SkillsUSA

Contestants and Advisors Briefing
Questions?

1. Open the **Q&A** button found at the bottom of the Zoom Meeting screen.

2. Type your question in the Q&A box that will pop up and click **send**.
Agenda

• CNC Contest Area
• Contest Components
  • Coding & Programming
    • Hardware and Software
  • Theory Test
  • Process Control
  • Employability
• Schedule
• Questions & Answers
CNC Contest Area

Georgia World Congress Center
Building B

CNC Contest
Contest Components
Contest Components

Coding and Programming
- Manual Coding
- CAM Programming
- 4 hours max

Theory Test
- CNC Technology
- 90 mins max

Process Control
- Quality Control and Measurement
- 30 mins max

Employability
- Interview
- 15 mins max
Coding & Programming
CNC 3-Axis Milling

Manual Coding

What are Provided?

• Work Instructions
• Engineering Drawing
• Setup Sheet (Op 1)
• Process Diagram (Op 1)
• Sequence Sheet
• Tool List
• NC Code Template File
CNC 3-Axis Milling

CAM Programming (Demo)

What are Provided?
• Work Instructions
• Engineering Drawing
• Setup Sheet (Op 2)
• Process Diagram (Op 2)
• Sequence Sheet
• Tool List
• Programming Template Files
CNC 2-Axis Turning

Manual Coding

What are Provided?
• Work Instructions
• Engineering Drawing
• Setup Sheet (Op 1 & Op 2)
• Process Diagram (Op 1 & Op 2)
• Sequence Sheet
• Tool List
• NC Code Template File
CNC 2-Axis Turning

CAM Programming (Demo)

What are Provided?
• Work Instructions
• Engineering Drawing
• Setup Sheet (Op 1 & Op 2)
• Process Diagram (Op 1 & Op 2)
• Sequence Sheets
• Tool List
• Programming Template Files
CNC 5-Axis Milling

CAM Programming

What are Provided?
• Work Instructions
• Engineering Drawing
• Setup Sheet (Op 2)
• Process Diagram (Op 2)
• Sequence Sheet
• Tool List
• Programming Template Files
Hardware and Software
Programming Hardware and Software

Hardware: Laptop

Simulation Software: Vericut

CAM Software: Autodesk Fusion 360 or Mastercam
Alternative: other CAM Software
Vericut

Vericut Download and Installation Instructions

Video: How to Simulate Programs Using Vericut
Fusion 360

Single user Installation Process for Windows and MAC (autodesk.com/fusion360edu)

Self-paced CAM learning materials

Post Library for Autodesk Fusion 360

Fusion 360 on Chromebooks FAQ

Educator Forum
Mastercam

Mastercam License - [Request Form]

Mastercam Demo/Home Learning Edition (Full Mastercam 2022 without NC Code generation capability) - [Request Form]

Free Training material - [Mastercam University]

Educator Forum Sign up- [Mastercam Educator Alliance]
Practice Project

• Practice project
• Use this to familiarize using software required for the competition
Theory Test and Process Control
Overview

Theory Tests assess knowledge in:

• Measuring & Test Equipment
• Applied Math
• GD&T
• Machine Technologies and Accessories
• Machine Controls and Navigation
• Cutting Tool and Holder Technologies
• Software Technologies
• CNC Programming Technologies

Process Control assess knowledge in:

• Quality control applications
• Reading measuring tools
Overview

• Theory Test and Process Control are delivered through the Online NIMS Testing Center (https://www.nims-skills.org)
• NIMS will associate existing accounts
• NIMS will create new accounts
• New Accounts username and password will be distributed through email no later than Thursday, June 9
• Each contestant will have 2 assigned tests
• Theory Test: 90 mins max
• Process Control: 30 mins max
How to take a Test

Video: How to take a Test
Employability
Employability

• Competitors will undergo an interview to assess their attainment of skills necessary to obtain employment.
• 15 mins max
Schedule
Tuesday, June 21

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>Check-in and Orientation</td>
</tr>
<tr>
<td>12:00 PM - 1:00 PM</td>
<td>Luncheon and Announcements</td>
</tr>
<tr>
<td>1:30 PM - 4:30 PM</td>
<td>Software and Equipment Familiarization</td>
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- Attendance is required from 8AM-1PM
- Lunch will be provided
- Important competition announcements during the luncheon
- Dress Code: SkillsUSA uniform **not required**
### Wednesday, June 22

<table>
<thead>
<tr>
<th>Time</th>
<th>3-Axis CNC Milling Programmer</th>
<th>2-Axis CNC Turning Programmer</th>
<th>Technician</th>
<th>5-Axis CNC Milling Programmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 10:30 PM</td>
<td>Coding</td>
<td>Free</td>
<td>Coding</td>
<td>Free</td>
</tr>
<tr>
<td>10:30 AM - 12:00 PM</td>
<td>CAM Programming</td>
<td>Free</td>
<td>CAM Programming</td>
<td>Free</td>
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<tr>
<td>12:00 PM - 1:00 PM</td>
<td>Break</td>
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<td></td>
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</tr>
<tr>
<td>1:00 PM - 3:30 PM</td>
<td>Free</td>
<td>Coding</td>
<td>Coding</td>
<td>CAM Programming</td>
</tr>
<tr>
<td>3:30 PM - 5:00 PM</td>
<td>Free</td>
<td>CAM Programming</td>
<td>CAM Programming</td>
<td>CAM Programming</td>
</tr>
</tbody>
</table>

- Please arrive no later than 15 mins before start time
- Boxed lunch will be provided to morning contestants
- Technician may leave contest area during lunch break
- Dress Code: SkillsUSA uniform
Thursday, June 23

<table>
<thead>
<tr>
<th>Time</th>
<th>3-Axis CNC Milling Programmer</th>
<th>2-Axis CNC Turning Programmer</th>
<th>Technician</th>
<th>5-Axis CNC Milling Programmer</th>
</tr>
</thead>
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<tr>
<td>8:00 AM - 9:30 AM</td>
<td>Free</td>
<td>Theory Test</td>
<td>Process Control and Employability</td>
<td>Process Control and Employability</td>
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<tr>
<td>9:30 AM - 11:00 AM</td>
<td>Free</td>
<td>Process Control and Employability</td>
<td>Theory Test</td>
<td>Theory Test</td>
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<td>11:00 AM - 11:30 AM</td>
<td>Free</td>
<td>Debrief</td>
<td>Debrief</td>
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<tr>
<td>11:30 AM - 12:30 PM</td>
<td></td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30 PM - 2:00 PM</td>
<td>Process Control and Employability</td>
<td>Free</td>
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<td>Free</td>
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<td>3:30 PM - 4:00 PM</td>
<td>Debrief</td>
<td>Free</td>
<td>Free</td>
<td>Free</td>
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</table>

- Please arrive no later than 15 mins before start time
- Please bring your resume
- Boxed lunch will be provided to morning contestants
- Dress Code: SkillsUSA uniform
Thursday, June 23

• Finished parts will be displayed through the end of the contest and may be picked up as early as Thursday, June 23 at 4:00 PM
Friday, June 24

Awards Ceremony – Check with SkillsUSA for more information
Q & A

For additional questions, email: Skills@nims-skills.org
Thank You!

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