

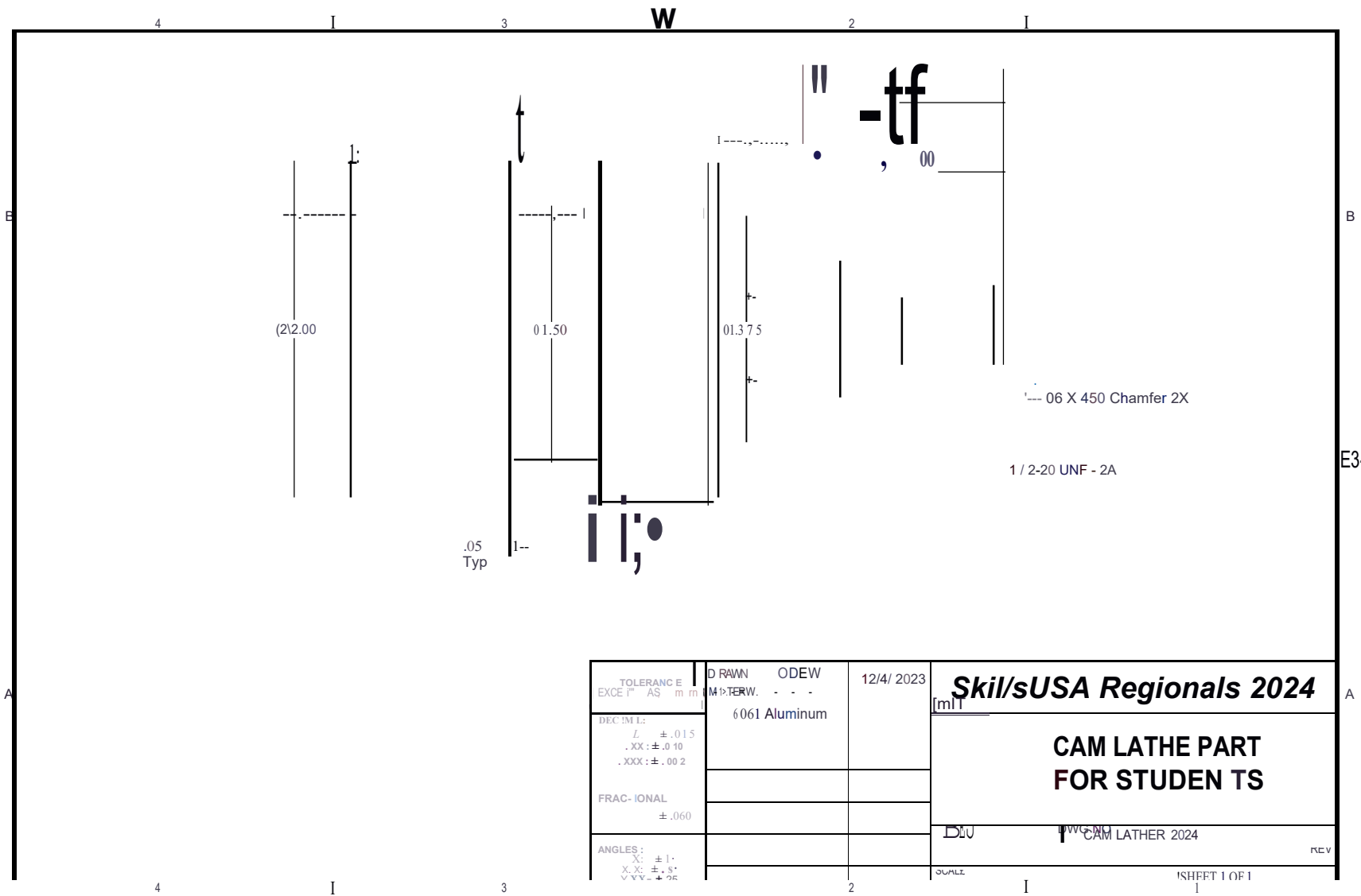


# CNC 2-Axis Turning Programmer



<b>Date</b>	February 1 <sup>st</sup> , 2025	<b>Orientation Time</b>	8:30 AM (CLOSED to instructors)
<b>Location</b>	Sinclair Community College 444 W. Third St., Dayton, OH Building 11 Room 141	<b>Contest Time</b>	Immediately Following Orientation (CLOSED contest)
<b>Scope of Contest</b>	<p>This competition will assess the ability to program CNC turning centers and interpret prints (including GDT). Competitors should also demonstrate knowledge of CNC machine configuration, setup, and operations.</p> <p><b>Prior to competition:</b> Each student should first create a 3D model of the print located at the end of this document.</p> <ul style="list-style-type: none"><li>• After completing the model, the student should use the model to create tool paths in the cam software of their choice.</li><li>• After successfully posting the code, student should then create a tooling list, process plan, and a set up sheet.</li><li>• The student should then use all the materials they have made to make the part on machines at their facility.</li><li>• The student is to produce printed copies of the tooling list, process plan, set up sheet, nc program, and 3D model.</li><li>• Student should have the finished part with them as well on the day of the contest.</li><li>• The part and files will be inspected by the judges day of competition.</li></ul> <p><b>At competition:</b> Competitors will present their part and printed files to the judge(s) and should be prepared to answer questions. Competitors will perform a g &amp; m code programming exercise and will have access to a part drawing, operation sheet, tooling list and an NC code template file. The NC code template file is incomplete, and it is the competitor’s job to use provided documents to complete this NC code file so that if run, the program would produce a machined part that is accurate to the part drawing provided. The drawing will be complete with multiple views making it easy for competitors to visualize the part and understand its geometry. The operation sheet will provide a sequence for each operation as well as basic tooling information and instruction.</p>		
<b>Testing</b>	No		
<b>Eligibility</b>	2 competitors per building IRN (Chapter)		
<b>Clothing</b>	Clothing Classification Guide – CLASS D		
<b>Provided by Contestant</b>	<ul style="list-style-type: none"><li>• Professional Resume - Typed Hardcopy</li><li>• Emergency Medical Forms (Contestants must have this to compete)</li><li>• Computers will be provided for contestants with Mastercam software already installed and operational.</li><li>• Contestants may bring their own laptop, but must come with either the 2023, 2024, or 2025 version(s) of Mastercam software or Autodesk Fusion 360 installed and operational.</li><li>• Safety Glasses</li><li>• G&amp;M Handbook (Optional)</li><li>• Machinery Handbook (Optional)</li></ul>		

	<ul style="list-style-type: none"> <li>• Non-programmable calculator</li> <li>• Blank note paper</li> <li>• Two pencils</li> <li>• Verification of Tool Training and Safety (Contest Specific See forms on SkillsUSA Ohio Web site</li> <li>• <b>NEW – Part manufactured at competitor’s facility and printed copies of all elements listed under <b>Prior to Competition</b> section in <b>Scope of Contest</b> above.</b></li> </ul> <p><b>Provided at site:</b> Hard copy of resource materials to use during contest, plain paper for notes and calculations.</p> <p><b>Disqualifications:</b> Cell phone in competition area, smart watches.  <b>The use of generative Artificial Intelligence (AI) is strictly prohibited and will result in an automatic disqualification of the contestant.</b></p>	
<b>Contest Standards</b>	<b>Contest Skilled Performance Standards</b>  <b>CNCT 1.0</b> - Apply basic machining skills per industry standards as set forth by the technical committee.  <b>CNCT 2.0</b> - Demonstrate knowledge of CNC programming per industry standards as set forth by the technical committee.  <b>CNCT 3.0</b> - Perform mathematical calculations as needed for calculating speeds, feeds, program coordinates, angles, radii and tangent points.	<b>Aligned ODEW Manufacturing Career Field Technical Content Standard Outcomes</b>  <b>Outcome 6.1</b> Measurement and Interpretation  <b>Outcome 6.2</b> Layout and Planning  <b>Outcome 6.5</b> Turning  <b>Outcome 6.9</b> Computer Numerical Control (CNC)  <b>Above Outcomes can be found in the following ODEW courses:</b>  176005 Machining with Industrial Lathes  176007 Computer Numerical Control Technology with Industrial Mills and Lathes



TOLERANCE EXCEPT AS NOTED	DRAWN ODEW	12/4/2023	<b>Skil/sUSA Regionals 2024</b>
DECIMAL: .L ±.015 .XX ±.010 .XXX ±.002	MATERIAL: 6061 Aluminum		
FRACTIONAL: ±.060			<b>CAM LATHE PART FOR STUDENTS</b>
ANGLES: X ±1° X.X ±.5° X.XX ±.25°			
		SCALE	DESIGNED BY: JWG/NO CAM LATHE 2024
			REV
			SHEET 1 OF 1

