

Every machine and every device came into being because of a creative process. An idea assumes a shape during construction and then becomes reality as a final product.

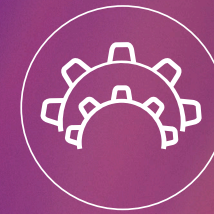
Mechanical Engineers make this way of development sustainable and innovative. Mechanical engineering is the umbrella term for different technical fields and combines various specialised fields like energy engineering, aviation and space travel. Apart from economic factors, the consideration of ecological effects and aspects of the circular economy, as well as the possibilities of digitalisation, play a major role in the planning of new machines and plants.

At Montanuniversität Leoben we offer you all of the branches of mechanical engineering: From energy-efficient vehicle propulsion systems to wind turbines, from automatised extraction systems to tunnel drilling machines: Discover the diverse range of our Mechanical Engineering programme!

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Join Montanuniversität Leoben and find more information on admission at the Study Support Center.



SUSTAINABLE PROCESSING

MECHANICAL ENGINEERING



BACHELOR'S & MASTER'S STUDIES

MECHANICAL ENGINEERING



CURRICULUM BACHELOR'S PROGRAMME

7 Semester (210 ECTS)

The first two semesters, in which scientific and engineering fundamentals are taught, are fairly similar for all degree programmes. Starting in the third semester, bachelor's students will be taught profound knowledge that enables them to enter the professional field. A mandatory internship in related industry, as well as the writing of a bachelor's thesis, constitute the requirements for academic degree Bachelor of Science (BSc).

Please note that the main language of instruction for this bachelor's programme is German. At the time of applying, you will have to submit proof of German language proficiency level A2 not older than 2 years, according to the Common European Framework of Reference for Language (CEFR).

| Start of Programme and Orientation Phase | Key Skills for Engineers |
|---|---|
| <ul style="list-style-type: none"> - Transferable Skills - Introduction to STEM | <ul style="list-style-type: none"> - Chemistry - Mathematics - Physics - Technical Mathematics |
| Digital Competences and Statistics | Introduction to Study Programme |
| <ul style="list-style-type: none"> - Introduction to Data Modeling - Algorithms and Programming - Statistics | <ul style="list-style-type: none"> - Bacc Fundamentals - Fundamentals of Geosciences - Courses from the Elective Catalogue |
| Mandatory Courses for the Third to Seventh Semester | |
| <ul style="list-style-type: none"> - Machine Elements - Machine Drawing - Engineering Mechanics - Design Methods - Fatigue Analysis - Introduction to the Construction Process - Construction Project Mechanical Engineering - Data Science for Engineers - Automation Technology - Digital Control of Dynamic Systems - Introduction to Machine Learning - Machining and Machine Tools - Metals Science | <ul style="list-style-type: none"> - Materials science and Testing of Polymers - Material testing of Metallic Materials - Metal Forming and -Machines - Casting Technology - Joining and Surface Technology - Engineering Thermodynamics - Electrical Engineering - Fluid Mechanics - Turbo and Piston Machines - The Finite Element Method – Fundamentals and Extensions - Cost Accounting and Investment Calculation - Elective Courses - Course Bachelor's Thesis |

You can find a list of detailed curricula from all the study programmes available at Montanuniversität Leoben at unilieben.ac.at.

BACHELOR'S PROGRAMME

In your study course you will combine technical, analytical and creative skills. For that, you will be taught in-depth knowledge in the fields of machine engineering, mechatronics, materials engineering and production engineering. You will develop solutions for mechanical engineering topics in cooperation with other research areas of Montanuniversität Leoben.

These topics range from the technical and economic planning of machines for the extraction and processing of raw materials to their use as high-tech products. The correct selection of materials, the testing of components and the simulation of various processes are also part of your study course.

MASTERS' PROGRAMMES

Taking into account the principle of sustainability you will extend your skills not only from a scientific standpoint, but also a practical one. You will learn how to realise engineering tasks in an innovative, function-oriented, cost-optimised, and environmentally sustainable way.

Depending on your interests, you can choose one of the following specialisations:

- Development and Construction:

You will learn about the exact dimensioning of components, their service life estimation and lightweight construction measures, using the latest computer-aided calculation methods.

- Production Engineering:

You will develop production processes for building components for many different sectors, ranging from the mass production in vehicle construction to the production of high-quality individual parts applying additive manufacturing.

- Mechatronics:

This specialisation focuses on digitalisation, machine learning, artificial intelligence, industrial robotics, cyber-physical systems, sensor technology and metrology.

- Heavy Machinery (Construction):

Here you will be faced with the heavy challenges: you will specialise in plants in the steel industry, in materials handling, in raw materials extraction and in oil and gas production.

FIELDS OF WORK

Your scope of professional activities is not limited to machines, but encompasses anything from singular mechanical, mechatronic and electrical devices to complex production plants. Apart from a sustainable design you will also work on the advancement and optimisation of existing machines and systems.

Since your set of skills includes team spirit, economical and ecological thinking as well as creativity, you are well equipped to work in a leading position in cutting-edge technology companies. You can work in the development, production and process technologies, research, quality management, sales and many more departments. Or you can form your own start-up company and realise your ideas and dreams.