

Efficient aircraft turbines, dirt-repellent sports shoes, foldable displays, or bio-compatible medical implants – all of these and many more innovative products can only be realised because of modern materials. Whether the durability of the product should be prolonged, or its energy efficiency improved: As a materials scientist your job is to use your knowledge about materials and their processing to find solutions for the challenges of the future.

It goes without saying that innovation and the development of materials go hand in hand. Intelligent new materials reduce traffic emissions, promote electromobility, and counteract climate change. It is not unusual for new materials to be inspired by nature: To make ceramic materials stronger and more damage-tolerant, researchers from Leoben developed new structures that mimic wood, bones, or sea shells.

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



SMART MATERIALS

MATERIALS SCIENCE AND MATERIALS TECHNOLOGY



BACHELOR'S & MASTER'S STUDIES

MATERIALS SCIENCE AND MATERIALS TECHNOLOGY



BACHELOR'S PROGRAMME

Before you fully immerse yourself into the fascinating world of materials, you will spend your first four semesters studying the basics. You will take a closer look at materials such as metals, ceramics, and plastics in the context of materials engineering or materials testing. In our Do-it-Labs you can apply your new knowledge and learn how to develop technical and materials-related solutions for new problems.

Depending on your interests, you can then go on to explore materials in-depth down to their atoms or throw yourself at plastics technology topics across the entire spectrum from raw materials to processing to the product.

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"> - Do-it Lab Materials 1/2/3 - Fundamentals of Materials - Material technology - Machine Elements - Machine Drawing - Engineering Mechanics - Numerical Methods 	<ul style="list-style-type: none"> - Cost Accounting and Investment Calculation - Electrical Engineering - Physical Principles of Measurement - Laboratory Course in Physics - Physical Chemistry - Course Bachelor's Thesis
Modules Polymer Science and Technology	Modules Metals, Ceramics, and Functional Materials
<ul style="list-style-type: none"> - Applied Engineering Technology - Polymer Chemistry - Processing of Polymers and Composites - Material Science and Physics of Polymers - Mechanics of Polymers and Composites 	<ul style="list-style-type: none"> - Fundamentals of Material Science - Structural and Functional Materials - Material Characterization and Testing - Materials Physics

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

MASTERS' PROGRAMMES

You can choose between the following three master's programmes:

In Materials Science you will learn how to develop light and durable materials for future generations. These also include materials for cars and airplanes. You will additionally explore solutions for pollution-free energy conversion and storage or for the expansion of 5G technology.

Depending on your interests, if you choose Polymer Engineering and Science, you can either develop polymeric materials for aviation or space travel, research innovative production technologies for medical engineering, design building components, or improve lightweight construction.

Have you already taken Spanish or French classes e.g. at the Zentrum für Sprachen, Bildung und Kultur (Center for Languages, Education and Culture)? Then the Advanced Materials Science and Engineering (AMASE) is the perfect choice for you! For this Joint Degree you will study Materials Science and Engineering Technology at Montanuniversität Leoben as well as at one of six European partner universities in the respective language of the country.

FIELDS OF WORK

As a graduate of Montanuniversität Leoben you will realise materials or products for future challenges. These can be light and durable materials for the automobile industry or aviation, for pollution-free energy transmission and energy storage, for flexible electronics and communications technologies (like 5G technology) or for 3D printed bioimplants. There is no limit to tapping into intellectual curiosity and pioneering spirit!