



PLTW Engineering

**Career Explorations:
Mechanical Engineers**

April 17, 2020



12/ EDD

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Objective/Learning Target:

Students will explore Mechanical Engineering as a career.



What do Mechanical Engineers do?

Mechanical engineers research, design, develop, build, and test mechanical and thermal sensors and devices, including tools, engines, and machines.



Typical tasks / duties

Mechanical Engineers typically do the following:

- Analyze problems to see how mechanical and thermal devices might help solve a particular problem
- Design or redesign mechanical and thermal devices or subsystems, using analysis and computer-aided design
- Investigate equipment failures or difficulties to diagnose faulty operation and to recommend remedies
- Develop and test prototypes of devices they design
- Analyze the test results and change the design or system as needed
- Oversee the manufacturing process for the device



Work Environment

Mechanical engineers generally work in offices. They may occasionally visit worksites where a problem or piece of equipment needs their personal attention. In most settings, they work with other engineers, engineering technicians, and other professionals as part of a team.

Work Schedules

Most mechanical engineers work full time and some work more than 40 hours a week.



How to become a Mechanical Engineer

Education

Mechanical engineers typically need a bachelor's degree in mechanical engineering or mechanical engineering technology. Mechanical engineering programs usually include courses in mathematics and life and physical sciences, as well as engineering and design. Mechanical engineering technology programs focus less on theory and more on the practical application of engineering principles. They may emphasize internships and co-ops to prepare students for work in industry.

Licenses, Certifications, and Registrations

Licensure is not required for entry-level positions as a mechanical engineer. A Professional Engineering (PE) license, which allows for higher levels of leadership and independence, can be acquired later in one's career. Licensed engineers are called professional engineers (PEs). A PE can oversee the work of other engineers, sign off on projects, and provide services directly to the public. State licensure generally requires:

- A degree from an ABET-accredited engineering program
- A passing score on the Fundamentals of Engineering (FE) exam
- Relevant work experience typically at least 4 years
- A passing score on the Professional Engineering (PE) exam.



Important Qualities of a Mechanical Engineer

Important Qualities

Creativity. Mechanical engineers design and build complex pieces of equipment and machinery. A creative mind is essential for this kind of work.

Listening skills. Mechanical engineers often work on projects with others, such as architects and computer scientists. They must listen to and analyze different approaches made by other experts to complete the task at hand.

Math skills. Mechanical engineers use the principles of calculus, statistics, and other advanced subjects in math for analysis, design, and troubleshooting in their work.

Mechanical skills. Mechanical skills allow engineers to apply basic engineering concepts and mechanical processes to the design of new devices and systems.

Problem-solving skills. Mechanical engineers need good problem-solving skills to take scientific principles and discoveries and use them to design and build useful products.



Salary for Mechanical Engineers

The median annual wage for mechanical engineers was \$87,370 in May 2018. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$56,270, and the highest 10 percent earned more than \$136,550.



Helpful Links

[Career Profiles - Mechanical Engineer](#)

[Career Onestop Occupation Profile - Mechanical Engineer](#)