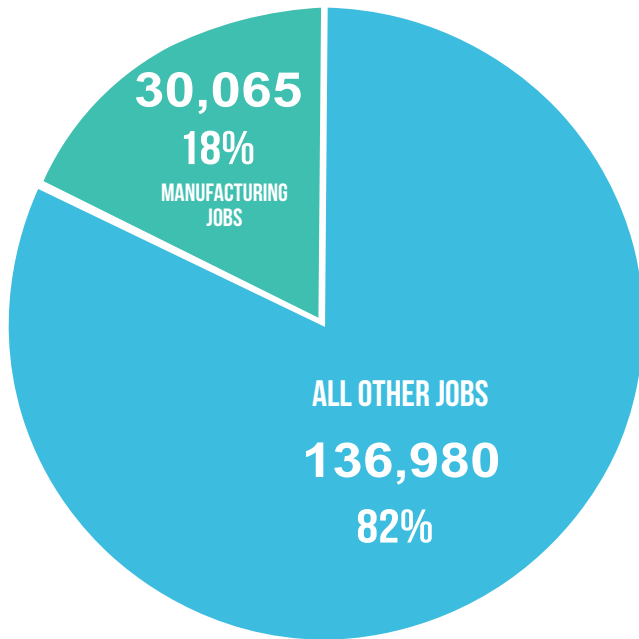




MANUFACTURING CAREERS

IN SOUTHWEST AND SOUTH CENTRAL MINNESOTA



MANUFACTURING IS THE LARGEST INDUSTRY IN THE REGION.

1-in-5 jobs are at manufacturers in Southwest & South Central Minnesota.

There are numerous non-traditional manufacturing occupations for women, including maintenance and repair workers, machinists, industrial machinery mechanics, CNC machine operators and mechanical engineers.

1 IN 3 MANUFACTURING JOBS ARE HELD BY WOMEN.



MEDIAN WAGES FOR JOBS HELD BY WOMEN IN SOUTHWEST AND SOUTH CENTRAL MN



MANUFACTURING CAREERS FOR WOMEN IN SOUTHWEST AND SOUTH CENTRAL MINNESOTA

Industrial Engineers \$39.41/hr	Mechanical Engineers \$38.15/hr
Electricians \$27.60/hr	Industrial Machinery Mechanics \$25.32/hr
Maintenance and Repair Workers \$22.15/hr	Industrial Engineering Technician \$24.87/hr
Truck Drivers \$21.89/hr	Machinists \$23.08/hr
Computer Controlled Machine Tool Operators \$18.92/hr	Laborers \$18.08/hr



Equal Opportunity Employer and Program Provider - Upon request the information in this document can be made available in alternative formats for people with disabilities by contacting Kelly Rickert at krickert@swmnpc.org or 507-706-1600



MANUFACTURING CAREERS

IN SOUTHWEST AND SOUTH CENTRAL MINNESOTA

CAREER PATHS IN MANUFACTURING IN SW/SC MN

4-YEAR OR MORE COLLEGE DEGREE AND/OR EQUIVALENT EXPERIENCE

- Industrial Engineers: \$30.41
- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products: \$25.97

1-2 YEAR COLLEGE DEGREE (OR CREDENTIAL)

- Mechanics: \$23.07
- Industrial Machinery Mechanics: \$25.32
- Industrial Engineering Technicians: \$24.97

HIGH SCHOOL DIPLOMA OR GED / ON-THE-JOB TRAINING

- First and Secondhand Machine Tooling and Operating Workers: \$30.45
- Packaging and Filling Machine Operators and Tenders: \$17.55
- Welders, Cutters, Brazers, and Solderers: \$20.77

WHY CHOOSE A CAREER IN MANUFACTURING?

Manufacturing provides just shy of 20 percent of all total employment in the nation, making it the largest industry sector and second largest source of social assistance. Southwest and South Central is the only region in the state where manufacturing is the largest, employing industry. Average wages in manufacturing are 20.5 percent higher than the total of all industries.

View videos of career paths in manufacturing: www.careeronestop.org/Videos/CareerVideos/career-videos.aspx

Some jobs are in demand in Southwest and South Central Minnesota and these are SW/SC Minnesota Median wages. Data collected from Department of Employment and Economic Development.

Equal Opportunity Employer and Program Provider - Upon request the information in this document can be made available in alternative formats for people with disabilities by contacting Kelly Rickert at krickert@swmnpic.org or 507-706-1600

CAREER PATHS IN MANUFACTURING

4-YEAR OR MORE COLLEGE DEGREE AND/OR EQUIVALENT EXPERIENCE

- INDUSTRIAL ENGINEERS \$30.41** Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production control.
- MECHANICAL ENGINEERS \$26.18** Perform engineering duties in planning and designing tools, engine, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as combustion tract, gas, water, and steam systems.
- SALES REPRESENTATIVES, WHOLESALE AND MANUFACTURING, TECHNICAL AND SCIENTIFIC PRODUCTS \$25.97** Sell goods for wholesalers or manufacturers where technical or scientific knowledge is required in such areas as biology, engineering, chemistry, and electronics, normally obtained from at least 2 years of post-secondary education.

1-2-YEAR COLLEGE DEGREE (OR CREDENTIAL)

- MACHINISTS \$23.07** Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, repair and measuring procedures.
- INDUSTRIAL MACHINERY MECHANICS \$25.32** Repair, install, adjust, or maintain industrial production and processing machinery or refinery and petrochemical distribution systems.
- INDUSTRIAL ENGINEERING TECHNICIANS \$24.97** Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform tests and model studies on worker operators in a variety of industries for purposes such as establishing standard production rates or improving efficiency.

HIGH SCHOOL DIPLOMA OR GED / ON-THE-JOB TRAINING

- FIRST-LINE SUPERVISORS/MANAGERS OF PRODUCTION AND SCIENTIFIC PRODUCTS \$30.46** Closely supervise and coordinate the activities of production and operating workers, such as inspectors, process workers, machine setters and operators, assemblers, laborers, and plant and system operators. Exclude those in such locations.
- PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS \$17.55** Operate or tend machine to create industrial or consumer products for distribution or shipment. Include cannery workers who pack food products.
- WELDERS, CUTTERS, SOLDBERS, AND BRAZERS \$20.77** Use hand welding, flame cutting, hand soldering, or factory equipment to weld or join metal components or to fit, assemble, or assemble of fabricated metal products.

Equal Opportunity Employer and Program Provider - Upon request the information in this document can be made available in alternative formats for people with disabilities by contacting Kelly Rickert at krickert@swmnpic.org or 507-706-1600

Assemblers and Fabricators, Slaughterers and Meat Packers, Supervisors, Packaging and Filling Machine Operators, Welders, and Inspectors, Testers, Sorters, Samplers and Weighers are the most common in Manufacturing in Minnesota according to DEED's Occupational Employment Statistics and Occupations in Demand data. In addition to production occupations, manufacturers also require the service of workers in

several other occupational groups such as Sales, Architecture and Engineering, Transportation and Material Moving, Office and Administrative Support, Management, and Installation, Maintenance and Repair. Many production-related manufacturing occupations can be gained with a high school diploma and training through on-the-job training for entrance into the industry while higher wages and career advancement require experience to gain more valuable skills, or education beyond high school diploma.

In Demand Manufacturing Careers

CNC PROGRAMMER AND MACHINIST WELDERS

EDUCATION

Some operators are trained on basic machine operators and functions in a few months. Other workers, such as computer controlled machine tool operators, may need up to two years to become trained.

High school diploma or equivalent, combined with technical training and on-the-job training, welding certificate.

IMPORTANT QUALITIES

- High degree of autonomy
- Troubleshooting
- Integrity
- Industrial automation
- Process management
- Data entry
- Detail oriented
- Self-starter / Self-motivated
- Problem solving
- Integrity
- Dependability
- Team player
- Work independently
- Basic computer skills

WHAT THEY DO

Operate programming software to generate computer numerically controlled (CNC) programs used to control CNC machine tools that drill, mill, rout, grind, or notch.

Responsible for assembling structural metal products using tools, welding equipment, and their own hands.

EMPLOYMENT OPPORTUNITIES

MEDIAN HOURLY WAGES \$18.39
\$25.62

Demand is expected to be strong, as many firms are adopting technologies such as machine tools and robots.

These jobs are in demand in Southwest and South Central Minnesota and these are SW/SC Minnesota Median wages. Data collected from Department of Employment and Economic Development.

WORK ENVIRONMENT

These workers often operate powerful, high-speed machines. Operators usually wear protective equipment, such as safety glasses, earplugs, and dusted boots to protect them from flying particles of metal or plastic, machine noise, and heavy objects.

Welders and cutters may work outdoors, or indoors, sometimes in a confined area designed to contain sparks and glare. Most workers wear full time, and overtime is common.

Equal Opportunity Employer and Program Provider - Upon request the information in this document can be made available in alternative formats for people with disabilities by contacting Kelly Rickert at krickert@swmnpic.org or 507-706-1600

In Demand Manufacturing Careers

MECHANICAL ENGINEERING TECHS INDUSTRIAL ENGINEERS

EDUCATION

Most employers prefer to hire candidates with associate's degrees or other postsecondary training in mechanical engineering technology.

Industrial Engineers typically need a bachelor's degree in mechanical engineering or mechanical engineering technology.

IMPORTANT QUALITIES

- Project Management
- Work independently
- Manufacturing process
- Problem solving
- Product development
- Work independently
- Management skills
- Detail oriented
- Creativity

WHAT THEY DO

Mechanical engineering technicians help mechanical engineers design, develop, test, and manufacture mechanical devices, including tools, engines, and machines. They may make sketches and rough layouts, record and analyze data, make calculations and estimates, and report their findings.

Designs and documents the required parameters for machines and tools used to produce products. Analyze problems to see how mechanical and thermal devices might help solve a particular problem. Investigate equipment failures or difficulties to diagnose faulty operations and to recommend remedies. Analyze the test results and change the design or system as needed. Oversee the manufacturing process for the device.

EMPLOYMENT OPPORTUNITIES

MEDIAN HOURLY WAGES \$14.00
\$26.38

Employment of industrial machinery mechanics and machinery maintenance workers is projected to grow 6.1 percent from 2018 to 2028. These jobs are in demand in Southwest and South Central Minnesota and these are SW/SC Minnesota Median wages. Data collected from Department of Employment and Economic Development.

WORK ENVIRONMENT

Mechanical engineering technicians assist with manufacturing processes in factories or with development changes in research and development labs before manufacturing takes place.

Industrial Engineers generally work in offices. They may occasionally visit workplaces where a problem or piece of equipment needs their personal attention.

Equal Opportunity Employer and Program Provider - Upon request the information in this document can be made available in alternative formats for people with disabilities by contacting Kelly Rickert at krickert@swmnpic.org or 507-706-1600