

The manufacturing of products as well as the energy supply and waste industry are directly linked to environmental impacts and climate change. Emissions, polluted waters, contaminants in our soil: Humans are intruding into the earth's ecosystem in many different ways. This results in a need for action in designing numerous industrial processes along the entire value creation cycle.

Environmental and climate protection technologists use their interdisciplinary engineering expertise to limit the impact of industrial processes and human actions on the environment, climate and ecosystems.

The targets are clear: The production of goods is to be made sustainable, and the emission of climate-damaging gases is to be reduced. Through recovery, recycling and eco-design, waste is reduced and, in some cases, returned to the production cycle.

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



SUSTAINABLE PROCESSING

ENVIRONMENTAL AND CLIMATE PROTECTION TECHNOLOGY



BACHELOR'S & MASTER'S STUDIES

ENVIRONMENTAL AND CLIMATE PROTECTION TECHNOLOGY



BACHELOR'S PROGRAMME

The academic fields of environmental protection and engineering are combined for this bachelor's programme. You learn how water, soil, and air environmental systems interact and how human actions impact these systems. With this knowledge, you will be able to design industrial processes in an ecological, economical and climate-neutral way. You close material cycles and significantly contribute to the economical use of resources with processing and recycling measures.

This study programme encompasses the development of new technologies as well as the adaption of existing technologies with a focus on environmental and climate-protection aspects. You will be taught the necessary knowledge from the academic fields of process engineering, waste management, environmental analysis and recycling management.

Among other topics, the bachelor's programme in Environmental and Climate Protection Technology at Montanuniversität Leoben covers the following subjects:

- Fundamentals in Natural Sciences
- Fundamentals in Engineering
- Mathematics and Statistics
- Basics of Environmental and Climate Protection Technology
- Business Administration and Environmental Law

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"> - Physical Chemistry - Material, Energy and Plant Balancing - Laboratory Course in Physics - Machine Elements - Machine Drawing - Electrical Engineering - Fluid Mechanics - Mechanical Process Technology - Heat Engineering - Engineering Thermodynamics - Introduction to Climate Protection and Sustainability - Sustainable Transformation of Industrial Processes - Methods of Chemical Analysis 	<ul style="list-style-type: none"> - Applied Analytical Chemistry - Environmental Systems Water/Soil/Air - Basic Principles of Waste Technology and Waste Management - Environment and Plant Law - Methods of Circular Economy and Waste Management - Thermal Waste Utilisation - Waste Water Treatment - Off-Gas Treatment - Laboratory Exercises for Process Technology - Cost Accounting and Investment - Calculation - Free Electives - Course Bachelor Thesis

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

MASTERS' PROGRAMMES

During the master's programme, you can further deepen the knowledge you gained in your bachelor's programme within four semesters. Additionally, you will choose one of the following specialisation areas:

- Climate Protection and Process Engineering

In industry, technical processes take place on various scales and handle a wide variety of materials. The engineering discipline of process engineering deals with the systematic division of processes into unit operations and provides uniform methods for calculating, designing, and layout of material conversion processes. To this end, climate protection technology combines modern technical solutions to reduce the impact of industrial production processes on the environment and climate in compliance with environmental law.

- Environmental and Waste Engineering

Waste is a valuable resource in the wrong place. As an environmental and waste engineer, you are dealing with the characterisation of waste material, its collection, processing, disposal and recycling options as secondary raw material. You are responsible for keeping material in the loop, thus supporting a sustainable circular economy. You will gain a lot of knowledge in diverse research fields: Ranging from finding new ways to recycle valuable resources to ensuring clean thermal recovery of non-recyclable residues, monitoring a sanitary landfill, and remediation of contaminated sites.

FIELDS OF WORK

As an Environmental and Climate Protection Technologist from Montanuniversität Leoben, you can design industrial facilities, monitor material flows (emissions, sewage etc.), give advice to companies and plan concrete measures for environmental and climate protection.

Graduates can work in a variety of different sectors, such as environmental technology, waste management, plant and mechanical engineering, chemistry, energy management, and consulting, as well as in government agencies, NGOs and scientific institutions.