



**2022**  
**24th ANNUAL SKILLS CANADA MANITOBA**  
**COMPETITION**  
**VIRTUAL EDITION**  
**CONTEST DESCRIPTION**

**1. CONTEST DETAILS**

**1.1. Contest Name:** Mechanical CAD

**1.2. Contest Number:** 05

**1.3. Level:** Secondary & Post-Secondary

**1.4. Contest Location:** Virtual using Google Classroom

**CONTEST DEADLINES:**

- Registration opens online through the Skills Canada Manitoba website portal on **Monday, February 28, 2022**. Competition Portal address to be announced.
- **Friday, March 18, 2022** - Competitor Registration Deadline
- Skills Canada Manitoba Competition to be held **April 4 – 14, 2022**
- Deadline for student's work to be submitted – **April 14, 2022**
- Students work to be evaluated by – **April 15-16, 2022**
- Results to be posted on the Skills Manitoba website and social media sites on **Wednesday, April 20, 2022**.
- There will be an **Orientation Session** prior to the competition. Details and time to be announced by the Provincial Technical Committee. Competitor and advisor attendance is mandatory.

## 2. CONTEST INTRODUCTION

### 2.1. Purpose of the Challenge

To evaluate each contestant's preparation for employment in the field of Engineering Design and Drafting. An assessment of the contestant's skills in performing design and drawing tasks using computer aided design and drafting will be conducted.

### 2.2. Contest Duration

TBD

### 2.3. Skills & Knowledge to be Tested

- Understand and use fundamental commands and processes to create 3D parametric model part files, assembly files, and drawing files
- Use CAD software to produce drawings that comply with the following standards:
  - CAN3-B78.1 –M83(R1990)
  - CAN/CSA-b78.2-M91
  - B97.3-M1982(r1992)
- Use CAD software to create an assembly model from multiple part files
- Produce a working drawing complete with the bill of materials
- Use CAD software to produce a 3D parametric model part file from an existing object and existing shop drawings

### 2.4. Contest Description

Skills and knowledge that may be required to complete the following tasks that may be performed during the contest:

#### Task 1:

- Create an assembly file from provided part files
- Create a drawing file from provided part files and competitor created assembly file that may need to include:
  - Appropriate orthographic and/or cross section views, auxiliary views, details, and an assembled isometric view
  - Parts list and labeling of each component
- **Note:** Part files may or may not include such details as threading, countersunk holes, and patterns

#### Task 2:

- Create a 3 dimensional parametric model part files and any necessary physical sketches utilizing the following provided materials:
  - Provided working drawings of object

- Provided existing object (for sketching, analyzing measurements and part measuring)
- Parametric model part files may require drawing and modeling techniques including threading, varying hole styles, pattern or mirror feature/sketch, bend, constraints application, utilization of material library, revolve cut, text embossment, symbol insertion, material application and mass calculation via iProperties, shelling, bolted connections
- Create an assembly file from any part files created

### **3. EQUIPMENT AND MATERIALS:**

#### **Virtual Competition Resource Support Form**

A \$40 competition resource subsidy is available to all competitors of the Skills Canada Manitoba Competition – Virtual Edition who are required to purchase items for their respective competition.. It is intended for items that were purchased to support competitors. (e.g. food supplies, materials, technical equipment, tools etc.) Please complete the Virtual Competition Resource Support Form found on the Skills Manitoba website. Please note that receipts or a school invoice are required:

### **EQUIPMENT, TOOLS & MATERIALS**

#### **3.1. To be provided by committee**

- Software: Inventor 2021 or latest version installed at Red River Campus
- Task 1 part files
- Task 2 working drawings
- Task 2 existing physical object
- **Note:** If competitor wishes to use other software than that outlined within this scope, the competitor and coach mentor must contact the competition Chairperson no later than the official registration date outlined by Skills Manitoba in order to be accommodated

#### **3.2. To be provided by competitor**

- Calculator
- Pencils
- Paper
- Measuring instruments
- USB Stick

## **4. ASSESSMENT**

### **4.1. Point Breakdown (Post-Secondary & Secondary)**

<b>Point Breakdown</b>	<b>/1000</b>
Task 1 Assembly File	150
Task 1 Working Drawings	300
Task 2 Physical Sketches	100
Task 2 Part Files	300
Task 2 Assembly File	150

## **5. WORKSITE SAFETY RULES / REQUIREMENTS**

**5.1.** No PPE required

## **6. NATIONAL COMPETITION ELIGIBILITY**

**6.1.** A mark of 70% or higher must be scored by the gold medalist in each contest in order for them to attend the National Skills Competition

### **FOR MORE INFORMATION PLEASE CONTACT:**

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