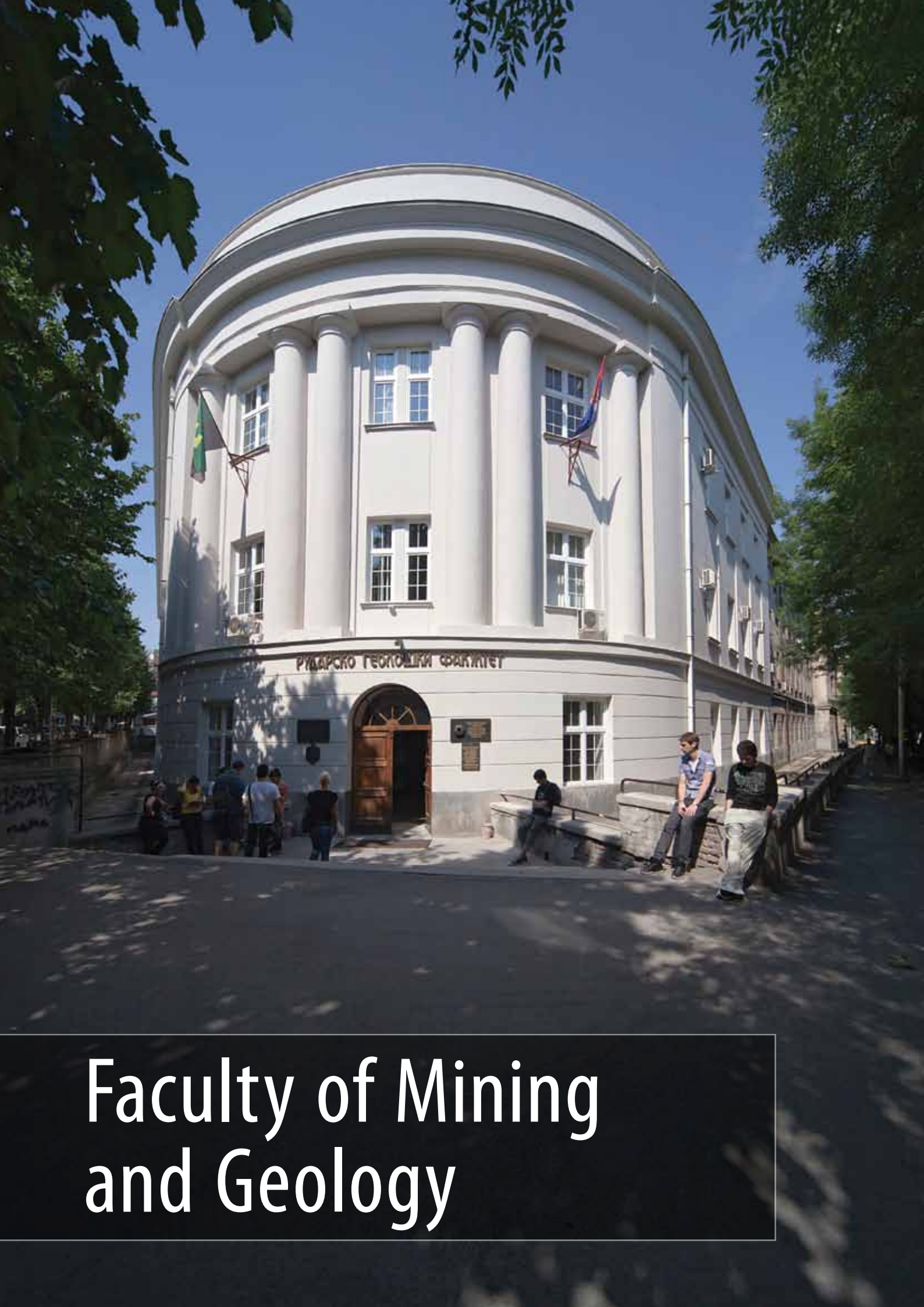

Faculty of Mining and Geology

Geology

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 120/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Study program in geology has a flexible curriculum that represents a logical continuation of the undergraduate program of academic studies in geology. Students have gained the general knowledge in geology and created the level and type of specialization according to their wishes and affinities, during their undergraduate academic studies. At the master academic studies of geology they are offered to enlarge their knowledge and skills in certain specialties. Graduated students of the study program in geology are receiving the uniform diploma of master geologist, bur the diploma supplement contains the information of their specialization – module. Graduated students have a possibility to continue their education on PhD studies, but they also gain clearly profiled competences that make them competitive at the labor market. Program has a clear structure and it is divided into modules.

Study program goals

Main goal is to organize and carry out the educational process that will enable graduate students – master geologists to acquire skills and competences suitable to a chosen specialization in the field of geo-sciences. Methods that are used to fulfill this goal include modern and interactive forms of education, totally integrated with cabinet, laboratory and field works. Graduate students of master academic studies in geology are complementing their fundamental geological education by specializations in regional and dynamic geology, paleontology, mineralogy and crystallography, petrology and geochemistry and economic geology. The goal is to enable students with master geologist diploma to understand complex aspects of various geological processes and to solve highly complex geological problems on the base of integration of theoretical knowledge with field and laboratory investigations. Special attention is directed to the importance of understanding the ambivalence context of the natural resources, in regard to understanding that the need for investigation and exploitation of geological resources also includes a need for preservation of those resources. The goal of the study program is to enable professionals to achieve the ability for interdisciplinary and multidisciplinary approach to researches, to be able to be involved in researches in fields that are connected to geo-sciences, such as ecology, petro-archeology, geo-archeology, medicine and others. Graduate students will develop the sense for multidisciplinary research, important for solving global environmental problems.

Study program outcomes

Study program outcomes are defined by the theoretical knowledge and practical skills that the graduate students of the master academic studies in geology will posses, while the specialties are defined by the choice of the certain module. Master geologists will be able to conduct independent and team research work to solve problems in fields of regional and dynamic geology, stratigraphy, remote sensing, micropaleontology, paleobotany, paleo-ecosystems, instrumental methods in mineralogy and petrology, structure of crystalline matter of different origin, gemology, quality and usage of building and architectural stone, geochemistry of ore deposits and environment, reserves calculation and evaluation of metallic, non-metallic and energy resources, creating of metallogenic prognoses maps, planning of different geological researches.

Modules

Students select one of the five offered modules: 1) geology, 2) paleontology, 3) mineralogy and crystallography, 4) petrology and geochemistry and 5) economic geology.

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 180 ECTS credits, at least.

Contact

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Geotechnics

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Master academic studies are an extension of the undergraduate academic studies. They are more open than the undergraduate studies. Almost all courses are elective. Which courses will the student choose depends on the student's interest and the themes he wishes to study more. In that way, studies have a scientific character. Completed master academic studies allow master engineers access to doctor academic studies. Considering that geotechnics is a discipline applicable in a wide economic context, many tasks in our program are being solved on real constructions and in association with the leading experts and scientific institutions in Serbia which deal with this matter. That is why we consider that geotechnics is a challenging scientific field of great importance, which allows investigation of the interaction between nature and engineering activities, so future master engineers have the opportunity to show themselves and their creative talent.

Study program goals

General goals for the geotechnics study program are:

- Transferring scientific knowledge and skills, and opening possibilities for enrolling the doctor academic studies,
- Continuous development in the field of profession and science and securing updates of the study program
- Making the evaluation system closer to the one in the European Union and getting employment opportunities at the world labor market,
- Modernization of the program content and making the acquire knowledge more applicable for professional engineering in geotechnics,
- Closer relationship with students, seeing their affinities and helping them with further specialization,
- Providing of young specialists and scientists.

The goal of the study program is to provide a basic academic knowledge enough for continuing professional and scientific work in related areas such as civil engineering, mining, urbanization, space planning or ecology.

Study program outcomes

When students finish master academic studies the engineers get qualifications to do any kind of work in the field of geotechnics - independently or in a team. Students of the study program for geotechnics are qualified for complex geotechnic research, to conduct efficient field investigations and laboratory testing, to perform analysis and interpretation of the data and to solve specific problems based on the results of investigations. Master engineers of geotechnics are the only ones competent for the design and conduction of geotechnical investigations: field, laboratory and cabinet, as well as for the development of geotechnical background, as the basis for the projects. They are also the only ones competent for the supervision of geotechnical works and the control of geotechnical projects. Practical skills involve qualifying students for numerical data processing and using modern information technologies. That means that the master engineers - after completing their master studies, will have knowledge and skills for processing and storing data, while taking care of the selection and quality of data, as well as the accuracy of analytical procedures, in order to secure the level of reliability needed. Systematical storing of reliable information affects the economical aspect of the future field investigations

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 240 ECTS credits, at least.

Contact

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Geophysics

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 120/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Organization of the teaching at the study program in geophysics is accomplished in association with the other study programs of Faculty of Mining and Geology. The study program consists of compulsory and elective courses that enable students to achieve knowledge and skills necessary for master level title.

Student's workload is consisted of lectures, exercises, scientific research, tests, exams, professional practice and field course and graduation thesis. Study program coordinator helps students to select elective courses. Students of master academic studies attend compulsory field course, as well as professional practice conducted at the research institutes and commercial companies, in order to obtain high quality education and competences for professional work.

The theme and the mentor of graduation thesis are chosen according to affiliation and wishes of student. Study program is conducted by the application of contemporary educational methods, including available computer presentations, application of modern computer programs, usage of geophysical equipment, laboratories and sample collections in practical exercises, following of newest scientific achievements through publications and internet, visits to research institutes and commercial companies.

Teaching stuff is cooperating with colleagues from other universities in order to get introduced to a good practice of corresponding study programs. They also organize lectures of guest – professors from other universities and participate in exchange programs.

Study program goals

The goal of the study program in geophysics is to enable students to learn to use different methodological approaches for solving problems and to apply acquired knowledge adequately, by offering them the spectra of different courses they attend during the studies. Students are given a possibility to use their creative abilities, to develop critical approach to the results of their work and to acquire different practical skills, necessary for the professional work. That is the way to accomplish the main goal of the study program – to provide high quality education that enables students to acquire competences and academic skills, necessary for professional work in geophysics or for continuation of education at the higher level of studies.

The goals include:

- Acquirement of theoretical knowledge from different fields of science, necessary for solving theoretical and practical problems in geology and geophysics;
- Acquirement of theoretical knowledge and practical skills from the wide range of geological and different related scientific fields, in order to enable students to acquire competences and academic skills needed for understanding and solving different geological problems;
- Acquirement of theoretical knowledge and practical skills from the field of geophysics (through the different forms of lectures, field and professional practice), in order to enable students to acquire competences and academic skills, necessary for planning and conduction of geophysical research in the various fields of application;
- Acquirement of the right to get licenses for managing professional projects;
- Acquirement of basis for the further education at the PhD studies.

Study program outcomes

Graduated student of the master studies in geophysics acquires general competences:

- To analyze the problem, decide which methods to apply to solve the problem and to anticipate the outcomes and the consequences;
- To apply acquired knowledge in professional practice to solve problems using critical approach in analysis and synthesis of research results;
- To work in the team, to lead the team, to communicate and to exchange data with

the other professionals, to correct the procedures in order to achieve higher efficiency;
- To lead and manage professional projects;
- To apply the acquired knowledge and the innovations in the profession using innovational, informational and communicational technologies;
- To follow, apply and introduce the innovations in the profession.

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 180 ECTS credits, at least.

Contact

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Hydrogeology

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Master studies are a continuation of undergraduate studies. They are more open than undergraduate studies. Specifically, almost all courses at these studies are elective. Which courses the student will choose, depends on his immediate interests and themes that he wants to deal with.

This way, studies are given more of a scientific character. Narrowly vocational subjects on master academic studies are designed to follow the latest developments in the field of hydrogeology. Completed master studies allow engineers access to the PhD studies.

Study program goals

The objectives of the master degree program of academic studies are:

- Transfer of scientific knowledge and skills of senior specialist level and the possibility of continuing education at the doctoral studies level,
- Continuous development of the profession and science and providing the program to be up-to-date,
- Arrangement of the evaluation system in accordance to systems of EU countries and employment opportunities at the world labor market,
- Modernization of program contents and increase of the application of acquired knowledge for professional engineering work in the field of hydrogeology,
- Providing of young specialists and scientists.

Study program outcomes

Upon completion of academic studies, master engineers acquire competence to a work in a team or independently perform all types of work in the field of hydrogeology.

Master engineers have been trained to design fundamental, detailed and complex hydrogeological investigations, to conduct efficient field investigations and laboratory testing, to perform analysis and interpretation of the data and to solve specific problems. In our educational system, they are the only one competent in the design and conduction of hydrogeological investigations: field, laboratory and cabinet, as well as in the development of hydrogeological background, as the basis for the design, conduction and supervision of various hydrogeological facilities.

Master engineers of hydrogeology are expected to work in following areas:

- Projects of detailed and fundamental hydrogeological research for all types of underground water and geothermal energy;
- Studies on the reserves of all types of underground water and geothermal energy;
- Study the feasibility of building a factory for the production of bottled underground water;
- Hydrogeological studies and reports for the opening of underground water sources;
- Projects for deep hydro and geothermal wells;
- Projects for exploitation of geothermal energy;
- Projects for hydrogeological monitoring;
- Preparation of hydrogeological maps of all scales;
- Testing of groundwater quality;
- Thermal-physical tests of rocks and building materials;
- Hydrogeological and hydro-chemical prospecting for different purposes;
- Studies of the mine drainage;
- Economic evaluation of water sources and springs of all kinds of underground water and geothermal energy;
- Project documentation related to the use of geothermal energy;
- Consulting services regarding the exploration, exploitation and protection of all types of ground water;
- Hydrogeological mathematical simulation models;
- Geothermal simulation models;
- Geological and hydrogeological information systems;
- Forensics and so on.

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 240 ECTS credits, at least.

Contact

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Petroleum Engineering

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Master degree program focuses on the academic needs of its industry audience. Our program provides a core body of knowledge of advanced topics in petroleum engineering with the objective to prepare our graduates for leadership positions in drilling, reservoir, and production engineering, as well as economics and evaluation.
Student chose one of 3 possible majors:
Drilling Engineering - static and dynamic design of borehole construction, dynamics of drilling processes, planning, supervision and evaluation of deep drilling projects under technical end economic aspects;
Petroleum Production Engineering - planning, design and maintenance of production systems (from reservoir to tank), HSE, assessment of projects (profitability, consideration of technical progress);
Reservoir Engineering - Detailed characterization of storage capacity and flow properties of hydrocarbon reservoirs, gas storage facilities, estimation of reserves and recovery. Design and development planning for new discoveries and mature fields in the light of modern enhanced oil recovery techniques. Computer-aided construction and parameterization of three-dimensional reservoir models; numerical simulation of multiphase flow patterns, mechanical, thermal and chemical behavior of reservoirs and prediction of reservoir performance.

Study program goals

Goals are intensification and scientification of knowledge in petroleum engineering, a well-balanced combination of professional education on top level with special fundamental principles, additionally project work with use of industry data and commercial software packages. To cover the future demand for petroleum and natural gas there are efforts worldwide to tap new reservoirs and to improve the utilization of already existing reservoirs, for example by improved reservoir management. The complexity of the problems that have to be solved requires that the professionals not only possess technical universality but also sound background knowledge in economics and information technology as well as management skills. The education for petroleum engineers is designed to meet this qualification profile. Petroleum industry acts globally and demands that employees can work in an international environment. The aim of this study program is that professionals acquire the ability for interdisciplinary and multidisciplinary studies of complex natural, industry and business processes and systems.

Study program outcomes

Upon completion of the degree, students are able to perform advanced-level tasks in drilling, production, and reservoir engineering. Graduate studies move from the general overview of the industry that undergraduate programs provide to in-depth knowledge of specific areas. Graduate courses provide skills and tools for solving tough engineering problems, and graduate research projects help solve some of those problems. The combination of increased understanding of the problems with the skills and tools to solve them provides the path to developing the technology of the future. It is expected that graduates are capable of applying knowledge for the understanding of complex industrial systems in different contexts and in different proportions. Students should be trained in qualitative and quantitative data interpretation by using appropriate software packages, computer solving numerical problems and numerical modeling of different processes. The ability to use modern literature and modern means of communication, and all opportunities for continued career development are the essential learning outcomes that enable graduates for further academic education at the PhD level.

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 240 ECTS credits, at least.

Contact

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Mining Engineering

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Mining Engineering Study Program is distinguished by flexible curriculum, which represents logical continuation of the Undergraduate Academic Studies. Students, which have gained general engineering education during Undergraduate Academic Studies and which have created level and character of specialization according to their aspiration and aptitude, are offered further in depth knowledge and certain specialized skills during Master Studies. Graduate students of this study program, in relation to module, are receiving diploma of master engineer of mining and simultaneously are gaining clearly profiled competences, which make them relevant on a labor market. Program lasts for one year (two semesters) or 60 ECTS, has a clear structure and it is divide into seven modules.

Study program goals

Basic goal is to organize and perform educational process in order to provide to graduate students, master engineers of mining, skills and competences, which are suitable to selected specializations in mining. Methods applied to achieve this goal are including modern and interactive tuition forms, which are completely integrated with teaching in classrooms and laboratories and with field practice. Graduated students of Mining Engineering master academic studies are supplementing undergraduate engineering education with suitable specializations within selected module.

The goal is to enable master students to understand complex aspects of myriad industrial processes and to provide them with theoretical knowledge, as well as field and laboratory research, which are base for solving practical problems. Special attention is given to understanding of ambivalent context of natural resource problems, i.e. understanding of necessity for research and exploitation with simultaneous conservation of mineral resource, which are bases of the sustainable development. The goal of this study program is to provide experts with capability for interdisciplinary and multidisciplinary approach to examination of complex natural, business and economical processes and systems.

Study program outcomes

Expected outcomes are defined by theoretical knowledge and practical skills, which graduate students of Mining Engineering master academic studies will possess, where specific details will be defined by selection of suitable module. Regardless to selected discipline, it is expected that graduate students will be capable to independently formulate proofs for given hypothesis, to apply knowledge to understand complex industrial systems in different contexts and scale.

Students should be qualified for quality and quantity data processing by using suitable software packages, computer aided solving of numerical problems and numerical modeling of various processes. Capability for using of new references, modern communication devices and any career development possibilities are necessary outcomes for further education on doctoral studies.

Modules

1. Surface Mining of Mineral Deposits
2. Underground Mining of Mineral Deposits
3. Underground Construction
4. Mine Surveying
5. Mine Mechanization
6. Mineral Processing
7. Computing and Systematic Engineering in Mining

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 240 ECTS credits, at least.

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Environmental and Safety Engineering

at Faculty of Mining and Geology, 7 Đušina, 11000 Belgrade, www.rgf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

Environmental and Safety Engineering Program is distinguished by flexible curriculum, which represents logical continuance of Undergraduate Academic Studies. Students, which have gained general engineering education during Undergraduate Academic Studies and which have created level and character of specialization according to their aspiration and aptitude, are offered further in depth knowledge and certain specialized skills during Master Studies.

Graduate students of this study program, in relation to module, are receiving diploma of master engineer of environmental protection engineer or master engineer of safety and simultaneously are gaining clearly profiled competences, which makes them relevant on labor market. Program lasts for one year (two semesters) or 60 ECTS, has a clear structure and it is divide into two modules.

Study program goals

The goal is to enable master students to understand complex aspects of myriad industrial processes and their impact on safety and environment and to provide them with theoretical knowledge, as well as field and laboratory research, which are bases for solving practical problems. Special attention is given to understanding of ambivalent context of natural resource problems, i.e. understanding of necessity for research and exploitation with simultaneous conservation of mineral resources, which are the bases of sustainable development.

The goal of this study program is to provide experts with capability for interdisciplinary and multidisciplinary approach to examination, i.e. to enable their active participation in the activities that have partial program overlapping with geosciences.

Study program outcomes

Expected outcomes are defined by theoretical knowledge and practical skills, which graduate students of Environmental and Safety Engineering master academic studies will possess, where specific details will be defined by selection of suitable module. Graduated students of this program will have practical knowledge and skills for working on waste management, design and performing of remediation, industrial waste recycling, waste water treatment, design of air protection systems, design and development of protection against noise and vibrations. Safety Engineering Module will enable students to plan and organize safety measures on machines and equipment, to plan and manage fire and explosion protection, to organize safety functions and protection within mining technological processes.

Regardless to selected discipline, it is expected that graduate students will be capable to independently formulate proofs for given hypothesis, to apply knowledge to understand complex industrial systems in different contexts and scale. Students should be qualified for quality and quantity data processing by using suitable software packages, computer aided solving of numerical problems and numerical modeling of various processes. Capability for using of new references, modern communication devices and any career development possibilities are necessary outcomes for further education on doctoral studies.

Modules

1. Environmental Engineering
2. Safety Engineering

Admission requirements

Completed Undergraduate academic studies in corresponding or related scientific field, with total amount of 240 ECTS credits, at least.

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