



## 2020 Nova Scotia Skills Competition

**Official Competition Name: Mechanical CADD**

**Competition Level: Post Secondary**

### CONTEST DESCRIPTION

#### PURPOSE OF THE CONTEST

The purpose of the contest is to evaluate each competitors preparation for employment in the field of Mechanical Computer-Aided Drafting and Design, and to recognize outstanding competitors for excellence and professionalism in their field.

#### NUMBER OF WORKSTATIONS

There will be a maximum of 6 Competitor Workstations at this contest.

#### WORKSTATION ALLOCATIONS

School/Campus	Max. number of Competitors
<b>NSCC/ Ivany Campus - CAD Technician</b>	<b>3</b>
<b>NSCC/ Ivany Campus - Mechanical Tech.</b>	<b>3</b>

## SKILLS AND KNOWLEDGE TO BE TESTED

Projects consist of practical measuring, drafting, and modeling work.

There is no written exam.

- a) Competitors will demonstrate their ability to efficiently perform part measurement, drafting and 3D modeling.
- b) Competitors will demonstrate their ability to efficiently draw, dimension, and tolerance detail part drawings using Inventor© 2018.

### Types of Drawings

1. Detail drawing prepared by measuring a physical part.
2. Assembly drawing(s) prepared from a 3D model.

Drawing views, as required: Orthographic views, Section views, Isometric views, and Exploded Assembly views.

### Note: Drawings should:

- Comply with ASME Y14.5M-1994.
  - Show basic dimensioning except where instructed to show GD&T.
  - Indicate material selection and specifications as may be required.
  - Specify any required manufacturing processes.
- c) Use Autodesk Inventor 2019 to create 3D part and assembly models using non-parametric solid modeling techniques, from detail drawings provided.
  - d) Use Autodesk Inventor 2019 to create User Parameters, iParts, and iAssemblies, from equations and detail drawings provided.
  - e) Use Autodesk Inventor 2019 to create a Mechanical Animation.
  - f) Computer-Related Techniques:
    - Customize Microsoft Windows to suit the competitor, as may be required.
      - Establish/set CADD program options and parameters.
      - File management.

## **DURATION OF THE CONTEST**

**6 hours**

## **PREREQUISITES**

**Ability to interpret and prepare drawings according to ASME standards.**

**Knowledge of materials and manufacturing processes.**

**Proficiency with basic dimensioning.**

**Proficiency with geometric dimensioning and tolerancing.**

**CADD technology:**

- **Proficiency with Autodesk Inventor© Professional 2019 Part & Assembly modeling (not including Content Center, or Vault).**

## **PREREQUISITE MODELING**

**Competitors are required to complete prerequisite modeling before this competition.**

**Details of the prerequisite modeling will be sent to all competitors on March 13, 2020.**

**Competitors must submit their completed prerequisite modeling files into the SCNS20-5 Dropbox folder at the end of the competition Orientation at 9:00 A.M. on March 27, 2020.**

## **EQUIPMENT AND CLOTHING**

### **SUPPLIED BY SKILLS NOVA SCOTIA**

**Each competitor is restricted to a table top work space of approximately 36" x 30".**

**A Pentium IV computer with 1 GByte of RAM, running Windows 10 will be the minimum caliber of competition workstation. All workstations will be equipped with a mouse pointing device, USB port, CD ROM drive, headphone connector and 17" monitor.**

**Autodesk Inventor© Professional 2019 will be the official CADD program used in the contest.**

**CADD workstations will be identical for all competitors.**

### **SUPPLIED BY COMPETITOR**

**6" vernier caliper (slide, dial or digital)**

**Paper, pens and pencils**

**Competitors may bring: texts, reference books, course handouts, course notes, software reference manuals, tables and calculators.**

**Reference materials may not be shared between competitors.**

**Materials brought by a competitor are subject to inspection and approval by the judges.**

**Appropriate attire suitable for a Provincial championship is required.**

## EVALUATION

**Contest Projects consist of work that will be marked according to the following:**

**Prerequisite Modeling : 20%**

**Prepare 3D part models of the mechanism parts shown in the drawings provided.**

**Contest Tasks: 80%**

**40% - measure and prepare a detail drawing of a sample part.**

**20% - Create the iParts , and iAssembly for the mechanism.**

**10% - Create an Exploded Assembly drawing of the mechanism.**

**5% - Create a Family drawing of the mechanism.**

**5% - Create a mechanical animation of the mechanism.**

**Please note: a detailed breakdown of the marking method will be given in:**

**SCNS20-5 Prerequisite Modeling Description.pdf**

**SCNS20-5 Parametric Modelling Project Description.pdf**

**SCNS20-5 Part Measurement Project Description.pdf**

**PROVINCIAL TECHNICAL COMMITTEE & JUDGES**

**Darrell Luedey – Judge1**

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**? – Judge3**

**Faculty -  
Email:**

