

Study programme Civil Engineering - Building Materials and Diagnostics of Structures

Generated: 9. 4. 2024

Faculty	Faculty of Civil Engineering
Type of study	Follow-up Master
Language of instruction	English
Code of the programme	N0732A260010
Title of the programme	Civil Engineering - Building Materials and Diagnostics of Structures
Regular period of the study	1,5 year
Cost	50,000 CZK per semester
Coordinating department	Department of Building Materials and Diagnostics of Structures
Coordinator	doc. Ing. Vlastimil Bílek, Ph.D.
Key words	Building testing, Building materials, Diagnostics and rehabilitation of building structures, Excursions and field lessons, Environmental aspects in civil engineering

About study programme

Graduate of the master study program Civil Engineering - Building Materials and Diagnostics of Structures will acquire the theoretical and practical knowledge in a variety of study activities including excursions, field lessons, realisation of testing methods by modern equipment and also theoretical lessons with participation of practice experts. The characteristic is an individual approach, which corresponds to the conception of final work based on practice requirements and especially the student's interests. The program completion provides students with a general overview about building structures, current and latest building materials, its development and testing, diagnostics and rehabilitation of building structures, as well as environmental issues – building impact on the environment.

Professions

- Research and development specialist
- Technologist of building materials production
- Civil engineering technologist
- Specialist of technical building investigation
- Testing services or laboratory specialist

Hard skills

- Knowledge of PC basic programmes
- Knowledge of environmental and waste management legislation (Chemical Substances Act, Waste Act, EIA)
- Knowledge of construction chemistry
- Knowledge of non-destructive testing

Graduate's employment

Graduates can find employment in management positions of design and production organizations in civil engineering, as construction manager, technologist, construction specialist, technical advisor, employee of management and quality control, employee of state-owned or private testing and research institutes or as a private businessman. The graduate also has the possibility to continue on a doctoral study program either at the university at FAST VŠB-TU Ostrava or at another technical university in the Czech Republic or abroad after master's degree. They can be also accredited as an Authorized Engineer in the field of Building Structures and

specialization Testing and Diagnostics of Buildings after fulfilling the requirements set by the Czech Chamber of Authorized Engineers and Techniques in the Constructions.

Study aims

Study program Civil Engineering - Building Materials and Diagnostics of Structures is designed to cover a wide range of knowledge and skills of civil engineer. The study content of the program of Civil Engineering - Building Materials and Diagnostics of Structures includes the issues of all civil engineering branches. Teaching of building materials and diagnostics of structures has a long tradition at the university. The basic aim of the study program Civil Engineering - Building Materials and Diagnostics of Structures is to provide comprehensive education and training of specialists and to achieve a level of engineering education that will ensure the effective application of the acquired knowledge especially in the following areas:

- application of building materials to building structures, material compatibility, durability,
- application of building materials in relation to the required mechanical, physical and thermal-technical properties of building structures,
- design and development of building materials, sourcing of raw materials,
- production of building materials and elements, range of products and its practical application,
- the impact of the whole lifecycle of building materials and structures on the environment, recycling, the principles of sustainable development,
- the role of testing and quality issues in the civil engineering,
- issues about diagnostics of structures - requirements for building structures, defects and damages, diagnostic methods for assessment of structures and materials,
- rehabilitation of structures - rehabilitation methods for masonry, steel, concrete and timber structures, historical structures, rehabilitation of surface finishes of structures or the requirements and assessment of repair materials themselves,
- the issues of design and implementation of building structures in relation to building materials.

The aim of the study is to prepare graduates of the follow-up master study program Civil Engineering - Building Materials and Diagnostics of Structures as multidisciplinary universal specialists for a wide range of job opportunities in the civil engineering in the Czech Republic and also abroad.

Graduate's knowledge

The graduates of the master study program Civil Engineering - Building Materials and Diagnostics of Structures have systematic expertise knowledge that corresponds to the state of the art in the design, development and application of building materials as well as in the field of technical building investigations, defects and damages of structures and strategies of rehabilitation interventions. Graduates demonstrate in particular the knowledge of technical disciplines relevant to building practice and knowledge of legal regulations in the appropriate width and rate of detail.

Graduate's skills

The graduates of the master study Civil Engineering - Building Materials and Diagnostics of Structures have the necessary skills in terms of using terminology, application of test methods and evaluation of building materials, performance of investigations and proposals for rehabilitation interventions. They know the principles of the branch scientific methods and can use them in practical contexts. They are able to acquire and develop new branch theories and methods including their inclusion in application practice. Graduates have specialized skills in formal and practical processing of the buildings impact on the environment. They can analyse and synthesize problems within the building and production organization in adequate width and rate.

Graduate's general competence

Graduates of the master's study program Civil Engineering - Building Materials and Diagnostics of Structures are able to use engineering approaches for solving problems based on generally accepted computational methods and procedures, including standard and specialized software applications. They are able to evaluate new knowledge with regard to the long-term social consequences connected with their use, and are able to plan extensive activities with creative nature. They can acquire new expertise knowledge, skills and capabilities through its own creative activities. They will be able to independently perform complex activities

within these professional areas and to organize and lead implementation teams in solving complex large-scale contracts. The above mentioned knowledge can be applied by the graduates in the construction practice, where they can get find employment in management positions of design and production organizations in civil engineering, as construction manager, technologist, construction specialist, technical advisor, employee of management and quality control, employee of state-owned or private testing and research institutes or as a private businessman. The graduate also has the possibility to continue on a doctoral study program either at the university at FAST VŠB-TU Ostrava or at another technical university in the Czech Republic or abroad after master's degree. They can be also accredited as an Authorized Engineer in the field of Building Structures and specialization Testing and Diagnostics of Buildings after fulfilling the requirements set by the Czech Chamber of Authorized Engineers and Techniques in the Constructions.

Study curriculum

- form Full-time (en)
- form Part-time (en)