

## CURRICULUM

1st semester	2nd semester	3rd semester	4th semester
Thermodynamics and Heat Transfer	Research Seminar and Journal Club TAIEM	Design and Development of Chemically Bounded Materials	Master's Thesis
Technology of Iron and Steel		Laboratory Ceramic Courses	
Ceramic Engineering	Steel Application	Project Management	
Refractory Ceramics	Practical Course Metallurgy		
Metallic Materials	Plant Economics and Technology	Experimental Assignment (Ceramic and Steel Technology)	
Fundamentals of Ferrous Materials	Materials Science		
Deutsch A1			
Electives A – Advanced Engineering Background: Mechanics of Materials; Training in Fluid Dynamics; Training in Particle Technology; Practical Aspects of Thermodynamic Analysis; Simulation of Sustainable Metallurgical Process Systems; Economics			
Electives B – Technology: Fundamentals of Plastic Deformation; Melting Technology and Foundries; Sensors and Actuator; Simulation of Sustainable Metallurgical Process Systems; Economics			

  mandatory courses; 
   free electives; 
   Master Thesis

## WHY STUDYING TECHNOLOGY AND APPLICATION OF INORGANIC ENGINEERING MATERIALS AT TU BERGAKADEMIE FREIBERG?

- ▷ Strong link between theory and practice
- ▷ High degree of multidisciplinary
- ▷ Learning by practice oriented doing (laboratories, practical courses, trainings, student assistant jobs within the research projects, link to industrials etc.)
- ▷ Real-time implementation of the research projects findings in teaching
- ▷ Effective supervision by excellent lecturers with high international reputation
- ▷ Small classes (about 20 students) with high degree of interactivity
- ▷ Best job prospects
- ▷ Opportunity for excellent students to continue with PhD study
- ▷ No tuition fees

## TU BERGAKADEMIE FREIBERG

### Facts about the university

- founded in 1765 – that's more than 250 years of teaching tradition
- campus university located in a charming medieval city with beautiful architecture
- many international study programs including exchange and double degree programs
- small classes with excellent teaching quality and highly motivated lecturers
- all lecturers are internationally renowned researchers
- among the top German universities in acquisition of research funding per professor
- affordable housing cost and living expenses
- yearround cultural calendar and buzzing student nightlife
- there are no tuition fees

### CONSULTATION

TU Bergakademie Freiberg  
 Central student advisory service  
 Prüferstraße 2  
 D-09599 Freiberg  
 phone: +49 3731 39-3469; -3827  
 fax: +49 3731 39-2418  
 studienberatung@zuv.tu-freiberg.de

### ACADEMIC ADVICE

TU Bergakademie Freiberg  
 Institute of Ceramic, Glass and Construction Materials  
 Prof. Dr. Christos G. Aneziris  
 Agricola Str. 17  
 09599 Freiberg  
 Phone: +49 3731 39\_2505  
 e-mail: aneziris@ikgb.tu-freiberg.de

TU Bergakademie Freiberg  
 Institute of Iron and Steel Technology  
 Prof. Dr. Olena Volkova  
 Leipziger Str. 34  
 09599 Freiberg  
 Phone: +49 3731 39-3100  
 e-mail: volkova@iest.tu-freiberg.de



TECHNISCHE UNIVERSITÄT  
BERGAKADEMIE FREIBERG

Die Ressourcenuniversität. Seit 1765.

Master of Science

TECHNOLOGY AND  
APPLICATION OF INORGANIC  
ENGINEERING MATERIALS

Engineering Sciences



tu-freiberg.de

Falsities and modifications are reserved.  
Effective: December 2018



# TECHNOLOGY AND APPLICATION OF INORGANIC ENGINEERING MATERIALS

## MASTER OF SCIENCE

The Inorganic Engineering Materials cover all the strategic industries and are key materials for transport section, energy technology, machine and plant design, building industry. The true understanding of thermal, chemical and functional properties of nano-, micro- and macro-levels followed by the chemical and physical interactions at interfaces/surfaces of the material is an unlimited tool for their continuous development and technology optimization.

### STUDY CONCEPT

The M.Sc. in Technology and Application Inorganic Engineering Materials such as steel and ceramic is a comprehensive masters program offered by the oldest mining university in the world, the TU Bergakademie Freiberg.

TAIEM graduates will be able to:

- solve general and specific problems in the steel and ceramic producing industries,
- select a suitable steel and ceramic for a specific application,

- evaluate properties of steels and ceramics on several scales and estimate their behavior under real industrial conditions,
- detect and solve problems relating to the technology and applications of steels and ceramics,
- manage a technology-oriented research project.

### MASTER

A minimum of 4 semesters (2 years) is required to complete the program. The program begins with core modules on metallic, ceramic and refractory materials, thermodynamics, In the second and third semester there are more advanced modules and further skills training in technology and applications of materials. Furthermore the students learn via laboratory and practical courses to apply the theoretical knowledge in real applications. Thanks to the existing optional courses, students are able to design their studies on their own and expand their knowledge from the compulsory and technology-oriented lectures. The fourth semester is designated for the master thesis.

<b>Duration:</b>	4 semesters, (2 years),
<b>Beginning of the program:</b>	Winter term
<b>Language:</b>	English
<b>Degree:</b>	Master of Science (M. Sc.)
<b>Costs:</b>	No tuition fee
<b>Course Language:</b>	English (we
<b>Application Deadline:</b>	15th April in case a visa is required 15th August in case no visa is required

#### Admission requirement:

- ▷ BACHELOR'S DEGREE (or equivalent) in the field of Mechanical Engineering, Process Engineering, Environmental Engineering, Energy Engineering, Industrial Engineering, Materials Science and Engineering, Natural Sciences or familiar.
- ▷ PROOF OF ENGLISH LANGUAGE SKILLS: TOEFL scores above 87 for internet-based, 213 for computer-based, and 550 for paper-based tests or IELTS with at least 6.0 for overall score.

### JOB OPPORTUNITIES

The TAIEM masters program is tailored to gear the students up for the challenging tasks in the production and application-oriented industries such as iron and steelmaking industry, metal processing industry, ceramic and refractory industry, recycling and extractive industry and etc. Furthermore, the TAIEM masters program offers a sound foundation for an academic or research career at universities and research institutions.

### APPLICATION

Submit your application and supporting documents well before the deadline. Fill in the application form on our website,

<http://tu-freiberg.de/international/application>

and send the application portfolio with all required documents to:

TU Bergakademie Freiberg  
Zulassungsbüro  
Akademiestr. 6  
09599 Freiberg  
Germany

