

Mechanical Engineering

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WHAT IS MECHANICAL ENGINEERING?

Mechanical engineering today plays a leading role in practically all industrially manufactured goods encountered in daily life. It is a classical engineering science and covers the development, design and production of machines and their components, including:

- Power machinery (steam engines, motors or turbines)
- Work machines (fans, pumps or condensers)
- Machine tools (lathes, milling or grinding machines)
- Conveyor systems (cranes or conveyor belts)
- Vehicles
- Aerospace vehicles
- Ships

WHERE DO I COME ACROSS MECHANICAL ENGINEERING IN EVERYDAY LIFE?

From the tiny movement in a wrist-watch to the gigantic brown coal excavator, everything that moves mechanically could be the result of work by mechanical engineers. In this wide-ranging area they plan and calculate for machines and production plant, develop new products or materials and test them, monitor production or work in quality assurance or sales, taking both economic and environmental aspects into consideration. Modern machines must be energy-saving, low-emission and quiet. Work areas are constantly extended by the development of new technologies such as microsystems technology, mechatronics and microelectronics. Mechanical engineers also find interesting work areas in

the food or pharmaceutical industries and in medical engineering.

IN WHICH AREAS OF MECHANICAL ENGINEERING DOES THE TU HAMBURG DO RESEARCH?

With 23 constituent institutes the School of Mechanical Engineering is the Hamburg University of Technology's largest. Research and development plays a large role at the TU Hamburg. It encompasses three competence areas:

- 1. Green Technology**, including Regenerative Energies, Systems – Storage – Networks, and Water and Environmental Engineering.
- 2. Life Science Technologies**, including Medical Engineering, Biomaterials, and Bio- and Chemical Process Engineering.
- 3. Aviation and Maritime Systems**, including Aviation Technology, Logistics and Mobility, and Maritime Systems and Structures.

WHAT WILL I LEARN IN MY STUDIES?

In your Bachelor's studies you will learn a great deal about design theory in addition to math, mechanics, fluid mechanics, thermodynamics, production technology, materials science, computer science, and control and regulation technology. In projects you can put your theoretical knowledge into practice and train drawing by hand and CAD (Computer Aided Design). In the last two semesters there are many interesting specializations that will prepare you for a master's in Product Development and

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Franziska Zieske

DUAL STUDY PROGRAM IN MECHANICAL ENGINEERING

I have always been interested in technology. From the idea in the mind's eye to the finished product—designed and built entirely by me and with something in my hand to show for it—that is what attracts me to mechanical engineering. And the dual study system enables me to live my dream. Without my employer's financial backing I would have had to finance my studies by doing student jobs or taking out loans.

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Production, Aircraft Systems Technology, Energy Systems, Theoretical Mechanical Engineering, Mechatronics, Biomechanics, and Materials in Engineering Sciences.

WHAT IS REQUIRED OF ME?

The study of mechanical engineering is very much characterized by physical and mathematical topics. As a student you will often need to motivate yourself to learn something. There is very little obligation to attend and the exam is not until the very end of the semester. If you are receptive and take part in campus life, such as in AGs, or working groups, you will soon find learning groups and get to know students in higher semesters.

FURTHER STUDIES?

With a B.Sc. in mechanical engineering you can go on to study for a master's in the following subjects (subject to your choice of specialization):

- [Energy Systems](#)
- [Aircraft Systems Engineering](#)
- [Materials Science:
Multiscale Materials](#)
- [Mechanical Engineering
and Management](#)
- [Mechatronics](#)
- [Medical Engineering](#)
- [Product Development,
Materials and Production](#)
- [Theoretical Mechanical
Engineering](#)
- [International Management
and Engineering](#)