ADVANCED RESOURCES

Fossil fuels significantly determine our current energy supply and can only be replaced over a long period of time. However, the current climate crisis necessitates quick alternatives. Since innovative technologies and methods are needed for an energetic and sustainable use of the underground, future geoenergy engineers face big challenges.

These technologies and methods include “clean” decarbonised fossil energies, geothermal energy as an alternative energy source and the large-scale storage of hydrogen from surplus renewable energy which, when all combined, will enable us to provide our society with sustainable energy 24/7.

Did you know that CO_2 can be stored in "empty" oil and gas reservoirs, preventing it from entering the atmosphere in the first place?

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

MONTAN UNIVERSITÄT LEOBEN

ADVANCED RESOURCES

GEOENERGY ENGINEERING

MONTAN UNIVERSITÄT LEOBEN

BACHELOR'S & MASTER'S STUDIES

GEOENERGY ENGINEERING

BACHELOR'S PROGRAMME

Geoenergy, Deep Drilling, Reservoir Simulations...are you with us so far? No? Don't worry! Before you dive into all of the relevant fields for Geoenergy Engineering, you will spend your first four semesters learning the basics.

After this, you will be taught about looking for and characterising geological reservoirs (Geosciences), the developing and simulating of reservoirs (Reservoir Engineering), developing them using deep drilling (Drilling Engineering), as well as extracting and storing energy (Production Engineering).

At the end of your bachelor's programme you will not only have gained the qualification for a subsequent master's programme, but you will have also acquired a solid foundation for entering the energy sector professionally.

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
- Transferable Skills - Introduction to STEM	- Chemistry - Mathematics - Physics - Technical Mathematics
Digital Competences and Statistics	Introduction to Study Programme
- Introduction to Data Modeling - Algorithms and Programming - Statistics	- Bacc Fundamentals - Fundamentals of Geosciences - Courses from the Elective Catalogue
Mandatory Courses for the Third to Seventh Semester	
- Cost Accounting and Investment Calculation - Accounting - Mining Law - Geoenergy Economics - Drilling Engineering and Well Design - Completion Engineering and Well Design - Reservoir Engineering Fundamentals - Fluid and Heat Transport in Porous Media	- Reservoir Thermodynamics - Geoenergy Production Principles - Sedimentology - Petroleum Geology - Hydrogeology and Geothermal Systems - Scientific Report Writing and Presentation Skills for Geoenergy Engineers - Bachelor Thesis Seminar
Elective Courses	
- Fundamentals of Geosciences - Electrical Engineering - Engineering Mechanics - Mechanical Technology	- Physical Chemistry - Numerical Methods - Fluid Mechanics - Geophysical Well Logging and Petrophysics - Do-it Lab Geoenergy Energineering

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

MASTERS' PROGRAMMES

For the subsequent master's programme you can choose a field of study based on your interests.

In the International Study Program in Petroleum Engineering you can gain further insights into the different disciplines such as Drilling Engineering, Geoenergy Production Engineering und Reservoir Engineering. The language of instruction is English.

The master's programme Geoenergy Engineering focuses on the energetic use of the underground in the broader sense. This also encompasses geothermal energy as a renewable energy source, as well as the underground as a storage medium for energy and CO_2. The language of instruction is English.

If you would rather face economical-technical challenges, then the master's programme Industrial Management and Business Administration is the right choice for you. This programme is also taught in English.

There are additional master's programmes during which you will study at Montanuniversität Leoben as well as at international universities and you will graduate with two degrees.

FIELDS OF WORK

As a graduate of Geoenergy Engineering you can find a job, e. g., at international energy industry companies, at authorities and in the research and development sector. You can also work at drilling and extraction sites, plan production sites and assess reservoir deposits. Pipeline and plant construction are included in your set of skills. In this way, you will combine the traditional and the alternative energy sectors, playing an important role in the ongoing energy transition.