating Engine Maintenance (2 hours)

- Read and interpret technical documents.⁸
- Perform required maintenance activities⁷
- Perform functional tests as appropriate.⁷
- Example: Magneto Timing, Driveshaft Runout Check

Gas Turbine Engine Maintenance (2 hours)

- Read and interpret technical documents.⁸
- Perform required maintenance activities⁷
- Perform functional tests as appropriate⁷
- Example: Fuel Nozzle Inspection, Internal Borescope Inspection

Aircraft Mass & Balance (2 hours)

- Read and interpret technical documents.⁸
- Perform required activities⁷
- Complete documents and reports as required⁸
- Example : Weigh a model aircraft and prepare reports

Control Rigging (2 hours)

- Read and interpret technical documents.⁸
- Perform required maintenance activities⁷
- Perform functional tests as appropriate⁷
- If required, work alongside another competitor completing a different module on the same aircraft/training aid³
- Example : Elevator Trim Rigging, Aileron Rigging, Engine Throttle Rigging

Component Replacement (2 hours)

- Read and interpret technical documents.⁸
- Perform required maintenance activities⁷
- Perform functional tests as appropriate⁷
- If required, work alongside another competitor completing a different module on the same aircraft/training aid³
- Example : Starter Replacement, Propeller Replacement, Wheel Replacement

Electrical/ LRU troubleshooting (1-2 hours)

- Read and interpret technical documents.⁸
- Perform required troubleshooting on aircraft system.⁷
- Perform the required repair and/or modification as applicable⁷
- Perform functional tests as appropriate⁷
- Complete documents and reports as required⁸
- Example : Aircraft lighting, Landing gear indication, Power distribution circuit

Essential Skills – ¹Numeracy, ³Working with Others, ⁶Writing, ⁷Thinking (Problem Solving, Critical Thinking), ⁸Document Use,

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Specialized hand tools
- Cleaning supplies
- Shop supplies / equipment
- Printer
- Non programmable calculator
- Chairs
- Power bars
- Recycle bins
- Extension cords
- Tape
- 8 oz Ballpeen Hammer
- Torque wrench
- Precision ruler 6" and 12" non metric
- Vernier caliper
- Wire Strippers and Crimpers
- Volt/Ohm Meters
- Cushion Clamp
- 1/4 drive 12-point socket set SAE include 9/32 and 11/32
- 12-PT. Combination Wrench Set
- Combination Screwdriver Set Phillips
- Reversible Wire Twister - 6"
- Long Nose Pliers with Cutter - 6"
- Diagonal Cutter - 6"
- Soft Face/Brass Head Hammer
- Telescoping Inspection Mirror - 36-3/8"
- LED Flashlight
- 1/4 drive torque wrench
- Crow foot wrench
- Multi use tool bag

- Plier Wrenches 12"
- Files Kit
- Pin Punch Set
- Pick Set
- Measuring Tape
- Specialty tooling specific to the required tasks
- Applicable Maintenance Documentation specific to the required tasks

4.2 Equipment and material provided by the competitor

- None

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.

4.3 Required clothing provided by the competitor.

- Appropriate work place clothing (coveralls, work pants, etc.)
- No shorts allowed on site

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

- Hearing Protection
- Safety Glasses (Including over-the-glasses type)
- Nitrile Gloves

5.3 Personal protective equipment (PPE) provided by the competitor.

- CSA approved Safety shoes
- Competitors may bring their own PPE provided it meets or exceeds CSA standards (ie. prescription safety eyewear (full wrap-around type), headset-type ear protection, etc.). Use of any alternate equipment will be at the discretion of the NTC Chair.

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
Module 1	20
Module 2	20
Module 3	20
Module 4	20
Module 5	20

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
Module Selection	<ul style="list-style-type: none"> Competitors will be notified of the five modules selected during competition orientation. Prior communication of selected modules with competitors is prohibited.
Free Periods & Breaks	<ul style="list-style-type: none"> During free periods and between modules, competitors are encouraged to explore other contests. As a courtesy to fellow competitors, please refrain from closely watching other Aerospace Technology modules still in progress.
Music/Audio	<ul style="list-style-type: none"> No audio playback devices, head phones or ear buds are allowed due to safety and communication concerns.
Drawings, recording information	<ul style="list-style-type: none"> Competitors are not allowed to bring any prepared drawings or documented information to the Competition. Video and/or audio recording is prohibited.
Templates, aids, etc.	<ul style="list-style-type: none"> Competitors are not allowed to bring templates and aids to the Competition that may give them an unfair advantage.
Use of technology – personal laptops, tablets and mobile phones	<ul style="list-style-type: none"> Competitors are not allowed to bring personal laptops, tablets or mobile phones into the workshop. Exception: Mobile phones remain on silent mode in a personal bag and are only accessed when outside the workshop area.

8 ADDITIONAL INFORMATION

8.1 Interpreter

If a competitor requires the help of an interpreter once 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: The competitor with highest Module 1 mark will be considered the winner.
- Tiebreaker #2: The competitor with the highest Module 2 mark will be considered the winner.
- Tiebreaker #3: The competitor with the highest Module 3 mark will be considered the winner and so on.

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
British Columbia- Chair	Rick Johnstone
Manitoba	Jonathan Epp
Québec	Louis Deschênes
Nova Scotia	Ryan Leedham
Saskatchewan	Peter Boniface
Alberta- Co-Chair	Chuck Luehr
Ontario	Louis Anderson

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