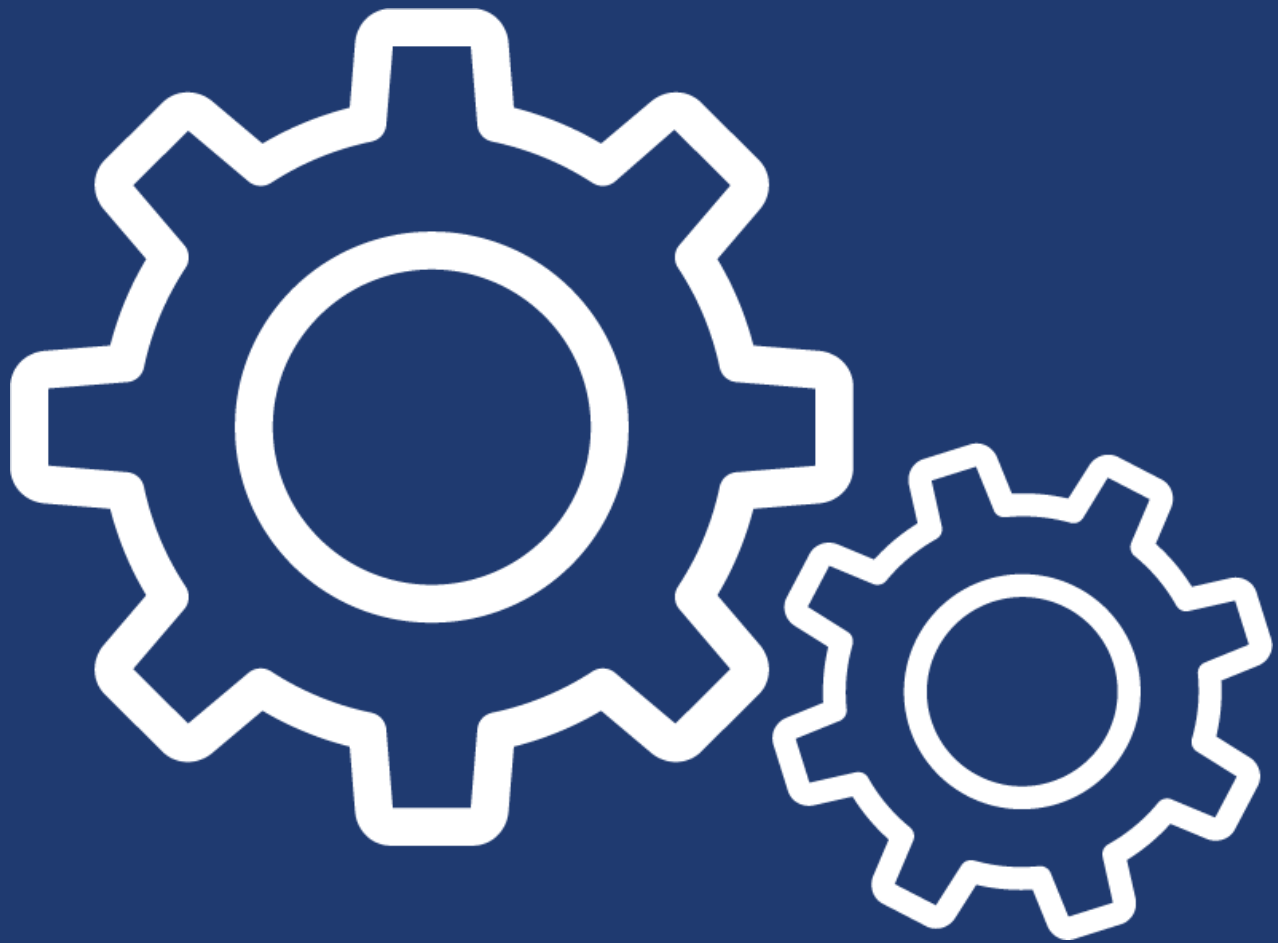


Engineering Career Guide

A guide for architectural and engineering managers, civil engineers, electrical engineers, industrial engineers, mechanical engineers.



Finding Your Way to a Career: Engineering

Manufacturers rely on engineers to provide the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services. From analyzing information and evaluating results, they choose the best solutions and solve problems.

How to use this document to learn more.

As one of the Top 100 Hot Jobs for 2022, engineer is a promising occupation for job seekers in West Michigan. To find out if this might be a good career choice for you, use this Career Map to examine:

- Who might enjoy this kind of work.
- Qualifications needed in this career field.
- Growth potential and levels of pay.
- Valuable skills for this type of work.
- Common tools and technology used in this work.
- Occupations, responsibilities, and other job titles.

This information is drawn from national data and insights from West Michigan employers. It is meant as a starting point for job seekers and career coaches to work together in the exploration of meaningful and fulfilling careers.



Exploring Occupations in Engineering

Engineers perform duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. They may oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems. They might also research, design, evaluate, install, operate, or maintain mechanical products, equipment, systems, or processes to meet requirements and confer with engineers or other personnel to implement operating procedures, resolve system malfunctions, or provide technical information.

The Path to Success

Who might enjoy this type of work?

People who work in this field tend to enjoy:

- Mental problem solving.
- Working with ideas and using cognitive (thinking) skills.
- Practical, hands-on problem solving.
- Working with real world materials like wood, tools, and machinery.
- Following set procedures and routines.
- Working with data and details more than with ideas.
- Having a clear line of authority to follow.

People who do well in this work generally perform well in such areas as:

- Responsibility
- Achievement
- Ingenuity
- Information Skills
- Adaptability

Qualifications needed in this career field.

Nationally, most people working as an engineer will have a bachelor's degree.

Sample certifications include:

Architectural and Engineering Managers sample credentials: Bachelor's degree, Project Management Professional Certification.

Civil Engineers sample credentials: Bachelor's degree, Project Management Professional Certification

Electrical Engineers sample credentials: Bachelor's degree, Post-secondary certification, Associates Degree.

Industrial Engineers sample credentials: Bachelor's degree, Post-secondary certification, Associates Degree.

Mechanical Engineers sample credentials: Bachelor's degree, Post-secondary certification, Associate Degree.

Growth potential and levels of pay.

In the West Michigan counties of Allegan, Barry, Ionia, Kent, Montcalm, Muskegon and Ottawa, there were 11,155 engineer jobs in 2020. That number is projected to grow by at least 4% to 11,503 by 2025.

Valuable skills for this type of work.

Tasks and functions performed by engineers include:

- Interacting with computers.
- Making decisions and solving problems.
- Getting information.
- Communicating with supervisors, peers, or subordinates.
- Updating and using relevant knowledge.

Common tools and technology used in this work.

Tools: flowmeters, semiconductor process systems, vibration isolators, integrated circuits

Tech: computer-aided design software, component-oriented development software, development environment software

Mapping a Career:

- Civil Engineers
- Electrical Engineers
- Industrial Engineers
- Mechanical Engineers
- Architectural and Engineering Managers

Architectural and Engineering Managers
\$50.75 - \$70.11

Industrial Engineers
\$32.59 - \$47.40

Mechanical Engineers
\$30.49 - \$46.04

Electrical Engineers
\$30.37 - \$49.19

Civil Engineers
\$30.08 - \$46.59

See entry level opportunities found in Manufacturing Production >

Wage ranges represent 25th - 75th percentile. Timeframes represent the typical education and experience combined. See page 6 for detailed description of occupations.

LESS THAN 2 YEARS

2-4 YEARS

5-9 YEARS

10+ YEARS

Engineering: A Field Guide

Occupations, responsibilities and other job titles.

Architectural and Engineering Managers

Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields.

Examples of locally used job titles: civil engineering manager, electrical engineering manager, engineering director, engineering group manager, engineering program manager, mechanical engineering manager, process engineering manager, project engineering manager, project manager

Civil Engineers

Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems.

Examples of locally used job titles: city engineer, civil engineer, county engineer, design engineer, project engineer, railroad design consultant, structural engineer

Electrical Engineers

Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.

Examples of locally used job titles: circuits engineer, design engineer, electrical controls engineer, electrical design engineer, electrical engineer, electrical project engineer, instrumentation and electrical reliability engineer (I&E reliability engineer), power systems engineer, project engineer, test engineer

Industrial Engineers

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.

Examples of locally used job titles: continuous improvement engineer, engineer, facilities engineer, industrial engineer, operations engineer, plant engineer, process engineer, project engineer, quality engineer, research and development engineer (R&D engineer)

Mechanical Engineers

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.

Examples of locally used job titles: application engineer, design engineer, design maintenance engineer, equipment engineer, mechanical design engineer, mechanical engineer, process engineer, product engineer, project engineer, test engineer



West Michigan Works! is part of the statewide Michigan Works! system and the workforce development agency in West Michigan. We serve the employers and job seekers of Allegan, Barry, Ionia, Kent, Montcalm, Muskegon and Ottawa counties.

We partner with employers, educators, economic developers and community organizations to create a qualified workforce that meets our region's current and future talent needs and fuels our shared economic future.

Learn more at: <https://www.westmiworks.org/>



CareerPoint helps students and job seekers find their place in the world of work by matching interests and abilities with training, support, and meaningful and rewarding careers.

By providing training and tools, CareerPoint supports the workforce professionals who help people navigate the West Michigan job market.

CareerPoint promotes evidence-based coaching to help students and job seekers discover and follow pathways to rewarding careers. This model follows seven steps to each participant's success.

Learn more at: <https://talnetcareerpoint.org/>