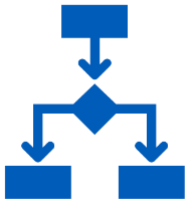


Industrial Engineering

CAREER PROFILE

What is industrial engineering?



Industrial engineering is different from most other branches of engineering. It focuses on the processes involving materials, machines, and people to make these processes more effective and efficient. Industrial engineers approach business problems from an engineering perspective. They spend most of their time observing and analyzing systems and processes with the goal of reducing waste and costs and

improving efficiency, productivity, performance, quality, and safety. They use data analysis, mathematical modeling, and simulations to analyze workflows and identify bottlenecks. Industrial engineers are after continuous improvement.

What do industrial engineers do?

Industrial engineers work across a huge array of industries from manufacturing to healthcare to logistics. Their specific duties vary by sector but here are some of the common roles that industrial engineers fulfil.

- Analysis and optimization of different processes and systems
- Planning and optimization of workforces including defining the skills needed, the optimal scheduling, and other productivity enhancements
- Physical design and layout of operational spaces like factories and warehouses
- Optimization of supply chains and logistics including inventory systems and transportation networks
- Improvement and optimization of product or service quality
- The design and implementation of **lean manufacturing**¹ processes.

How do you become an industrial engineer?

Industrial engineers use a lot of mathematics so **science and mathematics** are essential subjects to take and excel in at school. Most industrial engineers get an **industrial engineering bachelor's degree** although some enter the profession with other common engineering degrees like mechanical or electrical engineering.

Here are some general tips for choosing a university or college:

- Make sure the program is **fully accredited** locally and/or internationally.
- Investigate the backgrounds and expertise of the **faculty members** in the industrial engineering department.
- Assess the **facilities and resources** provided by the school.

¹ a production process based on an ideology of maximizing productivity while simultaneously minimizing waste within a manufacturing operation.

WHAT IS INDUSTRIAL ENGINEERING?



WHAT DO INDUSTRIAL ENGINEERS DO?



TYPICAL EMPLOYERS

Typical employers include large private companies and research organizations:

- GE Vernova
- Shipping companies like UPS and Amazon
- Manufactures
- Hospitals
- Sports teams
- Banks and other financial businesses



- Consider accredited engineering programs offered by **technical or community colleges** as well.

What are the careers prospects for an industrial engineer?

Industrial engineers can work in fields as diverse as manufacturing, healthcare, and sports. Wherever there is a process that can be optimized, an industrial engineer will be needed. The number of industrial engineering jobs is projected to **grow by about 10%** in the next decade. Average annual salaries are about **US\$95,000**.

Meet some industrial engineers

Watch the following videos to meet some inspiring industrial engineers.

VARIOUS

Hear from a number of different industrial engineers about the work they do and why they love doing it.



UNIVERSITY OF MIAMI

In this video, several faculty and students from the University of Miami share their perspectives on what it is like to work as an industrial engineer.



HANNAH AND DANIEL

Watch as Hannah and Daniel explain why they chose to study industrial engineering and what it is like to be an industrial engineering student.

