CNC Programmer

Date	February 1st, 2025	**Orientation Time**	8:30 AM (CLOSED to instructors)
Location	Sinclair Community College 444 W. Third St., Dayton, OH Building 11 Room 141	**Contest Time**	Immediately Following Orientation (CLOSED contest)
Scope of Contest	This competition will assess the ability to program CNC milling machines and turning centers and interpret prints (including GDT). Competitors also will demonstrate theoretical knowledge of CNC machine configuration, setup, and operations. **Prior to competition:** Each student should first create 3D models of the prints located at the end of this document. • After completing the models the student should use the models to create tool paths in the cam software of their choice. • After successfully posting the code student should then create a tooling list, process plan, and a set up sheet for each part. • The student should then use all the materiel that they have made to make the parts on machines at their facility. • The student is to produce printed copies of the tooling list, process plan, set up sheet, nc program, and 3D model. • Student should have the finished parts with them as well on the day of the contest. • The parts and files will be inspected by the judges day of competition. **At competition:** Competitors will present their parts and printed files to the judge(s) and be prepared to answer questions. Competitors will perform a g & 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.		
Testing	No		
Eligibility	2 competitors per building IRN (Chapter)		
Clothing	Clothing Classification Guide – CLASS D		
Provided by Contestant	• Professional Resume - Typed Hardcopy • Emergency Medical Forms (Contestants must have this to compete) • Safety Glasses		

<table>
<tr><td></td><td colspan="2">

G&M Handbook (Optional)
Machinery Handbook (Optional)
Non-programmable calculator
Blank note paper
Two pencils
Verification of Tool Training and Safety (Contest Specific See forms on SkillsUSA Ohio Web site
NEW – Parts manufactured at competitor’s facility and printed copies of all elements listed under Prior to Competition section in Scope of Contest above.

<u>Provided at site</u>: Hard copy of resource materials to use during contest, plain paper for notes and calculations.

<u>Disqualifications</u>: Cell phone in competition area, smart watches.
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<tr><td>Contest Standards</td><td>Contest Skilled Performance Standards

CNCTECH 1.0 - Apply basic machining skills per industry standards as set forth by the SkillsUSA technical committee.

CNCTECH 2.0 - Demonstrate knowledge of CNC programming per industry standards as set forth by the SkillsUSA technical committee.

CNCTECH 3.0 - Perform mathematical calculations as needed for calculating speeds, feeds, program coordinates, angles, radii and tangent points.</td><td>Aligned ODEW Manufacturing Career Field Technical Content Standard Outcomes

Outcome 6.1 Measurement and Interpretation

Outcome 6.2 Layout and Planning

Outcome 6.9 Computer Numerical Control (CNC)

Above Outcomes can be found in the following ODEW courses:

176006 Machining with Industrial Milling Machines

176007 Computer Numerical Control Technology with Industrial Mills and Lathes</td></tr>
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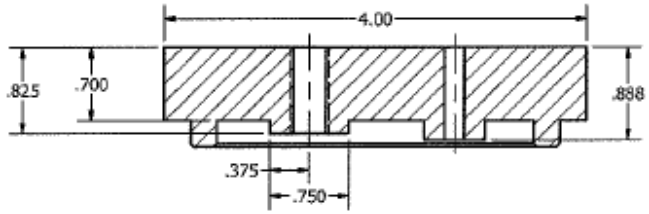
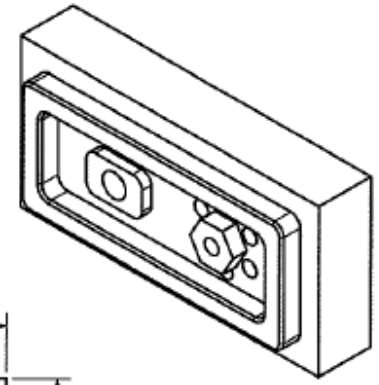
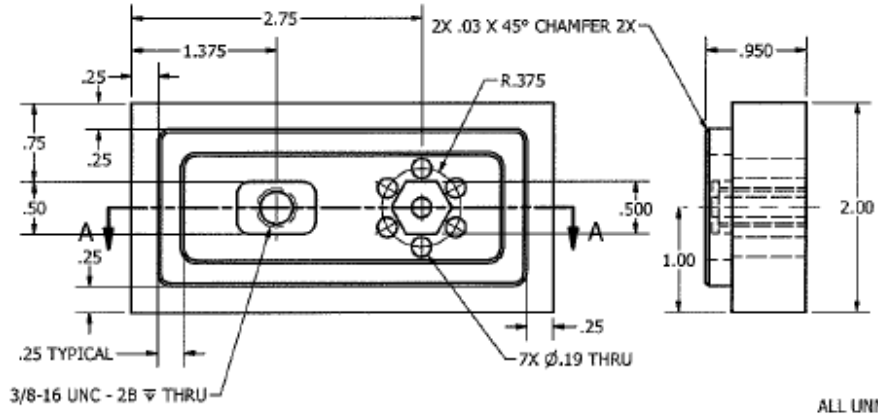
SECTION A-A
SCALE 1 : 1

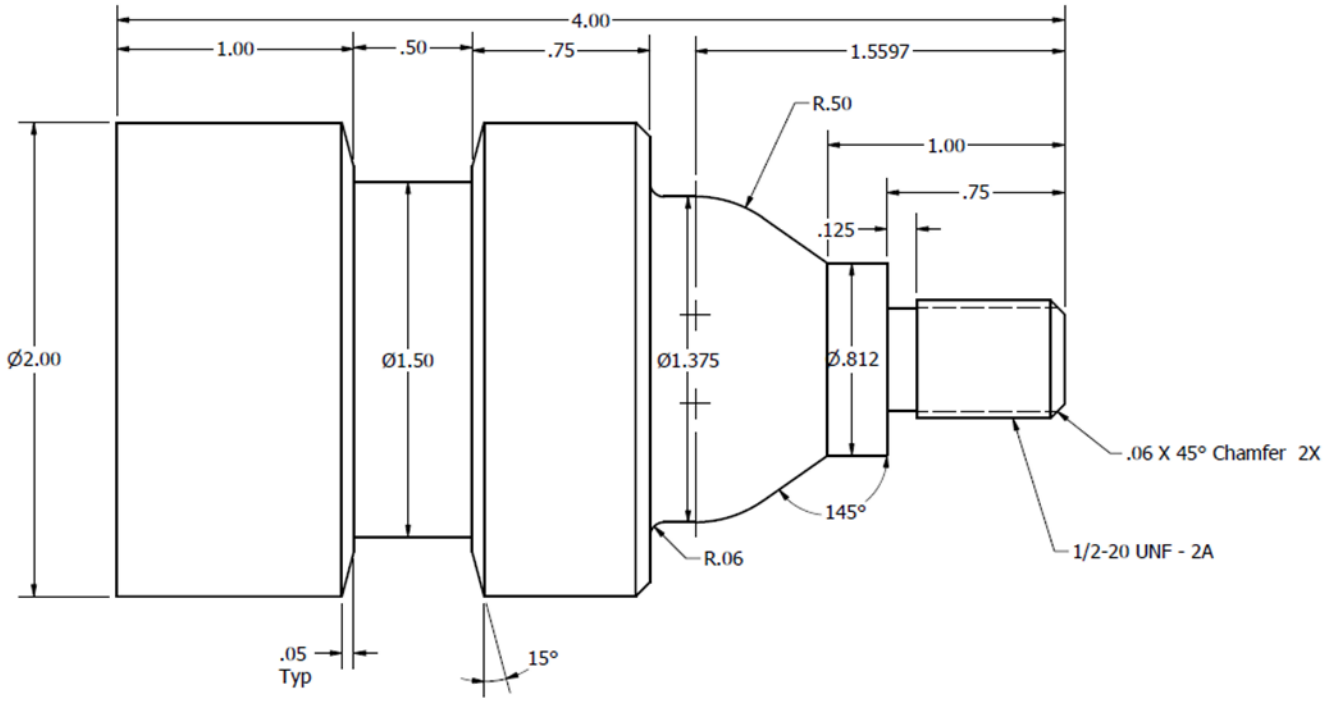






ALL UNMARKED RADIUS .13

TOLERANCE (EXCEPT AS NOTED) DECIMAL: .X: ±.015 .XX: ±.010 .XXX: ±.002 FRACTIONAL: ±.060 ANGLES: X: ±1° .X: ±.5° .XX: ±.25°	DRAWN ODEW	12/4/2023	**SKILLSUSA REGIONAL 2024**
	MATERIAL 6061 ALUMINUM		TITLE CAM MILL PART FOR STUDENTS
			SIZE B · DWG NO CAM MILL 2024 · REV
			SCALE · SHEET



TOLERANCE (EXCEPT AS NOTED) DECIMAL: .X: ±.015 .XX: ±.010 .XXX: ±.002 FRACTIONAL: ±.060 ANGLES: X: ±1° X.X: ±.5° X.XX: ±.25°	DRAWN ODEW	12/4/2023	**SkillsUSA Regionals 2024**
	MATERIAL 6061 Aluminum		TITLE CAM LATHE PART FOR STUDENTS
			SIZE B DWG NO CAM LATHER 2024 REV
			SCALE SHEET 1 OF 1