

UNIVERSITY OF MITROVICA "ISA BOLETINI"

FACULTY OF GEOSCIENCES



STRATEGIC DEVELOPMENT PLAN

2018-2021

Frontiers and Opportunities in the Geosciences

Geoscientists of the next decade will confront regional, national, and global issues related to strained water resources, natural hazards mitigation, shortages of mineral and energy resources, and site evaluations of infrastructure projects or housing tracts. Their endeavors must interface with the environmental challenge of maintaining quality of life while managing development in an increasingly populated world.

The Faculty of Geosciences needs to provide graduates who understand the processes that take place on Earth and have the ability to offer problem solving in interdisciplinary workplaces. They should communicate effectively with engineers, environmental scientists, and planners, while educating the public about the linkages between the solid part of the Earth and its hydrosphere, atmosphere and biosphere.

The country's development strategy based on the development of mineral resources requires geological, mining and material/metallurgy graduates, which in addition to exploring, mining and resource-processing knowledge, should also possess the ability to cope with various environmental problems. The development of spatial plans, the provision and sustainable management of mineral resources, protection against natural hazards and the provision of environmental conditions are very important segments for the country that require the hand of geo-scientists. Given these facts, and not only, geo-scientists will be required.

Mission

The Faculty of Geosciences aspires to provide the highest quality education in Earth Science, techniques and technology of resource mining and processing. Through hands-on learning methods, faculty-mentored research, and exposure to current technology, students shall acquire skills applicable to careers in Earth Science and related disciplines. The Department's programs emphasize understanding of Earth system processes and their interrelationships, ensuring mineral resources and their processing thereby providing students a global perspective needed for problem solving, decision making, and leadership roles in a rapidly-changing world confronted with environmental challenges

The field of interest

The three areas outlined below underscore the future global importance of geoscientists as technical experts in the development and management of Earth's finite resources, key players in natural hazard mitigation, and stewards of sensible environmental practice.

1. Natural Resource Exploration, Development and Management

The global economy and population continue to grow, driving unprecedented world demand for natural resources, particularly in developing countries. Geoscientists possess the practical field training and quantitative skills necessary to locate, evaluate and extract groundwater, metals, industrial minerals and

fossil fuels. Natural resource exploration, development and management must continue if Earth's living standards are to be maintained. Fresh water has become a precious commodity, and recent emphasis on solar energy and electric cars is driving demand for metals used in photovoltaic cells and rechargeable batteries. The traditions and graduates of the Departments from different fields of geology, mining and materials & metallurgy put the Faculty of Geosciences in an excellent position to produce graduates qualified to address these pressing issues.

Three important areas of resource require geo-scientific expertise tempered with environmental awareness:

Metals and Industrial Minerals

- One of the sectors in which Kosovo relies the development strategy is mineral resources
- Exploration expanding of existing resources and exploring new mineral resources is one of the most important segments of the mining sector development.
- Taking into account the past developments and inheritance of environmental damage, the sustainable development of the mining sector and management according to the best known practices should be a prerequisite for these developments.
- Industrial minerals such as sand, gravel, limestone and clay are the first important raw material for the construction industry.
- The major world economy needs for metals are growing. Kosovo is rich in minerals like Pb and Zn minerals, followed by other precious metals, minerals of iron-nickel, bauxite, etc.
- Geoscientists trained in mineral exploration are currently in demand.

Water resources

- Maintaining an adequate water supply for residential, agricultural and industrial use is essential to human livelihood
- Jobs and careers for hydrogeologists and hydrologists abound not just in Kosovo, but worldwide: groundwater exploration and extraction, water quality monitoring, water resource planning, groundwater modeling, use of recycled and reclaimed water, remediation of contaminated groundwater, etc.
- Modern geophysical instrumentation provides a cost-effective means to map the shallow Earth and infer its physical properties. The resulting three-dimensional information is crucial to the exploration for groundwater, metals, as well as assessment of foundation characteristics.
- Geoscientists must continue to work with both public and private agencies to assure an adequate supply, sage management and a safe quality of water.
- Water management will be vital to future growth of the Kosovo, where the west part is rich on water, but the east has limited water resources
- Hydrogeologists might work independently or in collaboration with biologists, chemists, engineers, planners and government regulatory agencies.

Energy Recourses

- The transition from fossil fuels to the carbon-neutral energy alternatives, on a global scale, will undoubtedly take decades. So, the production of petroleum, natural gas and coal will continue to be a priority until alternative energy technologies gain efficiency and become cost effective.
- Working in collaboration with policy makers at all governmental levels, geoscientists will aid in charting the best practical course for future energy exploration.

2. Natural Hazard Analysis and Mitigation

A large fraction of Earth's residents live in the zones with high natural hazard potential. Rising population and development of construction in Kosovo contribute to amplify the threats from natural hazards, leading to an increase in the average costs of property damage from natural hazards. Geoscientists should not only identify, monitor, and assess these hazards, but also work closely with engineers, governmental agencies and city planners to help develop strategies and technologies to mitigate loss of property and life.

Infrastructure and Residential Development

Kosovo is particularly prone to earthquake, landslide, fire and flood hazards and as the Kosovo's population grows, urban and residential development will increasingly occur in higher risk seismic zones or regions prone to slope instability. Geologists and engineers with geologic training can help assess and mitigate these risks. Seismological studies of earthquake-induced ground motion provide crucial information for the design of seismic-safe buildings

3. Environmental Quality and Global Climate Change

Understanding today's complex environmental issues will require knowledge of how the solid Earth interacts with its hydrosphere, atmosphere and biosphere; i.e., "Earth System Science." One charge of the geoscientist is to articulate the science behind environmental processes. Global warming and climate change have recently become household terms. Geoscientists provide an important time perspective in their studies of pre-human global climate fluctuations. Their training in Earth System Science makes them ideal, nonpartisan advisors to policy makers. The Department of Geological Sciences seeks to strengthen its knowledge base in environmental sciences. This requires environmental and hydrogeological labs to provide students hands-on experience in water-soil-rock interactions and flooding processes.

- Production of natural resources and development of land must occur with greater cognizance of Earth's environment. Geoscientists play important roles in assessing site characteristics and writing Environmental Impact Statements.
- Contamination of surface water and groundwater is a crucial global issue. Lessons learned by developed countries must be taken into consideration to avoid repeating mistakes. Successful mitigation techniques should likewise be passed on.
- Each year the world requires more waste treatment and disposal. The challenge is to accomplish this efficiently and securely with a minimum impact on ecosystems and human health.

Goal 1: Academic Growth through Contemporary Programs "Learning By Doing"

Objectiv	Strategy	Indicators of success
1.1. Developing a modern curriculum with an emphasis on areas of strategic development.	<p>a) Design and implementation of programs with emphasis in the field of research and sustainable development of mineral resources and water resources</p> <p>b) Continued growth through the development of other fields</p> <p>c) Monitoring students progress</p> <p>d) Improvement programs in terms of the use of computers</p>	<ul style="list-style-type: none"> • Updated subject descriptions and other preconditions • Approved programs • Modification of programs based on student feedback • The number of the graduated students from each field • Adding the computer components to the subject description
1.2. Increase of academic activity	To develop a mechanism for assessing the productivity of departments in the faculty by appointing an ad hoc committee to develop the evaluation procedures.	<ul style="list-style-type: none"> • Number of publications. • The level of funding • Monitoring • Teaching
1.3. Increasing the quality of studies by using the modern laboratory and field equipments	<p>a) Maintenance and security measures of the modern laboratories and work equipment on the field ,</p> <p>b) Focus on laboratory work and field activities in programs.</p> <p>c) Facilitate students access to laboratory and field activities</p>	<ul style="list-style-type: none"> • The purchase of the learning and research equipment • Subjects based laboratory research and field work. • PrProjects and thesis (Bachelor, Master) based on laboratory and field work • Access to Field vehicles.
1.4. Development of new Master and doctoral programs	<p>a) Developing the monitoring practices of existing programs and reviewing them</p> <p>b) Analyze and evaluate the countries needs for new programs</p> <p>b) Development of Departmental policies for the preparation of doctoral programs</p>	<ul style="list-style-type: none"> • The number of new master programs • Doctoral Program • The current number of students continuing the graduation process
1.5. Maintain and promote faculty, staff, and professionals by increasing their motivation to work.	<p>a) Supporting personal and academic staff in delivering high quality services, teaching and research work as well as attracting new additional staff.</p> <p>b) Supporting new staff to clearly articulate their expectations.</p> <p>c) Provide the necessary travel funds to for faculty needs</p>	<ul style="list-style-type: none"> • Mjetet e siguruara teknike dhe financiare. • Secured technical and financial means • Financial support for academic research and travel expenses • Increase the level of staff satisfaction in work

Goal 2: Improving the level of studies

Objectiv	Strategy	Indicators of success
2.1. Promotion of models - stimulation / scholarships for studies	a) Request for research cooperation student-faculty b) Support the participation of faculty staff and students in scientific conferences c) Provide incentives for mentors who associate teaching with research d) Improving the student experience through field trips led by faculty / mentors in local, regional and international level.	<ul style="list-style-type: none"> • Faculties staff and students presentations at conferences • Completed Projects • Defended Master Thesis • Allocation of travel funds • Funds for students support • Finding funds for regional and international travel
2.2. Advancing research and analytical opportunities through field and modern laboratory equipment	a) The use of the new equipment for research and teaching activities b) Providing the research laboratories and working equipment in the field, as well as computer technology in the industry standard	<ul style="list-style-type: none"> • Supply with new equipment • Engaging students in the Laboratory and field activities • Softwares update, calibration of equipment, maintenance contracts
2.3. Improving the teaching and learning environment	a) Providing modern learning tools b) Assessment of learning outcomes and continuous improvement in accordance with the strategy	<ul style="list-style-type: none"> • Modernization of the teaching classrooms • Evaluation of the teaching quality by colleagues and students • Periodic Reports on Assessment of Learning Outcomes

Goal 3: Promotion of the Faculty of Geosciences, Mission and its significance in the Country

Objectiv	Strategy	Indicators of success
3.1 Involvement of FG in research and events of direct relevance to society	a) Improving and increasing the relationship with other local institutions b) Involving students in projects and master thesis that are linked to the local industry and community concerns	<ul style="list-style-type: none"> • Contracts and scholarships / funds from institutions • Masters theses and projects based on local interests issues

3.2. Establishing cooperation with local universities and colleges	a) Participating in joint events/symposiums b) Submission of proposals for cooperation c) Invitation of colleges and faculty students to FG bodies	<ul style="list-style-type: none"> • Participation in Symposiums • Proposals provided with the involvement of the FG • Received Funds from cooperation • Participation of students in field studies
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Goal 4: Developing External Relations and Supporting Mechanisms.

Objectiv	Strategy	Indicators of success
4.1 Relating the graduates with industry and government employers	a) Maintaining and updating the staff database b) Informing the students about the opportunities of employment and conducting practical work c) Organization of employment fairs; the invitation of the program managers and recruiting firms on campus d) Setting up employment and career paths for graduates in FG	<ul style="list-style-type: none"> • Staff database • The total number of the students who have applied and those accepted in the cooperation programs • Participation of graduates in employment fairs
4.2. Increased integration of geosciences	a) Identification and advertising of the interdisciplinary courses	<ul style="list-style-type: none"> • The total number of the Interdisciplinary student • The number of interdisciplinary students in the graduation process

Goal 5: Engaging in Academic Fundraising and Marketing.

Objectiv	Strategy	Indicators of success
4.1 Increase funding for academic programs, including scholarships, memberships, professors,	a) Developing and implementing a plan for increasing funds and raising funds for graduates. Coordinates with the Development Office. b) Continuing to increase emphasis on professional meetings c) Keeping the update website with latest news and beneficial information.	<ul style="list-style-type: none"> • Collection of donations • Industry • Geoscientific collaborators

