

PRECISION MACHINIST / CNC OPERATOR PROGRAM, Certificate - Noncredit

Workforce Development/Industrial Technology

This 240-hour program is designed to teach students how to interpret blueprints, perform shop math calculations, work with precision measurements and measuring tools, set-up and complete projects on both traditional lathes and mills as well as Computer Numerical Control (CNC) machines, perform basic and advanced machining operations, and make decisions to ensure that work quality is maintained.

The curriculum is designed to prepare students for employment in entry-level positions, such as machine setup, operation, and programming while providing the fundamental knowledge and skills required to become an expert Machinist. This training also teaches students attention to detail, the ability to work to close tolerances, the skills to improve their mechanical aptitude, and how to solve mechanical challenges by working through logical steps. Shop safety, including OSHA-10 Certification Training, and good shop work practices, including routine machine shop maintenance activities is also covered. The tuition for this class covers book and lab fees and a student tool kit. *Customization and industry training options are also available.*

The complete training is available at the Harrisburg Campus. For more information, please contact Rusty Brink at (717) 221-1338, or at brink@hacc.edu. Or, contact Jamie Eckrode at (717) 221-1332, or at jaeckrod@hacc.edu.

Career Opportunities

This program prepares individuals for employment in various entry-level positions, such as CNC Setup, CNC Programmer, a CNC Operator, Quality Control Specialist, Industrial Manufacturing Technician, Production Technician, or entry-level Machinist.

Students who successfully complete this course can earn up to 4-credits towards HACC's Machine Shop Theory (1-credit) class and CNC Programming (3-credits) class if they choose to continue their education in one of HACC's Engineering and Technology Department programs within four years.

Competency Profile

This curriculum is designed to prepare the student to:

- Define lean manufacturing concepts.
- Demonstrate measuring skills and proper usage of precision measurement tools: Vernier calipers, sine bar, micrometer, height gage, gage block, dial indicator and comparator.
- Read and interpret industrial blueprints for part and component fabrication or assembly.
- Create basic CNC programs for milling and turning from part schematics.
- Setup conventional and automated mills and lathes.
- Describe common "G" and "M" codes and their functions
- Select proper tools, speeds, and feeds to machine a part.
- Demonstrate safe machine shop practices
- Complete the OSHA-10 Hour safety training for general industry.
- Demonstrate basic knowledge of SolidWorks design software and the application's functions. Learn the relationships between MasterCAM™ and SolidWorks™.

RECOMMENDED SEQUENCE FOR STUDENTS

The complete Precision Machinist / CNC Operator Certificate Program comprises a 2-part class: Precision Machinist and CNC Operator. Interested students are advised to enroll in and complete the entire program, but for those with a specific focus or interest, these classes can also be taken separately.

Precision Machining

- Soft Skills / Employee Readiness Skills
- Shop Math
- Shop Measuring Skills
- Print Reading for Machinists
- Introduction to Lean Manufacturing
- Machine Shop Safety

- Machine Shop Skills

CNC Operator

- CNC – Milling and Turning
 - Level 1: CNC Machining Theory
 - Level 2: Simulator Experience (Fanuc™ 21M and 21T simulator)
 - Level 3: Machine Hands-On
- Introduction to SolidWorks™
 - Creating a part
 - Creating an assembly
 - Creating drawings
- Engineered tasks

PROGRAM REQUIREMENTS

Interested students will display a mechanical aptitude and ability to operate the required tools in a safe and effective manner.