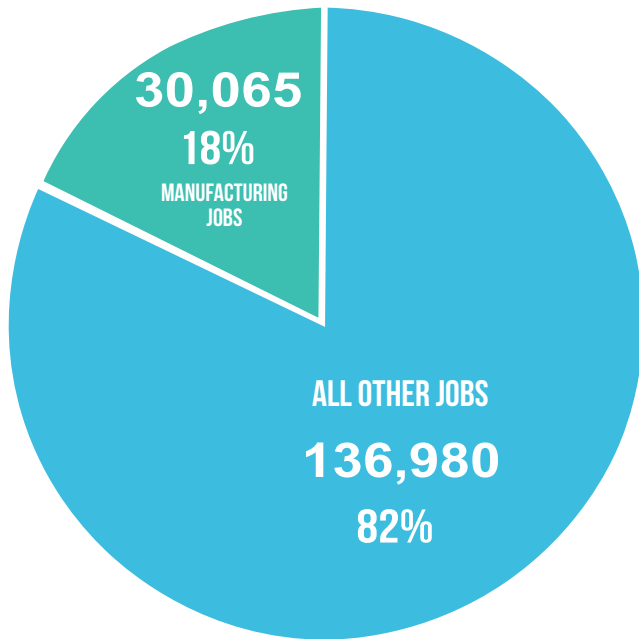




MANUFACTURING CAREERS

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



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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 \$39.41 Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products \$26.97
 Mechanical Engineers \$38.15

1-2 YEAR COLLEGE DEGREE (OR CREDENTIAL)
 Machinists \$23.07 Industrial Machinery Mechanics \$26.32 Industrial Engineering Technicians \$24.87

HIGH SCHOOL DIPLOMA OR GED / ON-THE-JOB TRAINING
 First-Line Supervisor/Managers of Production and Operating Workers \$30.45 Packaging and Filling Machine Operators and Tenders \$17.55 Welders, Cutters, Solderers and Brazers \$20.77

WHY CHOOSE A CAREER IN MANUFACTURING?
 Manufacturing provides just shy of 20 percent of all total employment in the region, making it the largest industry in the region and ahead of health care and 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 25.5 percent higher than the total of all industries.

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

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.

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CAREER PATHS IN MANUFACTURING

4-YEAR OR MORE COLLEGE DEGREE AND/OR EQUIVALENT EXPERIENCE
 INDUSTRIAL ENGINEERS \$39.41 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 coordination.
 MECHANICAL ENGINEERS \$38.15 Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.
 SALES REPRESENTATIVES, WHOLESALE AND MANUFACTURING, TECHNICAL AND SCIENTIFIC PRODUCTS \$26.97 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, layout, and machining procedures.
 INDUSTRIAL MACHINERY MECHANICS \$25.32 Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems.
 INDUSTRIAL ENGINEERING TECHNICIANS \$24.87 Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations 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 OPERATING WORKERS \$30.45 Directly supervise and coordinate the activities of production and operating workers, such as inspectors, process workers, machine setters and operators, assemblers, fabricators, and plant and system operators. Excludes team or work leaders.
 PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS \$17.55 Operate or tend machines to prepare industrial or consumer products for release or shipment. Includes cannery workers who pack food products.
 WELDERS, CUTTERS, SOLDERERS AND BRAZERS \$20.77 Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fit hoses, rollers, rollers, or seams of fabricated metal products.

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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 learning 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
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-starting / Self-motivated
- Problem solving
- Integrity
- Dependability
- Team player
- Work independently
- Basic computer skills

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

EMPLOYMENT OPPORTUNITIES
Types of welders in demand: arc and gas welding

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

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

IMPORTANT QUALITIES

- Project Management
- Work Independently
- Manufacturing process
- Problem solving
- Troubleshooting
- Process Improvement
- Risk Management
- 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.

EMPLOYMENT OPPORTUNITIES
Employment of industrial machinery mechanics and machinery maintenance workers is projected to grow 6.3 percent from 2018 to 2028.

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

HOURLY \$18.39

HOURLY \$25.62

HOURLY \$17.20

HOURLY \$23.29

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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.

IMPORTANT QUALITIES

- Project Management
- Problem solving
- Data Analysis
- Product development
- Work independently
- Management skills

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

EMPLOYMENT OPPORTUNITIES
Employment of industrial engineers is projected to grow 6.2 percent from 2018 to 2028.

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

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

IMPORTANT QUALITIES

- Project Management
- Problem solving
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HOURLY \$14.00

HOURLY \$26.38

HOURLY \$31.95

HOURLY \$45.18

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