Contents

Introduction ........................................... 5

Bachelor courses .................................... 10

Diplom courses ....................................... 26

Master courses ....................................... 40

Postgraduate courses .............................. 66

Complete list of courses ......................... 76

Imprint .................................................. 78
TU Clausthal offers a wide range of degree courses that differ in emphasis and depth. Technical application, however, is the main focus of study. Materials science, mechanical engineering, process engineering, chemical processes, physical technologies, energy and natural resources are effectively combined with mathematics, computer science and economics. It is very much our maxim to cross-pollenize natural science, engineering and economics. This distinguishes Clausthal as a center of education and research.

TU Clausthal is a renowned center of research, with excellent ties to industry. Successful business start-ups, offshoots of the university, have even achieved leadership on the global market within their particular areas of expertise. Located in our immediate vicinity, they continue to maintain close ties to university research and teaching.

Our excellent ties to industry and partner universities extend from Europe across the Middle East and on to Asia. Exchange programs with more than 100 universities on five continents, provide our students with ample opportunity to prove themselves internationally.

TU Clausthal stands for an education that is practice-oriented and responsive to industrial needs. Faculty and staff are familiar with industrial needs on the basis of their own experience. The interdisciplinary focus is reflected in the integrated seminars, research internships and consolidated interdisciplinary course units. In this way students are trained for interdisciplinary work. In addition, TU Clausthal’s industrial partners enable students to probe the job market. A close tie to industrial practice is also provided by the many professors and lecturer we contract from industry on a temporary basis.

Prof. Dr. Thomas Hanschke – Vice President for Academic Affairs –
Fantastic Study Conditions

Students at TU Clausthal enjoy a unique and international atmosphere. Surrounded by extensive nature, students and scientists work closely together, be it in learning or in research. The high level of student satisfaction and the quality of education at Clausthal is regularly reflected in comparative university rankings where TU Clausthal enjoys good competitive standing. The unusual location, up in the Harz Mountains, and the wide range of courses offered by our Sports Institute, challenges students to seek balance through sports. The Sports Institute offers training in over 60 different kinds of sports. Whether it be canoeing, aikido, aerobics, blade skating, mountain biking, walking, skiing, dancing, tennis or beach volleyball, there is sure to be something of interest to suit your personal taste.

With these exceptional study conditions, Clausthal rises above the broad mass of German universities. Thanks to the fact that the university is manageable in size, students and teaching staff have been able to develop a good personal rapport; these are the best conditions for successful study.

If you are interested in visiting TU Clausthal prior to taking up study, several opportunities are available to you. You may wish to participate in guided experiments in our secondary school-level laboratories, or conduct your own work here, or participate in university course work on weekends. The weekend courses cover theory and practice in a variety of fields, such as mechanical engineering, chemistry, environmental protection technology, etc. Also, in a “get-to-know” course designed to familiarize secondary-school girls with academic study, participants spend an entire week from a student’s perspective, attending lectures, becoming acquainted with practical sessions, internships, and so on.

Simply inform yourself about our study opportunities at:

www.studium.tu-clausthal.de
New Bachelor/Master Programs

Like many other universities in Germany, TU Clausthal is currently in a period of significant transformation. Prompted by the vision of a common European area of higher education, the European ministers of education have agreed to establish a system of standardized and interchangeable degree qualification (see Bologna Declaration).

The catalogue of measures to modernize European higher education in terms of international compatibility will especially include the following:

– Introduction of a “stepped” system of Bachelor/Master courses, based on the angloamerican model.
– Modularization of curricula to achieve greater transparency and efficiency of study
– Introduction of a common credit point system (ECTS-European Credit Transfer System) to permit comparison of academic grades and degrees and
– Accreditation as an external gauge of quality assurance

The new concept permits students to obtain a Bachelor degree after six semesters of basic course work. The graduate is now able to seek employment in industry. Otherwise, based on individual inclination, talent and conditions of the job market, graduates may choose to continue study through specialization. Pursuit of higher-level studies does not need to follow completion of the first degree (i.e. Bachelor degree) immediately and may be undertaken at a later time.

The “stepped” system permits faster adaption to the demands of the job market and allows students to plan their studies step by step, depending on personal and/or financial considerations. TU Clausthal will have converted all of its degree courses to the new system by winter semester 2007/2008. The option of transferring out of Diplom degree courses and into the Bachelor/Master programs is also being provided for.
Bachelor course, 6 semesters

Study focus:
- Common basic course Mathematics/Computer science:
  • Analysis
  • Linear algebra and discrete structures
  • Algorithms and data structures
  • Programming techniques
- Pure mathematics
- Numerical mathematics
- Stochastics
- Optimization

When specializing in Business Mathematics, Economics has to be chosen as an elective, otherwise one may also choose Engineering Technology.

In the final year, there are additional interdisciplinary courses to give students the opportunity to use and try out the knowledge they have acquired so far. This also serves as preparation for the Bachelor’s thesis.

Professional Profile and Job Market

Mathematics has in its 2000 year history developed into a fundamental scientific language which is indispensable for modern natural and engineering technology, for computer science, management and economics. As a result of the enormous increase of performance of modern computers there continuously arise new domains for modeling, simulation and optimization using mathematical methods. These areas are a particular focus of mathematics at TU Clausthal.

Mathematicians are generalists, capable of recognizing common basic patterns in different applications and of developing and implementing suitable mathematical models and problem solving procedures. In addition to knowledge of mathematical methods, a basic knowledge of computer science and of an application area (business administration or engineering) is also necessary.

This type of professional profile offers excellent career prospects in the following business sectors:
- Production planning, logistics
- Communication and transport
- Banks and insurance companies
- Quality assurance
- Statistics

Applied Mathematics (Bachelor)

Language of instruction: German
Duration: 6 semesters
Degree: Bachelor of Science (B.Sc.)

Academic Advisor
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EMail: angermann@math.tu-clausthal.de
www.studium.tu-clausthal.de/mathematik-informatik/
Bachelor course, 6 semesters

- Introduction to Business Administration
- Accounting I + II
- Investment and Finance
- Operations Research
- Business Management
- Human Resource Management and Leadership
- Production
- Operations Management I + II
- Decision Making and Organization I
- Marketing
- Market Research I + II
- Introduction to Law
- Commercial Law I + II
- Economics
- Economic Policy
- Microeconomics
- Macroeconomics

- Business Plan Strategy
- Business Administration seminars
- Statistics I + II
- Engineering Mathematics I + II

- Business Computer Science I
- Computer Programming
- Software Development
- Social Competence I + II
- Guided Scientific Research

Professional Profile and Job Market

A Bachelor degree is a professional qualification and an internationally accepted university degree. Either the holder can take up immediate employment or else continue studying for a Master degree. The Bachelor degree will equip graduates to analyze a variety of practical problems by means of scientific methodology and to provide concrete solutions. The emphasis of study is not on amassing facts, but rather in developing methodological skills, so that students are qualified for employment. The Bachelor of Science in Business Administration at TU Clausthal qualifies holders for leading positions on the business side of operations in various industries. Such positions will be found in the industrial sector, in banking, trading and consulting firms, insurance companies, and alternatively also in the public sector. The occupational fields in which graduates can be placed are diverse, and will include managerial positions in the areas of: purchasing, production, logistics, controlling, accounting, personnel, administration, planning and sales.

Language of instruction: German
Duration: 6 semesters
Degree: Bachelor of Science (B.Sc.)

Academic Advisor
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Chemistry (Bachelor)

Bachelor course, 6 semesters

Mathematical and physical fundamentals
– Mathematics
– Physics
– Inorganic and analytical chemistry
– Organic chemistry
– Physical chemistry

In-depth study in the four core areas of chemistry
– Inorganic and analytical chemistry
– Organic chemistry
– Physical chemistry
– Technical chemistry

Interdisciplinary courses and additional chemistry subjects
– Fundamentals of biochemistry
– Macromolecular chemistry
– Toxicology and legal studies

Bachelor thesis
– 3 months

Studying chemistry involves practical experience

– Excursion to a chemical company
– Computer science
– Business administration
– Soft skills
– English

Professional Profile and Job Market

Chemists have excellent career prospects in many fields, not only in the chemical industry, but also in marketing, consulting, administration and many other areas. Thus a modern university course in chemistry has to fulfill a wide range of requirements. The 6-semester Bachelor course introduces students to the basic principles of chemistry and teaches methods for solving chemical and scientific questions. In addition to comprehending modern chemical theory, it is important to acquire practical skills in preparatory and analytical chemistry and to gain an overview of important technical processes. In their Bachelor thesis students will conduct research work in one specific field to deepen their knowledge. The Bachelor of Science in Chemistry allows students, on the one hand, to enter their professional careers early or, on the other hand, qualifies them to begin a Master course in Chemistry (see page 44) or to continue with a different course of study. For those with a special interest in scientific research, studying to obtain a doctorate will follow.

Language of instruction: German
Duration: 6 semesters
Degree: Bachelor of Science (B.Sc.)

Academic Advisor
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E-mail: gudrun.schmidt@itc.tu-clausthal.de
www.studium.tu-clausthal.de/natur-und-materialwissenschaft/
Bachelor course, 6 semesters

The new Bachelor course in Computer Science at TU Clausthal is organized in the main by the Institutes of Computer Science and Mathematics and offers students the choice between the following four specialization areas:

– Parallel and network computing
– Human-centered computing
– Computer engineering
– Business information technology

Curriculum

In the first year all students regardless of their specializations take part in a common basic study program of mathematics/computer science with the following focuses:

– Algorithms and data structures (computer science I)
– Programming techniques (computer science II)
– Analysis
– Linear algebra and discrete structures
– Basic knowledge in specialized area, if necessary

In the second and third year, depending on the specializations, a combination of the following subjects will be covered:

– Computational intelligence
– Computer graphics
– Software technology
– Hardware systems
– Robotics
– Data bases
– Business information technology
– Advanced foundations of mathematics

In addition, there is a wide range of electives in management and economics as well as in engineering. Furthermore, students have to take part in a compulsory project in each of the specialization areas in which they apply their acquired knowledge. Other courses in the area of soft skills round off this course of study. Students are required to write a Bachelor’s thesis in the sixth semester.

Language of instruction: German
Duration: 6 semesters
Degree: Bachelor of Science (B.Sc.)

Academic Advisor
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The new Bachelor course Energy and Raw Materials at TU Clausthal is essentially maintained by three institutes: the Institute of Mining, the Institute of Geotechnics and Mine-Surveying, and the Institute of Petroleum Engineering.

During the second year, further modules in basic principles will be completed for the following subjects: electrical engineering, engineering mechanics, as well as business administration and law. In tandem with these studies, students will select modules from one of the possible specializations. During the third year, specialized knowledge will be extended and deepened, techniques of presentation learned, and the Bachelor thesis completed.

TU Clausthal has an outstanding tradition in the fields of raw materials, energy and materials science. Through this special expertise, we are able to offer excellent provisions for this innovative degree course. Because the subject matter is topical and up-to-date, and thanks also to the interdisciplinary nature of the degree course, students will have access to and use the findings of cutting-edge scientific and technical research as they relate to occupational practice.
Bachelor course, 6 semesters

The new Bachelor course Geoenvironmental Engineering at TU Clausthal is essentially carried by the Institute of Mineral Processing and Waste Disposal Technology, the Institute of Geotechnics and Mine Surveying, the Institute of Management and Economics. This interdisciplinary degree course integrates the areas of environmental protection technology, applied geology and geotechnics.

The language of instruction is German. The course is subdivided into modules containing fundamental principles of individual disciplines and modules that offer in-depth specialized knowledge. The course is offered in cooperation with Sichuan University, China.

The language of instruction is German. The course is divided into modules containing fundamental principles of individual disciplines and modules that offer in-depth specialized knowledge. The course is offered in cooperation with Sichuan University, China.

Curriculum

During the first year, instructions will be offered in foundation of mathematics and natural sciences. Instruction will be based on a combination of lectures and lab courses.

During the second year, further introductory modules follow in geology, civil and geomechanical engineering, business administration and law.

During the third year, specialized knowledge will be extended and deepened through instruction of geotechnical modules and contents drawn from environmental protection technology. In addition, students will learn presentation techniques and complete their Bachelor thesis.

More detailed information about objectives of study, modules, content and sequential structure, credit hours, grades and the like, may be obtained from your academic advisor, as well as at the website specified there.

Language of instruction: German
Duration: 6 semesters
Degree: Bachelor of Science (B.Sc.)

Academic Advisor
PD Dr.-Ing. Michael Z. Hou
Phone: +49 (0)5323.722.347
Email: hou@tu-clausthal.de
www.studium.tu-clausthal.de/energie-und-rohstoffe/
Bachelor course, 6 semesters

General Topics
- Mathematics
- Experimental Physics
- Inorganic Chemistry
- Materials Science
- Materials Engineering
- Engineering Mechanics
- Physical Chemistry
- Materials Analysis
- Law
- Business Administration
- Organic Chemistry

Specialization in one area (after at least 2 semesters)

Materials Science
- Quantum and Atomic Physics
- Analysis
- Molecular and Solid-State Physics
- Electrochemistry

Materials Engineering
- Construction
- Electrical Engineering
- Mechanical Engineering
- Metrology

Industrial Internship

The course requires completion of a practical of 12 weeks. It is recommended that a part of this requirement be completed prior to enrolment.

Professional Profile and Job Market

Materials science and materials engineering are trail-blazing fields. They have gained key importance as a result of innovation and success in two areas: new product development and production engineering techniques. Materials have shaped human livelihood from the beginning and will remain vital to further human development. Without steel and concrete, there would be no high-rises and no streets, without copper there would be neither electrical power nor telecommunications.

The considerable variety of materials science research serves us in all areas of life.

For example, a car will require sophisticated materials and compounds, ranging from metals to plastics and even extend to the most distinctly diverse and singular materials used for such very specific purposes as in electronics, in sensors, or in producing so-called “smart” windshields.

Here lies the task of the materials scientist and the materials engineer. Your studies will give you a broad knowledge of natural science and technology. This will equip you for work in all technical areas, whether it is in improving available materials or else in developing new materials.

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Professional Profile and Job Market

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Here lies the task of the materials scientist and the materials engineer. Your studies will give you a broad knowledge of natural science and technology. This will equip you for work in all technical areas, whether it is in improving available materials or else in developing new materials.

Materials Science and Engineering (Bachelor)
Important technical breakthroughs often have their origins in discoveries and developments in physics. Our era, often referred to as the silicon age, is characterized by information processing using highly integrated electronic circuits based on developments in solid state physics. Today we find ourselves at the beginning of an age that is fundamentally influenced by optical technologies such as lasers, optical signal processing and data communication as well as nanotechnology. Physicists see themselves as the pioneers of technical developments. They extend the limits of our understanding of nature, develop new processes and models and thus pave the way for new technologies and products. Physicists have excellent career prospects. The increasing demand in industry for physicists can hardly be met anymore. Approximately half of all physicists are employed in industry and business, mostly in research and development. Approximately one third works in the public sector, for example universities and research institutes. The analytical ability of physicists is also highly valued in other organizations such as business consultants, software companies and banks.

The new degree courses Physics (BSc) and Physical Technologies (MSc) follow the requirements of a modern interdisciplinary and research oriented education for physicists.

The Bachelor course in Physics offers a superior, inter-disciplinary and comprehensive foundation as well as an initial specialization in current technologically important fields of physics.

The Master course in Physical Technologies builds on this and allows an in-depth education in one of three areas of specialization: Photonics, Surface Interfaces and Nanostructures and Computational Physics which are also the main focuses of physical research at TU Clausthal. Students are offered excellent facilities for their studies and individual guidance by their professors. At an early stage they take part in physical research on current topics during research internships.

**Language**

of instruction: German

**Duration:** 6 semesters

**Degree:** Bachelor of Science (B.Sc.)

**Academic Advisors**

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Dr. Jürgen Noffke
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EMail: noffke@pt.tu-clausthal.de

www.studium.tu-clausthal.de/natur-und-materiawissenschaft/
Basic Study, 4 semesters

– Mathematics
– Experimental Physics
– Electrical Engineering
– Materials Science
– Heat transfer
– Machine Elements
– Programming and Data Processing
– General Inorganic and Organic and Physical Chemistry
– Lab Courses in Chemistry
– Thermodynamic Engineering

Main Study, 5 semesters

The following courses and their content are mandatory:

– Chemical Reaction Engineering
– Impetus, Heat and Substance Transfer
– Thermal Process Engineering
– Mechanical Process Engineering
– Process Plant Engineering
– Metrology and Control Engineering

These courses are supplemented by required electives in the following areas:

– Chemical, Thermal and Mechanical Process Engineering, Energy Process Engineering and Process Plant
– Chemical Process Technology
– Applied Mathematics and Data Processing

as well as further free electives from the university course catalogue, such as, for example, law, business administration, language and technology evaluation.

Internship

The obligatory industrial internship may be completed prior to taking up degree studies. At the latest, evidence of completion of an internship must be provided before beginning Diplom thesis work. As a rule, internships are completed in the lecture-free time period of Main Study, as a discipline-oriented internship that draws on the course content already covered.

Language of instruction: German
Duration: 9 semesters
Degree: Diplom-Ingenieurin/Ingenieur

A joint Diplom degree with the universities of Krakow and Gleiwitz is possible.

Academic Advisor

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www.studium.tu-clausthal.de/maschinenbau-und-verfahrenstechnik/
Environmental Protection Technology (Diplom)

Basic Study, 4 semesters
– Mathematics
– Experimental Physics
– Chemistry
– Materials Science
– Machine Elements
– Thermodynamics and Heat Transfer
– Legal and Economic Sciences
– Safety Engineering and Health Protection
– Technology Evaluation
– Technical Drawing (CAD)
– Data Processing and Programming
– Corporate Communication

Main Study, 5 semesters
Concentration in an area of specialization:

Disposal technology
– Ecological chemistry and Environmental Analysis
– Environmental Biology and Pollutant Dispersion
– Thermal Treatment and Emissions Treatment
– Waste Water/Sewage Treatment
– Soils and Residual Materials Treatment
– Recycling
– Toxicology and Legal Studies relating to the Ordinance on Hazardous Substances
– Waste Disposal Mining – Recultivation
– Investment and Finance

Environmental process engineering
– Ecological chemistry and Environmental Analysis
– Environmental Biology and Pollutant Dispersion
– Thermal Treatment and Emissions Treatment
– Soils and Residual Materials Treatment
– Recycling
– Toxicology and Legal Studies relating to the Ordinance on Hazardous Substances
– Waste Water/Sewage Treatment
– Mechanical, Chemical and Thermal Processes in Process Engineering
– Technology Assessment

These will be complemented by further subjects (two areas of concentration) that may be selected from the university course catalogue.

Industrial internship
Completion of an occupationally oriented internship of 26 weeks is required. It is recommended that a part of this requirement be completed prior to enrolment.

Language of instruction: German
Duration: 9 semesters
Degree: Diplom-Ingenieurin/Ingenieur
A joint Diplom degree with the universities of Krakow and Gleiwitz is possible.

Academic Advisor
Prof. Dr.-Ing. Eberhard Gock
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Email: gock@aufbereitung.tu-clausthal.de
www.studium.tu-clausthal.de/energie-und-rohstoffe/
Basic Study, 4 semesters

– Introduction to Business Administration
– Corporate Leadership
– Production
– Marketing
– Business Accounting
– Investment and Finance
– Corporate Research
– Operations Management I
– Microeconomics
– Macroeconomics
– Economics
– Introduction to Law
– Environmental Law
– Engineering Mechanics
– Fluid Mechanics
– Thermodynamics
– Heat Transfer
– Mechanics
– Engineering Mathematics
– Statistics

Main Study, 5 semesters

– Business Computer Science I
– Principles of Programming
– Software Development
– Materials Science
– Technical Drawing/CAD

Specialization in one of the following areas:

**Raw materials and Energy**
– Human Resources Management and Leadership
– General and Inorganic Chemistry
– Market Research
– Principles of Electrical Engineering
– Decision Making and Organization
– Principles of Process Engineering
– Economic Policy
– Materials Flow and Logistics
– Manufacturing Engineering
– Production Engineering

These will be complemented by further required electives that may be selected from the university course catalogue.

**Production and processes**

– Human Resources Management and Leadership
– General and Inorganic Chemistry
– Market Research
– Principles of Electrical Engineering
– Decision Making and Organization
– Principles of Process Engineering
– Economic Policy
– Materials Flow and Logistics
– Manufacturing Engineering
– Production Engineering

**Industrial internship**

Completion of an occupationally oriented internship of 26 weeks is required. It is recommended that a part of this requirement be completed prior to enrolment.

Language of instruction: German
Duration: 9 semesters
Degree: Diplom-Wirtschaftsingenieur/ Wirtschaftsingenieur

Academic Advisors

Prof. Dr. Mathias Erlei
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Email: mathias.erlei@tu-clausthal.de

www.studium.tu-clausthal.de/ wirtschaftswissenschaften/
Basic Study, 4 semesters

– Mathematics
– Computer Science (practice in developing programs)
– Electrical Engineering, Electronics
– Signal Transmission
– Experimental Physics
– Business Administration
– Engineering Concentration Field (i.e. Constructional Elements, Manufacturing Engineering, Engineering Mechanics, or Thermo-dynamic Engineering)
– Various Practical Exercises

Main Study, 5 semesters

– Measurement and Control Engineering
– Control Systems and Information Systems, Automation Technology
– Digital Control Engineering
– Electromagnetic Field Theory
– Information Systems Engineering/Mobile Communication
– Software Engineering
– Man-Machine Communication
– Databases, Computer Networks, Computer Architecture
– Project Management
– Computer-Integrated Manufacturing (CIM)

Based on personal preference or ability and after consulting with departmental professors and mentors, two fields of concentration may be selected from the courses offered by both of the participating faculties. One concentration, however, should be drawn from a computer science core area, the other from an area of applied engineering.

Industrial internship

Completion of an occupation-ally oriented internship of 26 weeks is required. It is recommended that a part of this requirement be completed prior to enrolment.
Basic Study, 4 semesters
– Mathematics
– Experimental Physics
– Chemistry
– Thermodynamics
– Electrical Engineering
– Manufacturing Engineering
– Materials Science and Structural Component Testing
– Constructional Elements
– Technical Drawing (CAD)
– Data Processing and Programming
– Business Administration
– Corporate Communication

Main Study, 5 semesters
– Specialization in one of the following areas:
  Construction, Manufacturing and Operations
    – Kymatology and Machine Dynamics
    – Metrology
    – Control Engineering
    – Production Engineering
    – Material Flow and Logistics
    – Materials Engineering
    – Design theory
    – Energy Conversion Machines
    – Computer Integrated Product Development
    – Fatigue Analysis
    – Electrical Power Engineering
    – Tribology
    – Energy Systems
    – Process Engineering
  Electronics and System Automation
    – Measurement Engineering
    – Control Engineering
    – Electronics
    – Electrical Power Engineering
    – Control and Information Systems
    – Software Engineering for Technical Systems
    – Signal Transmission
    – Electrical Power Distribution
    – Production Engineering
    – Fatigue Analysis
    – Process Engineering
    – Kymatology and Machine Dynamics
    – Process Automation
    – Special Methods of Engineering Mathematics

Intensive Study Program
While having the same course content, an altered study program (i.e., lectures take place in lecture-free periods), makes it possible to complete regular studies, including study abroad, in only eight semesters. A number of scholarships that are awarded on the basis of merit are available.

Academic Advisors
Intensive Study Program
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Basic Study
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Language of instruction: German
Duration: 9 semesters
Degree: Diplom-Ingenieurin/Ingenieur

A joint Diplom degree with either AGH Cracow or the universities of Valencia, Oviedo and Ostrava is possible.

Academic Advisors
Main Study
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www.studium.tu-clausthal.de/maschinenbau-und-verfahrenstechnik/
### Basic Study, 4 semesters
- Mathematics
- Experimental Physics
- Chemistry
- Materials Science
- Mechanical Engineering
- Electrical Engineering
- Field Theory
- Applied Mechanics
- Fluid Mechanics
- Thermodynamics
- Heat Transfer
- Data Processing for Engineers
- Introduction to Programming
- Technical Drawing
- Law
- Corporate Communication

### Main Study, 5 semesters
- Energy Conversion Machines
- Electrical Power Engineering and Energy Electronics
- Measurement and Control Engineering
- Power Systems and Systems Theory
- Dynamic Systems in Nature, Technology and Society
- Thermal Processes in Power Plants
- High-Temperature Technology
- Combustion and Fuel Technology
- Environmental Protection with Energy Conversion Machines
- Company Energy Management
- Renewable Energy Sources
- Technology Evaluation
- Energy Legislation
- Investment and Finance, as well as Business Administration

A major may be selected from a departmental course catalogue. One of the following areas is recommended:
- Renewable Power Technology
- Energy Recycling
- Energy Production
- Energy Storage and Transportation
- Rational Energy Use

### Industrial Internship
Completion of an occupationally oriented internship of 26 weeks is required. It is recommended that a part of this requirement be completed prior to enrolment.

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**Language of instruction:** German  
**Duration:** 9 semesters  
**Degree:** Diplom-Ingenieurin/Ingenieur

### Academic Advisors
- **Prof. Dr.-Ing. Hans Peter Beck**  
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  Email: est@tu-clausthal.de

[www.studium.tu-clausthal.de/energie-und-rohstoffe/](http://www.studium.tu-clausthal.de/energie-und-rohstoffe/)
Basic Study, 4 semesters
– Mathematics
– Experimental Physics
– Chemistry
– Materials Science
– Electrical Engineering
– Machine Elements
– Apparatus Elements
– Thermodynamics and Heat Transfer
– Technical Drawing (CAD)
– Business Administration
– Introduction to Law
– Data Processing and Programming
– Corporate Communication

Main Study, 5 semesters
The following courses and their content are mandatory:
– Chemical Reaction Engineering
– Fluid Dynamics
– Thermal Process Engineering
– Mechanical Process Engineering
– Energy Systems Engineering
– Process Plant Engineering
– Metrology and Control Engineering
– Materials Engineering

They are to be supplemented by additional subjects (technical areas of concentration) and two non-technical subjects, which may be selected from the university course catalogue.

Industrial internship
Completion of an occupationally oriented internship of 26 weeks is required. It is recommended that a part of this requirement be completed prior to enrolment.

Language of instruction: German
Duration: 9 semesters
Degree: Diplom-Ingenieurin/Ingenieur

A joint Diplom degree with the universities of Krakow and Gleiwitz is possible.

Academic Advisor
Prof. Dr.-Ing. Roman Weber
Phone: +49 (0)3323 722 033
Email: weber@ievb.tu-clausthal.de

www.studium.tu-clausthal.de/maschinenbau-und-verfahrenstechnik/
The range of lectures for the Master program is tailored to the Bachelor course to facilitate a smooth transition to the Master course in Applied Mathematics respectively Operations Research for students who have successfully completed the Bachelor course.

Beyond the aims of the Bachelor course, they should be able to develop further mathematical models and methods themselves and use them in demanding applications.

Mathematics has in its 2000 year history developed into a fundamental scientific language which is indispensable for modern natural and engineering technology, for computer science, management and economics. As a result of the enormous increase of performance of modern computers there are continuously new domains for modeling, simulation and optimization using mathematical methods. These areas are a particular focus of mathematics at TU Clausthal.

Mathematicians are generalists, capable of recognizing common basic patterns in different applications and of developing and implementing suitable mathematical models and problem solving procedures. In addition to knowledge of mathematical methods, a basic knowledge of computer science and of an application area (business administration or engineering) is also necessary.

This type of professional profile offers excellent career prospects in the following business sectors:

- Production planning, logistics
- Communication and transport
- Banks and insurance companies
- Quality assurance
- Statistics
Business Information Technology (Master)

Master course, 4 semesters

Business Information Technology is a combination of information and communication systems (ICS) in business and public administration. ICS consists of human and machine components (subsystem). The concept “information” makes it clear that the most important aim of these systems is to supply operators, whether humans or machines, with information and to manage business processes (as well as business to business processes) with the help of information. The word “communication” indicates that coordination takes place between the operators. Thus, conception, development, introduction, utilization and maintenance of application systems in companies are the focal points of Business Information Technology [1]. The Master course at TU Clausthal utilizes the close cooperation and synergetic competences in the area of computer science, economic sciences, mathematics and mechanical engineering and offers students an attractive range of in-depth classes in these areas. Characteristic for this degree course is its analytic technical approach. This stems from the fact that in Clausthal – in contrast to most other universities – the Institute of Computer Science is primarily responsible for Business Information Technology classes. The main focus of the Master course in Business Information Technology is company modelling, interoperable business application systems as well as architectures, methods and application of distributed mobile and enterprise computing.

Qualification for acceptance to the Master program is the successful completion of a Bachelor course in Computer Science (with a focus in the area of Business Information Technology).


Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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EMail: mueller@in.tu-clausthal.de
www.studium.tu-clausthal.de/mathematik-informatik/
Admission Requirements
Successful completion of the Bachelor course in „Chemistry“ or another closely related course.

Master course, 4 semesters
Specialization modules
– Solid state and coordination chemistry
– Stereochemistry
– Colloids, interphase & biophysical chemistry
– Chemical reaction techniques

Area of specialization
Applied Chemistry
Two areas to be chosen:
– Special inorganic chemistry
– Instrumental analytical chemistry

Polymer Chemistry
– Macromolecular chemistry
– Physical chemistry of polymers

Interdisciplinary courses
– Computational chemistry
– Excursion to a chemical company

Research internships
– two research internships
– one 3-month project

Master thesis
– 6 months

Professional Profile and Job Market
The chemical industry has a key function and plays a major role in nearly all industrial sectors and areas of life. University courses are necessary with a clear focus on the various areas, from raw materials to fine chemicals and polymers, the life science sector and lately also nanomaterials. The Master course in Chemistry at TU Clausthal is oriented towards material sciences and process technology rather than pure research in accordance with the profile of a technical university.

The Master course offers many different opportunities for individual specialization and early participation in research based on a sound knowledge of chemistry taught during the Bachelor course.

The Master course has compulsory modules in the following subjects:
– Inorganic & Analytical Chemistry (AAC),
– Organic Chemistry (OC),
– Physical Chemistry (PC) and
– Technical Chemistry (TC).

Subsequently, students can choose between the two areas of specialization Applied Chemistry and Polymer Chemistry. In the area of specialization Applied Chemistry it is possible to combine two groups of elective subjects, at least one of which must be from the classic subject areas: AAC, OC, PC or TC.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)
Area of specialization: Applied Chemistry or Polymer Chemistry

Academic Advisor
Prof. Dr. Gudrun Schmidt
Phone: +49 (0)5323.722 035
Email: gudrun.schmidt@tu-clausthal.de
www.studium.tu-clausthal.de/natur-und-materialwissenschaft/
Master course, 4 semesters

Following the completion of the Bachelor course, TU Clausthal offers several Master courses which build on the knowledge acquired so far. In addition to the Master courses of Business Information Technology and Operations Research, the Master course of Computer Science is of particular interest to the BSc graduates of Computer Science.

In the Master course, the students have a choice between various advanced classes from the above-mentioned areas, which depending on the combination lead to different specializations.

Professional Profile and Job Market

Computer science is a fascinating subject, which opens up and makes use of the world of information and symbolized knowledge. Computer science creates new approaches, new perspectives, new models and numerous automated aids and services. Computer science facilitates multimedia communication immediately, anytime and anywhere. Computer science monitors, controls and networks processes [2]. From a technical and methodological point of view, computer science mainly deals with the analysis, the design and realization of information processing systems as well as their adjustment to the respective operating conditions. This includes software and its creation but also applications, organizational structures and hardware. Very often a general solution to a problem has to be adapted to the special requirements of the user.

Both sound knowledge of computer science and knowledge of the special area of application are necessary in order to be able to work together with users and experts in other fields. The isolated work of a developer of information systems has become less important as work involves integration into real processes. In addition to the optimal use of information systems, the organization of joint work within a group is equally important. The professional profile of the computer scientist is thus determined by the role of the computer in the economy and society.

There are numerous fields of activity for graduates of computer science. Working in research and development at a public or private research institution is just as likely as working as a project manager of software development. Computer scientists take on the responsibility for the development, purchase and adaptation of hardware and software for solving specific problems. They analyze, design and develop information systems for trade and industry. It is also possible to work as an IT consultant to companies, as well as to conduct training courses for users. There is an increasing demand for graduates of computer science in the area of data security and data protection.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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www.studium.tu-clausthal.de/mathematik-informatik/

Admission Requirements
Completion of a Bachelor in Energy and Raw Materials or equivalent degree course.

Master course, 4 semesters
This degree course is directed to those who seek a further qualification in the field of energy and raw materials supply engineering. Through the Master course, graduates with a Bachelor in the field of raw materials and energy or an equivalent university degree, can gain further qualification in the field of energy and raw materials supply engineering. In this Master course, students are instructed in modular course units. The degree course is composed of general modules, with their corresponding lectures, and selective modules that relate to the subject matter of the chosen area of specialization.

The three areas of specialization define the content of the selective modules. In the area Raw Materials Supply Engineering, the choice students make between two areas of concentration additionally define modular content.

Energy Supply Engineering
– Energy Conversion Technology

Storage and Distribution Engineering
– Principles of Storage and Distribution
– Storage Engineering
– Distribution Engineering

Raw Materials Supply Engineering
– Principles of Energy Supply
– Energy Supply Engineering
– Production and Supply of General Mineral Resources
– Use and Monitoring of Underground Space
– Geomatics in Raw Materials Supply Engineering

Raw Material Supply Engineering – building/construction raw materials
– Building/Construction Raw Materials Supply
– Building/Construction Raw Materials
– Production and Recycling
– Geomatics in Raw Materials Supply Engineering

Language
of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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www.studium.tu-clausthal.de/energie-und-rohstoffe/
Admission Requirements
Successful completion of the bachelor course Materials Science and Engineering or any closely related degree course.

Master course, 4 semesters
– Heterogeneous Equilibria
– Modeling and Simulation
– Fatigue Analysis
– Materials Testing
– Project Management and Personnel Management
– Interdisciplinary Project Work

Specialization in the following fields of concentration:
– Metallurgical Process Engineering
– Foundry Technology
– Deformation Technology
– Materials Science of Metals
– Physical Metallurgy
– Plastics Processing
– Polymer Materials
– Glass, Ceramics, Bonding Agents

The degree course requires the completion of elective modules.

Lab courses
This degree requires lab courses. For more detailed information, please contact your academic advisors.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisors
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Dr.-Ing. Rolf Galun
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www.studium.tu-clausthal.de/natur-und-materialwissenschaft/
Admission Requirements
Successful completion of the Bachelor course Materials Science and Engineering or any closely related degree course.

Master course, 4 semesters
– Solid-State Physics and Chemistry
– Quantum Mechanics
– Thermodynamics of Multiphase Systems
– Kinetics of Solid-State Reactions
– Project Management and Human Resource Management

Specialization in the following fields of in-depth study:
– Computational Materials Science
– Optical Materials and Photonics
– Polymers
– Nanostructured Materials

Completion of elective modules is required.

Lab courses
This degree requires lab courses. For more detailed information, please contact your academic advisor.

Materials Science (Master)

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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www.studium.tu-clausthal.de/natur-und-materialwissenschaft/
Operations Research (Master)

Master course, 4 semesters

Operations Research deals in general with models and methods to support decisions concerning complex problems, particularly in economics and business management and is characterized by the interaction between mathematics, economic and computer sciences. Consequently, the curriculum in the first year has its focus in the following areas:

– Mathematics (in particular stochastics and optimization)
– Business administration (e.g. operations management and project planning)
– Computer science (e.g. data bases and software engineering)

In the second year, there will be additional courses which focus on practical applications. Students will learn to use the modeling and problem solving processes and develop their own solutions as preparation for their thesis.

The successful completion of a bachelor course in Applied Mathematics (with focus on Mathematical Economics) or in Computer Science (with focus on Business Information Technology) qualifies students for acceptance to this master course, which is tailored to these two BSc courses. Graduates of other degree courses in mathematics or computer science must prove that they have an equivalent qualification.

Professional Profile and Job Market

The increasing complexity of many economic and technical problems has the result that decisions can no longer only be made intuitively or be based on experience without incurring financial risks, e.g. decisions concerning investments, choice of product, location, organization of production, type of machinery or order processing.

The problem has to be analyzed in order to support a rational decision making process. The facts relevant to the decision have to be modeled mostly mathematically, an algorithm has to be found to solve the problem and implemented using a computer. The solutions thus found have to be investigated for their suitability and adapted, if necessary. The aim of the Master degree in Operations Research is to provide the qualifications for this process. The job market for graduates with this profile offers opportunities in many different sectors. The increasing competition as well as higher requirements, for instance for environmental protection, necessitates an economical use of resources. The scope possible for decisions has to be recognized and utilized. This applies to practically all branches and sectors e.g. production plants, in the automotive industry as well as telecommunication and service industry in the areas of (air) transportation and health.

Experts with a sound knowledge of Operations Research are always in demand. Large companies, therefore, often have their own departments for OR, others use business consultants with staff qualified in this field.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
Prof. Dr. Michael Kolonko
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Email: kolonko@math.tu-clausthal.de
www.studium.tu-clausthal.de/mathematik-informatik/
Admission Requirements

Admission depends on having completed a bachelor degree in the field of petroleum engineering from an accredited university, or an equivalent qualification and a solid knowledge of English, which is the language of instruction. If qualifications are not considered equivalent, admission may still be granted on conditional terms. In order to support candidates who lack the required basic knowledge in specific disciplines, a one-month summer school program has been established. For additional information on this, please refer to the academic advisor’s address. In this degree course, one semester will be spent abroad at one of our partner universities.

Master course, 4 semesters

Selective modules for the three areas of specialization

Reservoir Management
– Data Acquisition and Evaluation
– Reservoir and Fluid Mechanics
– Reservoir Modeling and Simulation Supplementary Courses

Drilling / Production
– Drilling Technology
– Production Engineering
– Drilling & Production Supplementary Courses

Natural Gas Supply
– Natural Gas Transport
– Natural Gas Storage
– Transport and Storage
– Supplementary Courses

General modules
– Management, Economics and Law
– Communication
– Group Project and Master thesis

Professional Profile and Job Market

Graduates will be qualified to take on positions in planning and leadership in the globally active petroleum industry, and its peripheral businesses. Among the latter may be counted: the description and evaluation of oil and natural gas deposits, development and cost-effective production, oil and natural gas refinery, and the storage and transportation of marketable products. With the use of the inner earth for geo-thermal purposes and underground CO₂ storage, additional occupational fields may be added.

The potential employers of graduates are:
– oil and natural gas exploration and production industry
– natural gas supply and storage industry
– supporting service industry
– governmental departments and associations/interest groups
– business consultants, research facilities and universities

Language of instruction: English
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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Secretary: Phone: +49 (0)5323.722.239
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www.studium.tu-clausthal.de/energie-und-rohstoffe/
Physical Technologies (Master)

Master course, 4 semesters

- Physical technologies focus:
  - photonics
  - interfaces and nanostructures
  - computational physics
- Applied technologies focus:
  - material sciences
  - energy systems or
  - measurement and control technology
- Solid state physics and solid state chemistry
- Introduction to scientific research
- Research internship
- Personnel and project management

Industrial internship

To gain experience outside the academic world, students are required to do an 8-week internship in industry.

Professional Profile and Job Market

Important technical breakthroughs often have their origins in discoveries and developments in physics. Our era, often referred to as the silicon age, is characterized by information processing using highly integrated electronic circuits based on developments in solid state physics. Today we find ourselves at the beginning of an age that is fundamentally influenced by optical technologies such as lasers, optical signal processing and data communication as well as nanotechnology. Physicists see themselves as the pioneers of technical developments. They extend the limits of our understanding of nature, develop new processes and models and thus pave the way for new technologies and products. Physicists have excellent career prospects. The increasing demand in industry for physicists can hardly be met anymore. Approximately half of all physicists are employed in industry and business, mostly in research and development. Approximately one third works in the public sector, for example universities and research institutes. The analytical ability of physicists is also highly valued in other organizations such as business consultants, software companies and banks.

The new courses Physics (BSc) and Physical Technologies (MSc) follow the requirements of a modern interdisciplinary and research oriented education for physicists.

The Bachelor course in Physics offers a superior, inter-disciplinary and comprehensive foundation as well as an initial specialization in current technologically important fields of physics.

The Master course in Physical Technologies builds on this and allows an in-depth education in one of three areas of specialization: Photonics, Surface Interfaces and Nanostructures and Computational Physics which are also the main focuses of physical research at TU Clausthal. Students are offered excellent facilities for their studies and individual guidance by their professors. At an early stage they take part in physical research on current topics during research internships.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisors

Prof. Dr. Wolfgang Schade
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Dr. Jürgen Noffke
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www.studium.tu-clausthal.de/natur-und-materialwissenschaft/
Admission conditions

The possible utilization of deep geological formation for the storage of radioactive and chemotoxic waste are at the center of this Master course. This course is therefore suitable for all graduates of the 6-semester Bachelor courses in geosciences with a specialization in geology, mineralogy, petroleum engineering, geochemistry or hydrogeology. The degrees referred to here are awarded by universities and universities of applied science.

So far, graduates of the following Bachelor degree of TU Clausthal qualify:

– Geoenvironmental Engineering

Master course, 4 semesters

It is the aim of this course to enable graduates to deal with and coordinate scientifically and practically all process stages involved in the production, handling and underground disposal of radioactive and chemotoxic waste. Consequently, the process of Radioactive and Hazardous Waste Management (RHWM) is divided into the following phases:

1. State of waste and conditioning
2. Investigation of locations for underground waste disposal sites
3. Geotechnical and geoscien tific analysis
4. Long term proof of safety and permit
5. Building, operating and decommissioning

The course consists of 12 compulsory and 6 elective modules as well as 4 complementary modules. The structure of the modules is such that graduates will have studied all the relevant topics of RHWM. For this the individual modules have been matched to the phases of RHWM processes so that the link between theory and practice is being utilized in order to offer and develop a practice oriented course of study. As a result, the individual modules reflect either one, several or all phases of the RHWM processes.

The necessary qualifications for the aspired field of work show that both engineering and scientific skills are required to work successfully in the field of RHWM. This has also to be taken into account when planning your curriculum.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisors

Prof. Dr. rer. nat. Kurt Mengel
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EMail: kurt.mengel@tu-clausthal.de

Prof. Dr.-Ing. Karl-Heinz Lux
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www.studium.tu-clausthal.de/energie-und-rohstoffe/
Master course, 4 semesters

In order to develop an individual professional profile, students must select one of the following in-depth topics:

**Manufacturing**
- Basic principles and in-depth knowledge of manufacturing engineering, construction and planning procedures.

**Modeling and Simulation**
- Basic principles and in-depth knowledge of modeling, and systems simulations.

**Mechatronics**
- Basic principles and in-depth knowledge of electrical, remote control and feedback technology.

**Raw material extraction**
- Basic principles and in-depth knowledge of surface mining, raw materials extraction, preparation, and processing.

**Process Engineering**
- Basic principles and in-depth knowledge of process engineering and industrial plant technology.

### Admission Requirements
A Bachelor degree or equivalent qualification in business administration or completion of an equivalent degree course.

Language of instruction: German
Duration: 4 semesters
Degree: Master of Science (M.Sc.)

Academic Advisor
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Email: wolfgang.pfau@tu-clausthal.de

www.studium.tu-clausthal.de/wirtschaftswissenschaften/
**Admission Requirements**

A university degree and professional experience

**Master course, 4 semesters**

The Continuing Education Raw Materials Supply Engineering is comprised of courses that correspond to a total of eleven subject area modules. The structure and content of the modules are designed to scientifically qualify the target group. It is also responsive to the training requirements of the raw materials industry, in terms of their demand for an adaptable and professionally expert staff. In keeping with the rationale of the Postgraduate Course, segments of the course will be instructed in compact lecture presentations at TU Clausthal and will require attendance here.

Most of the course will depend on the proactive effort of participants in a correspondence course. Detailed information about the aims of the course, modules, content and structure, correspondence and attendance study, grades, credit hours, etc. may be obtained from your academic advisor.

**Curriculum**

In the first semester, the basic principles and framework necessary to conduct raw materials projects will be instructed. Particular attention will be given to legal, social and geo-scientific skills.

The second semester is directed at acquiring fundamental engineering principles in the form of mathematics and business administration. The basic principles of surveying and geographical information will also be covered. In the third semester, the focus will turn to the application of these principles in raw materials companies. Raw materials planning, project planning and the optimal apportionment of operating resources will be considered. Course instruction aims at promoting the skills needed to analyze, discuss, and through teamwork solve, the complex problems facing a raw materials venture.

The fourth semester focuses on the completion of a Master thesis. Moreover conditioning and processing of raw materials will also be covered.

**Language**

of instruction: German

**Duration:** 4 semesters

**Degree:** Master of Science (M.Sc.)

**Academic Advisor**

Prof. Dr.-Ing. H. Tudeskhi
Phone: +49 (0)5323.722 225
Email: tudeski@tu-clausthal.de

[www.studium.tu-clausthal.de/energie-und-rohstoffe/](http://www.studium.tu-clausthal.de/energie-und-rohstoffe/)

Continuing Education: Raw Materials Supply Engineering (Master)
Admission Requirements
Successful completion of a Diplom examination in a degree course at a university of applied sciences in one of the following areas:
– Process engineering
– Chemical engineering
– Physics engineering
or in a closely related degree course.

Graduates of foreign universities must submit evidence of the successful completion of a similar four-year degree course, with an equivalent degree.

Postgraduate degree, 3 semesters
– Chemical Reaction Technology
– High Temperature Technology for Treatment of Substances
– Combustion Technology
– Thermal Separation Processes
– Fluid Gas Flow
– Mechanical Process Engineering
– Physical Chemistry
– Thermodynamic Engineering
– Heat Transfer
– General and Inorganic Chemistry
– Organic Chemistry
– Modeling of Process Engineering Plants

Postgraduate Course: Chemical Engineering/Process Engineering (Diplom)

Language of instruction: German
Duration: 3 semesters
Degree: Diplom-Ingenieurin/Ingenieur

Academic Advisors
Process Engineering
Prof. Dr.-Ing. Roman Weber
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Email: weber@ievb.tu-clausthal.de

Chemical Engineering
Prof. Dr.-Ing. Urs Peuker
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www.studium.tu-clausthal.de/maschinenbau-und-verfahrenstechnik/
Postgraduate Course: Environmental Protection Technology (Diplom)

Admission requirements
Successful completion of a Diplom examination in a degree course at a university of applied sciences in one of the following areas:

– Process engineering
– Chemical engineering
– Environmental engineering
– Waste disposal technology

or in a closely related degree course.

Graduates of foreign universities must submit evidence of the successful completion of a similar four-year degree course, with an equivalent degree.

Postgraduate Course, 3 semesters
Specialization in one of the following areas:

Disposal technology
– Mathematics
– Engineering Mechanics
– Heat Transfer
– Environmental Analysis
– Pollutant Dispersion
– Waste Water/Sewage Treatment
– Recycling
– Waste Disposal Mining
– Waste Disposal Technology
– Environmental Economics

Environmental process engineering
– Mathematics
– Engineering Mechanics
– Heat Transfer
– Environmental Analysis
– Physical Chemistry
– Chemical Reaction Engineering
– Mechanical Process Engineering
– Thermal Process Engineering
– Thermal Waste Treatment

Language of instruction: German
Duration: 3 semesters
Degree: Diplom-Ingenieurin/Ingenieur

Academic Advisor
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www.studium.tu-clausthal.de/energie-und-rohstoffe/
Postgraduate Course: Mechanical Engineering (Diplom)

Admission Requirements

Successful completion of a Diplom examination in a degree course at a university of applied sciences in mechanical engineering or in a closely related degree course.

Graduates of foreign universities must submit evidence of the successful completion of a similar four-year degree course, with an equivalent degree.

Postgraduate degree, 3 semesters

- Engineering Mathematics
- Engineering Mechanics
- Fluid Mechanics
- Thermodynamics
- Materials Engineering
- Kymatology and Machine Dynamics
- Energy Conversion Machines
- Computer Integrated Product Development
- Production Engineering
- Fatigue Analysis
- Material Flow and Logistics
- Pneumatics
- Tribology
- Design Theory
- CIM in Mechanical Engineering
- Machine Acoustics
- Thermal Separation Processes
- Heat Transfer
- Chemical Reaction Technology
- General Business Administration
- Control Engineering
- Metrology
- Electrical Power Engineering

Language of instruction: German

Duration: 3 semesters

Degree: Diplom-Ingenieurin/ Ingenieur

Academic Advisors

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www.studium.tu-clausthal.de/ maschinenbau-und-verfahrenstechnik/
Admission Requirements

A successfully completed degree course in physics engineering or closely related degree course at a university of applied sciences.

Graduates of foreign universities have to submit evidence of having completed a four-year program of study in a similar degree course leading to an equivalent degree.

Postgraduate Course, 3 semesters

– Mathematical Methods in Physics I + II
– Quantum Mechanics
– Thermodynamics
– Physical Technologies A + B (optional, e.g. as follows: laser technology, surface physics, semiconductor physics, and sensors)
– Seminar in Physical Technologies
– Civil Law
Admission requirements
Successful completion of a Diplom examination in a degree course at a university of applied sciences in one of the following areas:
– Electrical engineering
– Mechanical engineering
– Process engineering
– Engineering physics
or in a closely related degree course. Graduates of foreign universities must submit evidence of the successful completion of a similar four-year degree course, with an equivalent degree.

Postgraduate Course, 3 semesters
– Engineering Mathematics
– Thermodynamics
– Heat Transfer
– Physical Chemistry
– Electrical Power Technology
– Field Theory
– Introduction to Law
– General Business Administration
– Power Systems
– Energy Legislation
– Company Energy Management
– Investment and Finance

Language of instruction: German
Duration: 3 semesters
Degree: Diplom-Ingenieurin/Ingenieur

Academic Advisors
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Prof. Dr.-Ing. Hanno Stagge
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www.studium.tu-clausthal.de/energie-und-rohstoffe/
## Complete list of courses

### Bachelor programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>Business Administration</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry</td>
<td>14</td>
</tr>
<tr>
<td>Computer Science</td>
<td>16</td>
</tr>
<tr>
<td>Energy and Raw Materials</td>
<td>18</td>
</tr>
<tr>
<td>Geoenvironmental Engineering</td>
<td>20</td>
</tr>
<tr>
<td>Materials Science and Materials Engineering</td>
<td>22</td>
</tr>
<tr>
<td>Physics</td>
<td>24</td>
</tr>
</tbody>
</table>

### Diplom programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering</td>
<td>26</td>
</tr>
<tr>
<td>Environmental Protection Technology</td>
<td>28</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>30</td>
</tr>
<tr>
<td>Information Engineering</td>
<td>32</td>
</tr>
<tr>
<td>Mechanical Engineering/Mechatronics</td>
<td>34</td>
</tr>
<tr>
<td>Power Systems Engineering</td>
<td>36</td>
</tr>
<tr>
<td>Process Engineering</td>
<td>38</td>
</tr>
</tbody>
</table>

### Master programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics</td>
<td>40</td>
</tr>
<tr>
<td>Business Information Technology</td>
<td>42</td>
</tr>
<tr>
<td>Chemistry</td>
<td>44</td>
</tr>
<tr>
<td>Computer Science</td>
<td>46</td>
</tr>
<tr>
<td>Energy and Raw Materials Supply Engineering</td>
<td>48</td>
</tr>
<tr>
<td>Materials Engineering</td>
<td>50</td>
</tr>
<tr>
<td>Materials Science</td>
<td>52</td>
</tr>
<tr>
<td>Operations Research</td>
<td>54</td>
</tr>
<tr>
<td>Petroleum Engineering</td>
<td>56</td>
</tr>
<tr>
<td>Physical Technologies</td>
<td>58</td>
</tr>
<tr>
<td>Radioactive and Hazardous Waste Management</td>
<td>60</td>
</tr>
<tr>
<td>Technical Management</td>
<td>62</td>
</tr>
<tr>
<td>Continuing Education: Raw Materials Supply Engineering</td>
<td>64</td>
</tr>
</tbody>
</table>

### Postgraduate programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering/Process Engineering</td>
<td>66</td>
</tr>
<tr>
<td>Environmental Protection Technology</td>
<td>68</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>70</td>
</tr>
<tr>
<td>Physics/Physical Technologies</td>
<td>72</td>
</tr>
<tr>
<td>Power Systems Engineering</td>
<td>74</td>
</tr>
</tbody>
</table>