COMPUTER NUMERICALLY CONTROLLED (CNC) MACHINING CENTERS are quickly becoming the production systems of choice for manufacturing precision-machined components. CNC training has become essential for maintaining quality, production, and profitability. This program teaches comprehensive machining and CNC operational principles to provide apprentices with the skill sets necessary to optimize CNC quality and production.

The CNC Precision Machinist program is aligned with NIMS certification standards and trains workers to:

- Understand manual machining processes and material cutting technologies
- Operate vertical milling machines and engine lathes
- Implement fundamental principles of CNC operations including axis and coordinate systems
- Program processes for vertical and turning CNC machining centers
- Operate CNC vertical machining and turning centers from canned cycles to first piece

Program Features

- Three-year registered apprenticeship program
- Apprentices can attain multiple NIMS certifications and earn credits toward a Penn College degree
- Training can be delivered to any location via the iris platform
- Fully customizable training curriculum available
CNC PRECISION MACHINIST

MACHINING FUNDAMENTALS
- Introduction to Machining Technology
- Shop Safety
- Understanding Drawings and Prints
- Measurement Techniques
- Measurement Lab
- Layout Work
- Hand Tools
- Fasteners
- Jigs and Fixtures
- Cutting Fluids
- Sawing and Cutoff Machines
- Band Machining and Broaching
- Drills and Drilling Machines
- Offhand Grinding
- Basic Lathe Operations
- Other Lathe Operations
- Lathe — Cutting Tapers and Screw Threads
- Vertical Milling Machine
- Milling Machine Operations

INTRODUCTION TO CNC PROGRAMMING
- CNC Programming Basics
- CNC Milling Applications
- CNC Turning Applications
- Automated Manufacturing
- Quality Control
- Geometric Dimensioning and Tolerancing
- Metal Characteristics
- Heat Treatment of Metals
- Metal Finishing
- Precision Grinding
- Numerical Control and CNC
- Axis and Coordinate System
- CNC Math
- Machining Centers
- Inserts, Speeds, and Feeds
- Carbide Insert Fundamentals

CNC PROGRAMMING OF MILLING AND TURNING CENTERS
- Programming Process for Machine Centers
- Programming Codes for Machine Centers
- Program Format for Vertical Machine Centers
- Programming Process for Machine Centers
- Canned Cycles for Machining Centers
- Turning Centers
- Turning Center Tools, Inserts, Speeds, and Feeds
- Programming Process for Turning Centers
- Programming Codes for Turning Centers
- Canned Cycles for Turning Centers
- Subprograms
- Electrical Discharge Machining

Penn College is approved by the US Department of Labor and the PA Department of Labor & Industry as a sponsor of apprenticeship programs.

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Penn College operates on a nondiscriminatory basis.