

# CNC Machinist

## About my job:

As a machinist and a tool and die maker, I set up and operate a variety of computer-controlled and mechanically controlled machine tools. Using these tools, I produce precision metal parts, instruments and tools.



## What I do every day:

- Monitor machine operation to identify work piece defects or machine malfunctions, make adjustments to machines as necessary
- Set up and operate a variety of machines, including lathes, cutters, shears, borers, millers, grinders, presses, drills and auxiliary machines
- Identify tooling requirements and determine appropriate speeds and feeds
- Evaluate blueprints and drawings to identify correct part dimensions and tool path configurations
- Develop and oversee new programming procedures; use 3D modeling software
- Position, adjust and secure stock material against stops, or in chucks, fixtures or automatic feeding mechanisms
- Incorporate tooling and gaging necessary to complete projects; evaluate and ensure safety procedures

## What makes my job great?

### Job growth:

Across the nation, employment of machinists and tool and die makers is projected to grow 7 percent from 2012-2022. In Ohio, the growth rate is 9 percent.

### Short-term training:

Machinists learn their trade in technical high schools, technical colleges and apprenticeship programs. A high school diploma along with some technical training is necessary to secure a job.

### Good pay:

Salaries for machinists range from a starting wage of approximately \$38,000 to \$50,000 annually. With additional experience and expertise, a machinist can earn as much as \$100,000 per year.

### Benefits:

Most machinists work full time with benefits that may include:

- **Paid vacation**
- **Healthcare**
- **Tuition reimbursement**

# How can you become a CNC machining specialist?



## Academic/training credentials:

Many machinist jobs do not require any type of credential. However, having a degree or certificate will enhance job opportunities.

## Other credentials:

Journey-level certification can be obtained from state apprenticeship boards after completing an apprenticeship. Many employers recognize and look for this certification.

## Work experience/internships:

Most employers look for two years of experience and some technical training, and some will provide additional training on their specific equipment. Many companies are looking for machinist interns/apprentices. To find out more about local opportunities, contact Lakeland Career Services at 440.525.7222.

## Skills and requirements:

- Most machinists work full time, and overtime is often required
- Work may require evenings and weekends
- Strong communication skills
- Employee must be drug-free for a minimum of six months

## Where you can find jobs:

- Online job boards
- Career fairs
- Networking
- Social media
- Department of Career Services at colleges
- Networking

## Potential job titles:

- CNC machine setter (computer numerically controlled machine setter)
- CNC machinist
- CNC operator
- Cell machine operator (operating multiple machines in a workspace environment)
- Machine operator
- Machine technician
- Machinist
- Operator
- Setup person
- Tool maker

## Potential local employers:

- Avery Dennison
- Component Repair Technologies
- Fredon Corporation
- Jergens Inc.
- Lubrizol
- Steris
- Swagelok



# Local educational opportunities

## Two-year institutions:

- Lakeland Community College: Associate of Applied Science-Computer Integrated Manufacturing Technology
  - CNC operator mini certificate
  - CNC setup and programming technology certificate
  - Computer integrated manufacturing technology certificate
  - Industrial computer hardware technician certificate
  - Production shift leader/manufacturing management certificate
  - Tool and die technology certificate
  - Tool room/maintenance machinist apprentice certificate

Contact Lakeland Computer Integrated Manufacturing Co-Department Chair at 440.525.7293.

- Cuyahoga Community College: Associate of Applied Science in Manufacturing Industrial Engineering Technology
  - CNC machining and composite manufacturing certificate
  - Computer integrated manufacturing certificate
  - Machine tools certificate
  - Quality control certificate
- Kent State University (Trumbull Campus): Associate of Applied Science in Manufacturing Engineering Technology



**Ohio College Tech Prep**  
Building Quality Career Pathways

## High School Tech Prep:

- A-TECH: Precision Machining Program
- Auburn Career Center: Advanced Manufacturing Program
- Lake Shore Compact: CNC Manufacturing Technology Program
- Excel TECC: CADD Engineering Technology Program
- Contact your high school guidance office

## Four-year institutions:

- University of Akron: Bachelor of Science in Automated Manufacturing Engineering Technology

## Technical schools:

- Auburn Career Center: Manufacturing Program
- Erie Institute of Technology: CNC Machinist Technician Program



## Coursework per educational entity:

**Secondary pathway:**  
Manufacturing Operations

**Postsecondary program:**  
Manufacturing Technology

An Example of Course with Secondary and Postsecondary Credits

Secondary	7 8	English I	Algebra I	Physical Science	Social Studies	Fine Arts	Pre-Engineering Technologies		
	9 10	English II	Geometry	Biology	World History	Health (.5) PE (.5)	World Languages		
	11	English III	Algebra II	Chemistry	U.S. History	Shop Safety	Measuring Tools	CNC Machining	World Languages
	12	English IV	Trigonometry/Calculus	Physics	U.S. Government	AutoCAD	Engineering Technology	CNC Programming	
Postsecondary	Year 1 1st Semester	Introduction to AutoCAD	Fundamentals of Public Speaking	Machining Processes	English Composition	Introduction to Engineering Technology	First Year Experience	Introduction to Technical Mathematics	
	Year 1 2nd Semester	Materials Processing	Technical Mathematics I	Technical Communications	Geometric Dimensioning and Tolerancing	Applied Physics I			
	Year 2 1st Semester	Introduction to SolidWorks	Manufacturing Methods and Costs	Jig and Fixture Design I	Applied Physics II	Computer Numerical Control Part Programming	Introduction to Computer Assisted Part Programming		
	Year 2 2nd Semester	Programming CNC Lathes	Programming CNC Machine Centers	Design and Manufacturing Capstone	Quality Concepts and Techniques	Arts and Humanities Elective	Social and Behavioral Science Elective	Technical Elective	
High School Career-Technical Education Program Courses									
High School Courses for Postsecondary Credit (including Apprenticeship Hours) and the Corresponding Postsecondary Courses									
Required Courses									
Recommended Electives									
Ohio		Department of Education		Ohio MEANS Jobs		Ohio		Board of Regents University System of Ohio	

# How can I grow my career?



Educational requirements vary for machinists. A CNC operator requires CNC certification. A CNC programmer needs to have certification and may require a 2-year degree.

## Where could I focus or specialize in my career?

- Production worker
- Fabricator
- Machinist
- CNC operators
- CNC programmer
- Welder
- Quality technician
- Manufacturing technologist
- Engineer

## The career ladder



### Sources/References:

Ohio Means Jobs, Bureau of Labor Statistics – Occupational Outlook Handbook  
O\*Net Online-Summary Report, Ohio Labor Market Information