Sofia University "St. Kl. Ohridski"
Faculty of Geology and Geography

Department of Mineralogy, Petrology and Economic Geology
Department of Geology, Paleontology and Fossil Fuels

MSc Programme: Applied Economic Geology

Programme Leader: Prof. Athanas Chatalov

1. Aims

The MSc curriculum in Applied Economic Geology is designed to create applied practical skills in mineral exploration corresponding to the recent industry standards. Exploration geological field practice and training is an important accent of the programme that will be realized in real exploration environment with the support of local and international mining and exploration companies.

2. **Course of Study**

The master's program provides specialized training to students in the field of economic geology and mineral deposit exploration in accordance with the international good practice and mining standards. Individual field work and training, exploration case studies, field mapping and sampling techniques and field trips to sellected deposit types will give the students advanced knowledge of mineral deposits exploration. Completion of training with the defending of MSc thesis is awarded by earning 90 credits. Successful graduate students can apply for position in exploration and mining companies or continue their education in a variety of PhD programs in the field of Geology.

3. Professional Qualifications

Principles of mineral exploration and exploration deposit models, in addition to specific geophysical, geochemical, mapping remote sensing methods, sampling, core logging methods, data capture and ore reserves modelling and evaluating methods will be presented in both lecture and field prctical training modules of the programme. MSc thesis preparation, individual field work and training, case histories and mapping and 3D modelling of mineral resources will benefit the students practical skills in mineral deposits exploration and evaluation.

4. Professional Realization

Gaining practical mineral exploration skills the studensts could find relisation in mining industry sector, exploration companies, universities and exploration and mining research institutions.

5. Terms of acceptance

It has to be assumed that the applicants have a reasonable knowledge of the nature of mineral deposits and a BSc degree in the field of Geology. Acceptance is according to the rules for foreign students at Sofia University.

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Professional Field: **Earth Sciences, Geology**

Educational and Qualification Degree: **Master of Science**

MSc Programme: ***Applied Economic Geology***

Form of Study: Regular
Length of Study: Three semesters

Professional Qualification: **Master of Applied Economic Geology**

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COURSE CURRICULUM

Academic year beginning from 2020/ 2021

№	Course code				Course Title	Term	ECTS credits	Lectures	Practical classes / practice
1	*2*				*3*	*4*	*5*	*6*	*7*
					Compulsory courses I semester				
1	C	1	0	1	Economic Geology and Mineral Exploration	1	5	**30**	**30**
2	C	1	0	2	Exploration Geochemistry	1	4	**30**	**30**
3	C	1	0	3	GIS and Remote Sensing	1	5	**15**	**45**
					Elective Courses I semester				
1	E	2	0	1	Structural Geology of Mineral Deposits	1	5	**15**	**45**
2	E	2	0	2	Applied Petrology	1	5	**30**	**30**
3	E	2	0	3	Tectonics of Sedimentary Basins	1	5	**30**	**30**
4	E	2	0	4	XRD Analisis	1	5	**15**	**45**
					Compulsory courses II semester				
4	C	1	0	4	Exploration Geophysics	2	4	**30**	**30**
5	C	1	0	5	Geological Mapping in Exploration	2	4	**15**	**45**
					Elective Courses II semester				
4	E	2	0	5	Applied Sedimentology	2	5	**30**	**30**
5	E	2	0	6	Wall Rock Alteration	2	5	**30**	**30**
6	E	2	0	7	Stream Sediment Analysis	2	5	**15**	**30**
7	E	2	0	8	Applied Geostatistics	2	5	**15**	**30**

Compulsory courses III semester

6	C	1	0	6	Core Logging and Sampling	3	3	**15**	**30**
7	C	1	0	7	Mineral Resource and Reserves Estimation and Modelling	3	4	**15**	**45**

Elective Courses III semester

8	E	2	0	9	Environmental Mineralogy	3	4	30	**15**
9	E	2	0	10	Methods for Analysis of Geological Materials	3	4	30	**30**
10	E	2	0	11	Metallogeny	3	4	30	**15**

Field training and trips

№	code				Title	Semester	ECTS - credits	Number classes
1	C	3	0	1	Mineral Exploration Methods	1	6	84
2	C	3	0	2	Geological Mapping in Mineral Exploration	2	6	84
3	C	3	0	3	Individual Field Work	2	6	84
4	C	3	0	4	Field Trip in Economic Geology (in Bulgaria and Abroad)	3	4	60

Degree completion

Form of degree completion	ECTS credits	First state exam/ thesis defence session	Second state exam /thesis defence session
MSc thesis	**15**	**March**	**June**

Programme leaders: Prof. Dr Athanas Chatalov
Assoc. Prof. Dr Dian Vangelov