



17TH ONTARIO TECHNOLOGICAL SKILLS COMPETITION

COMPUTER AIDED MANUFACTURING (CAM)

- SECONDARY LEVEL

CHAIR: Kim Faustini (kim@inhousesolutions.com)

**** This contest is not offered at the national level.**

PURPOSE OF THE CONTEST:

To test the skill and knowledge of each student in the area of computer numerical programming using a computer aided manufacturing software application package. This competition will be focused on creating a program for a vertical spindle milling machine.

SKILLS AND KNOWLEDGE TO BE TESTED:

The participant will receive a detail drawing of a part that will have to be programmed for a vertical spindle milling machine. The part will be held on a simple plate fixture using shoulder bolts to secure the part.

The participant will have to create the part using two dimensional geometry construction methods and then create the 2D tool paths.

The part program will contain the following functions and procedures:

- Selection of the appropriate cutters
- Determine feeds and speeds
- Centre Drill, Drill and Tap
- Face milling
- Rough and finish pockets
- Rough and finish contours

EQUIPMENT AND MATERIALS:

Supplied by Committee:

- Computer
- Mastercam software

Supplied by Competitor:

- License of CAM Software if other than Mastercam
 - License of CAD Software if other than Mastercam
 - Post Processor for CAM Software if other than Mastercam
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JUDGING CRITERIA:

1. Create CAD drawing with dimensions, printer drivers loaded on incoming computers.
2. Create Toolpath with CAM software, selecting from a list of tools.
3. Material type will be provided.
4. Students will be judged on the following;
 - time to complete overall competition
 - cad drawing accuracy and detail
 - accuracy of part
 - machining time
 - how the part looks
 - cutter selection
 - speed and feed selection
 - specific toolpath strategies, ie, depth of drilled holes, retract distances etc.

Toolpath types for High School;

Contour

Pocket

Drill

JOB INTERVIEW:

To assist competitors in fully preparing for their eventual job searches and to become valued employees, there will be 5 minute job interviews incorporated into this contest, worth 5% of the competitor's overall mark. It is expected that the competitors arrive prepared WITH A RÉSUMÉ and be ready for interview questions and discussion. Feedback will be provided to the competitors in order to help prepare them for the real-life experience of job interviews.
