

JOB DESCRIPTION

- Manufacturers use raw materials or separate components to build something entirely new. It can be chemical, physical, or mechanical.
- Typically power-driven machines and materials-handling equipment are used.
- Manufacturing jobs include making prepackaged food or beverages, creating computers and electronics, and producing clothing. Bakers, printers, tailors, furniture builders, and woodworkers are all considered manufacturers.
- Most manufacturers work in factories, mills, plants, or labs.

PAY

\$56,150 median annual wage (\$27.00 per hour) in May 2024 (from US Bureau of Labor Statistics) for machinists.

\$63,180 median annual wage (\$30.37 per hour) in May 2024 for tool and die makers.

EDUCATION/TRAINING

Manufacturing occupations are available for people at all education levels, from less than a high school diploma to a college degree. Training in manufacturing can be on the job, through apprenticeships, and through college programs.

IMPORTANT SKILLS

Required skills/experience varies based on what you are manufacturing. General skills include:

- Math, science, or engineering experience
- Ability to work a part of a team
- Strong critical thinking
- Problem-solving
- Attention to detail
- Dependability
- Dexterity
- Mechanical or technical ability



MANUFACTURING IN OHIO

Ohio's manufacturing strength is in industrial machinery, fabricated metals, and transportation equipment. Explore Ohio manufacturers' websites for jobs and/or training opportunities:

- Ohio's top manufacturing employers include Honda, GE Aviation Systems, and Whirlpool
- Local manufacturers include Avery Dennison, Cleveland-Cliffs, Component Repair Technologies, Lincoln Electric, Nordson, Parker Hannafin, Swagelok, Sherwin-Williams, and STERIS



CERTIFICATE PROGRAMS

ALLIANCE FOR WORKING TOGETHER (AWT) *(Mentor)*

A nonprofit organization providing educational and career-centered programs to place more than 1,000+ students into manufacturing careers. AWT provides Department of Labor and Ohio Department of Job & Family Services (ODJFS) recognized pre-apprenticeship and apprenticeship programs for manufacturing occupations including:

- Tool & Die Maker
- Mold Maker
- Precision Machinist
- Tool Programmer/Numerical Control

thinkmfg.org

ASHTABULA COUNTY TECHNICAL & CAREER CENTER *(Jefferson)*

Courses in manufacturing including Computer-Aided Design (CAD), Computerized Numerical Controls (CNC) and an introduction to the machine trades.

<https://actc.axstudent.com/#/category/Qb>

AUBURN CAREER CENTER *(Kirtland)*

Program for students with limited or no prior knowledge of manufacturing to prepare for a manufacturing career.

- **Machining/CNC**—A manufacturing training program with an internship at a local manufacturer.

auburncc.org/Programs.aspx

CUYAHOGA COMMUNITY COLLEGE *(Cleveland)*

Programs are grouped 0-3 months, 4-12 months, or one year or more. They also have an apprenticeship program.

www.tri-c.edu/workforce/advanced-manufacturing-and-engineering/manufacturing/index.html

Smart Manufacturing Engineering Technology: A multidisciplinary engineering program combining electrical, mechanical, and industrial networking. Students can also earn a Bachelor of Science in Integrated Digital Manufacturing Engineering Technology. Earn at least two industry credentials each semester from program partners: FANUC (robotics), Rockwell Automation, Parker Hydraulics, Cisco, Siemens.

www.tri-c.edu/programs/engineering-technology/smart-manufacturing-technology.html

CERTIFICATE PROGRAMS (*continued*)

CUYAHOGA VALLEY CAREER CTR (*Brecksville*)

Machining Technology: A 650-hour program providing skills for employment in the machining industry, including: machining fundamentals, tool introduction, computer numerical control (CNC) milling and turning, CAD/CAM systems, and advanced machining.

cvccworks.edu/adult-education/

LAKELAND COMMUNITY COLLEGE (*Kirtland*)

Degree Programs:

- General Manufacturing Major (AWT)
- Maintenance and Repair Concentration (AWT, ArcelorMittal)

Computer Integrated Manufacturing Technology Certificates:

- CNC Operator Mini Certificate
- CNC Set-Up and Programming Technology
- Computer Integrated Manufacturing Technology
- Industrial Computer Hardware Technician
- Production Shift Leader/Mfg. Management
- Tool and Die Technology
- Tool Room/Maintenance Machinist

lakelandcc.edu/web/about/computer-integrated-manufacturing-departments

LORAIN COUNTY COMMUNITY COLLEGE

(*Elyria*)

Offers a variety of options for short-term certificates, one-year certificates, associate degrees in manufacturing as well as a Bachelor of Applied Science in Microelectronic Manufacturing.

www.lorainccc.edu/engineering/

POLARIS CAREER CENTER (*Middleburg Hts*)

Precision CNC Machine Technology

600-hour/35-week program that leads to a Level 1 National Institute of Metalworking Skills (NIMS) credential and a OSHA 10-hour certification.

www.polaris.edu/o/pcc/page/cncmachinetechology

TERRA STATE COMMUNITY COLLEGE

(*Fremont*) Offers on campus housing.

Certificate Programs, Mfg. Engineering

- Computer Aided Design (CAD)
- Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM)
- Industrial Maintenance Certificate
- Integrated Applications - Based Curriculum in Advanced Manufacturing (IACAM)
- Manufacturing Foundation
- Precision Machining/Computer Numerical Control (CNC)

Associate of Applied Science (AAS) Degrees

- Manufacturing Technology
- Mechanical Engineering Technology Degree

https://www.terra.edu/degrees_programs/technology_skilled_trades_division/manufacturing_engineering/index.php

UNIVERSITY OF AKRON (*Akron*)

Associate of Applied Science in Automated Manufacturing Engineering Technology

Includes basic technical subjects, management techniques, work measurement, safety procedures, plant layout, quality control, maintenance, production control, economics, and computer applications such as CAD, CNC, and CAM.

bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/mechanical-engineering/adv-manufacturing-engineering-tech/

ADDITIONAL RESOURCES

Ohio TechNet

www.ohiotechnet.org/

Making Ohio-Career pathways

www.makingohio.com/careers/career-pathways/