

# HALTON SKILLS COMPETITION APRIL 5, 2016

ROBERT BATEMAN HIGH SCHOOL - BURLINGTON, ONTARIO

## 2016 MECHANICAL CADD

### COORDINATOR:

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**\*\* Gold medal winner (high marks from both the public and separate boards) will advance to the Ontario Skills Competition**

### PURPOSE OF THE CONTEST :

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

### SKILLS AND KNOWLEDGE TO BE TESTED :

- Understand and use fundamental commands to produce scaled 2D CAD drawings and 3D models.
- Use instruments to measure existing parts
- Sketch parts
- Dimension drawings to industry standards
- Conduct an interview with a technically proficient representative to evaluate communication skills
- Analyze mechanical motion

### SPECIFIC CONTEST DETAILS FOR THE 2016 COMPETITION :

- Plan/sketch interpretation,
- working drawing creation,
- (plans, assemblies and sections)
- Solid Model creation.

Creating an assembly from given details (.dwg and .dxf files may be supplied). Applying dimensions to details. Using measuring tools to determine sizes of given objects.

### EQUIPMENT AND MATERIALS :

#### SUPPLIED BY COMMITTEE :

Pentium IV class computers running Windows XP will be available for the competition. The computers are currently loaded with AutoCAD 2014, AutoCAD Architecture 2014, Revit Architecture 2014, Inventor Pro 2014.

Contestants who wish to use other software must advise the coordinator at least 14 days prior to the competition. The competitor is responsible for any malfunctioning hardware or software that they have supplied.

## **SUPPLIED BY COMPETITOR :**

Calculator  
Pencils  
Engineering drawing and software reference manuals.  
Vernier caliper or similar device to measure parts

**\*\* NO EXTRA TIME WILL BE GIVEN TO COMPETITORS THAT ARRIVE LATE**

## **JUDGING CRITERIA :**

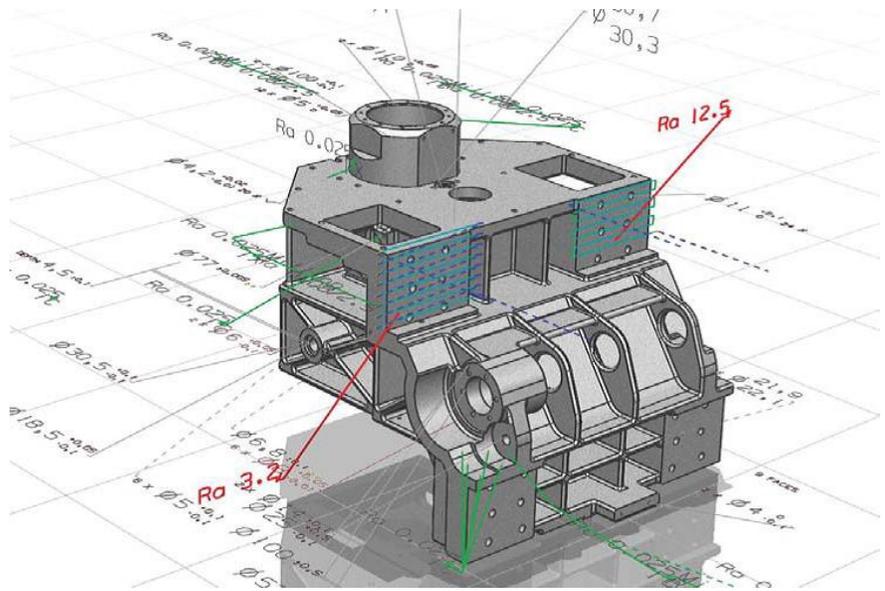
Total Possible score is 100%. Depending on the challenge content, marks allocation may change from that specified here. In case of a tie, the winner will be determined by the rank order of the highest weighted task.

Solid Modeling including print interpretation 40%  
Print/screen Layout Accuracy 5%  
Assembly Accuracy 25%  
Dimensioned detail including tolerances 10%  
Correct detail/section visibility 15%  
Job Interview 5%

Total 100%

## **ADDITIONAL INFORMATION :**

1. Scoring of problem solutions completed on the computer will be done either from a hard copy plot and/or "on screen" depending on the time/equipment constraints. As part of the competition requirements, work files must be saved on the hard drive.
2. Work shall remain on the computer display until cleared by competition officials.
3. Each competitor will be responsible for saving work. It is the responsibility of the competitor to save multiple copies of their work –USB (version 2.0) ports are on each machine. The committee will plot the finished file if a large format ink-jet plotter is used. The competitors will print their own work.
4. During the competition, the competitor will work independently. During the competition, competitors may not communicate with anyone except competition officials. Failure to comply with this rule may lead to the competitor being disqualified from the competition.
5. Competitors arriving late for the competition will not be given extra time.
6. Sketching and note-taking during the competition is encouraged.



**COMPETITORS ARE ASKED TO LEAVE CELL PHONES OFF AND OUT OF SIGHT TEXTING (SENDING OR READING) CAN LEAD TO DISQUALIFICATION JUDGE(S) WILL NOT GIVE WARNINGS**

## **ADVISED SKILL SET** **PRACTICAL WORK**

Practical tasks will be given by sketches, drawing and electronic data files, individual physical components and assemblies. Collection of information from these sources will require reading of prints, sketches, drawings, engineering tables, charts, and manuals. It may also require that the competitor measure physical objects using verniers and other common measuring instruments. Problems will require solutions in the form of graphical and textual descriptions, sufficient to communicate successfully the information necessary for manufacturing of these components and assemblies in industry.

## **THE SOLUTIONS WILL BE IN THE FORM OF :**

- Assembly Drawings
- Bill of Materials
- Ballooning
- Creation of fasteners
- Detail Drawings
- Complete shape description of the component
- General dimensions
- 1st or 3rd angle projection
- Fundamental dimensions and tolerances
- Surface finish symbols
- Machining and assembly instructions
- Heat treatment instruction
- Surface treatment instructions
- Kinematics
- Articulate the motion study of parts in a mechanical assembly
- Development of shaped surfaces.
- Engineering Change Orders
- 3D Modeling (Parametric modeling is optional)
- Rendered Images

