Industrial Engineers

SOC: 17-2112 • Career Profile Report

■ Key Facts

$101,140	351,100	+11.0%
Median Salary	Employment	Growth Rate

■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 17.0% probability of being automated in the next 10-20 years.

This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■■ Work-Life Balance

7.2/10 - Good work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

Realistic	8.2/10	**Investigative**	8.8/10
Artistic	6.4/10	**Social**	5.2/10
Enterprising	5.8/10	**Conventional**	6.6/10

■ Top Skills Required

Communication skills, Computer skills, Creativity, Critical-thinking skills, Interpersonal skills, Math skills, Problem-solving skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Industrial Engineers are optimization-focused professionals who design and improve **systems that integrate people, materials, information, equipment, and energy** to make organizations more efficient and effective. Rather than concentrating on a single machine or product, they analyze entire processes—reducing waste, improving quality, increasing productivity, and lowering costs across manufacturing, healthcare, logistics, and service industries.

This career is well suited for individuals who enjoy problem-solving, data analysis, and improving how work gets done at a systems level.

What Do Industrial Engineers Do?

Industrial engineers study workflows and operations to identify inefficiencies and implement improvements. Their work blends engineering principles with business and human factors.

Common responsibilities include:

- Analyzing production and service processes
- Designing more efficient workflows and layouts
- Improving quality control and reliability
- Reducing waste, costs, and cycle times
- Applying statistical and data analysis methods
- Developing performance metrics and benchmarks
- Collaborating with management, engineers, and frontline staff

Areas of Specialization

Industrial engineers may specialize by industry or method:

- Manufacturing and Production Systems: Optimizing factory layouts and production lines.
- Quality and Reliability Engineering: Improving consistency and reducing defects.
- Supply Chain and Logistics Engineering: Streamlining transportation, inventory, and distribution.
- Human Factors and Ergonomics: Designing systems that improve safety and usability.
- Healthcare Systems Engineering: Improving patient flow and resource utilization.
- Operations Research and Analytics: Using mathematical models to guide decisions.

Skills and Abilities Needed

Industrial engineers combine technical analysis with organizational insight.

Core Professional Skills

Personal Qualities That Matter

Education and Career Pathway

Becoming an industrial engineer requires formal engineering education:

- Bachelor’s Degree: In industrial engineering or a closely related engineering field
- Internships or Co-op Experience: Practical exposure to operations and systems
- Professional Certifications (optional): Lean, Six Sigma, or project management credentials
- Advanced Education (optional): Master’s degree for analytics, research, or leadership roles
- Continuing Education: Keeping up with optimization tools and technologies

Where Do Industrial Engineers Work?

Industrial engineers are employed across a wide range of industries:

- Manufacturing and Industrial Companies

- Healthcare Systems and Hospitals
- Logistics and Supply Chain Organizations
- Technology and Software Companies
- Consulting and Professional Services Firms
- Government and Defense Agencies

Their skills are highly transferable across sectors.

How Much Do Industrial Engineers Earn?

Earnings vary by industry, experience, and specialization:

- Entry-Level Industrial Engineers: Typically earn strong professional starting salaries
- Experienced Industrial Engineers: Often earn higher pay with process or leadership responsibility
- Senior, Analytics, or Consulting Roles: May earn more due to business impact and expertise

Compensation reflects the broad value industrial engineers bring to organizations.

Is This Career Difficult?

Industrial engineering is intellectually demanding but less physically intensive than some engineering fields. The challenge lies in understanding complex systems, working with imperfect data, and influencing change across teams and departments.

Who Should Consider Becoming an Industrial Engineer?

This career may be a strong fit if you:

- Enjoy improving processes and systems
- Like working with data and analytics
- Are interested in both engineering and business
- Want flexibility to work across industries
- Prefer broad problem-solving over narrow technical focus

How to Prepare Early

- Take advanced math, statistics, and science courses
- Learn basic programming or data analysis tools
- Practice problem-solving and systems thinking
- Gain experience through internships or operations roles
- Explore accredited industrial engineering programs

Industrial engineers improve how organizations operate by designing smarter systems that save time, reduce waste, and deliver better outcomes for businesses and the people they serve.