Mechanical Engineering

CAREER PROFILE[1]

What is mechanical engineering?

Mechanical engineering is one of the oldest and broadest engineering fields. It combines the principles of motion, energy, and forces with mathematics and materials to design, build, and maintain mechanical systems, including engines, robots, batteries, heating and cooling systems, and sensors.

There are many types of mechanical engineers, including:

- **Automotive engineers** improve the performance of cars, trucks, and their systems.
- **Heating and cooling systems engineers** create and maintain systems to regulate temperature and humidity in a variety of settings, such as inside museums, factories, and your own home.
- **Robotic engineers** plan, build, and maintain robots and the many sensors that fit into the design of a robot.

What do mechanical engineers do?

Mechanical engineers design power-producing machines, such as generators and engines, as well as power-using machines such as refrigerators. They also design other types of machines such as elevators, escalators, and conveyor systems. Mechanical engineers use computers in their work, which helps them create and analyze designs and test how machines works.

How do you become a mechanical engineer?

Courses in mathematics, life sciences, and physical sciences are essential for mechanical engineering. Courses in computer-aided design (CAD) and other engineering technologies may also be required to obtain a certification or degree.

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

- Make sure the program is **fully accredited** locally and/or internationally.
- Look for programs in mechanical engineering or related fields such as **materials science, robotics,** or **manufacturing engineering**.

WHAT IS MECHANICAL ENGINEERING?

TYPICAL EMPLOYERS

A variety of sectors employ mechanical engineers, including automotive and aerospace companies, government agencies, construction, and technology companies:

- Apple
- Boeing
- General Electric
- Microsoft
- NASA

[1] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Mechanical Engineers, at https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm (visited *May 27, 2022*)

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

What are the career prospects for a mechanical engineer?

Mechanical engineers can work in many industries and will have a range of employment options. As processes and products incorporate more complex automation machinery, mechanical engineers will be needed to design and maintain this equipment. Mechanical engineers, in most parts of the world, are **highly valued and very well paid**.

Meet some mechanical engineers

Watch the following videos to meet some inspiring mechanical engineers.

LORENZO AGUILAR-VALDEZ

Lorenzo is a robotics engineer. He design and builds automation systems for a wide range of clients. He sees the robots he creates as is children.

NIVAY ANANDARAJAH

Nivay applies his mechanical engineering skills to develop consumer products, some of which you may own. He uses computer aided design software to help him make prototypes.

GE AVIATION'S TEAM OF ENGINEERS

Meet part of the GE Aviation team from Cincinnati, Ohio . The team designs and builds jet engines for passenger and military planes.