University of Miskolc
Faculty of Earth Science and Engineering
Earth Sciences Engineering masters program

- Programme title: **Earth Sciences Engineering masters program (MSc)**
- Degree awarded: **Earth Sciences Engineer**

- minor specialisations:
  - Geological Engineering module,
  - Geophysical Engineering module.
- Number of semesters:4; number of contact hours: 1380; required number of credits to be completed: 120
- Field practice: Minimum 4 weeks internship at a mining company, research institute or competent authority.

Programme overview

General courses (Basic subjects form natural sciences – NS; Economic and human subjects – EH; Basic professional subjects – PS)

semester	course	subject group	department	Lect.	Prac.	ECTS	assignment	lecturer
1	Numerical methods and optimization	NS		1	1	2	P	Dr. Mészáros Józsefné
1	Engineering physics	NS	MFGFT	2	1	4	E	Dr. Dobróka Mihály
1	Physical geology	NS	MFFTT	2	1	4	E	Dr. Hartai Éva
1	Mineralogy and geochemistry	NS	MFFAT	2	1	4	E	Dr. Szakáll Sándor
1	Geodesy, spatial informatics	NS	MFGGT	2	1	4	E	Dr. Bartha Gábor
1	Computer science for engineers	NS		0	2	2	P	Dr. Mészáros Józsefné
1	Applied geophysics I.	PS	MFGFT	2	1	4	E	Dr. Gyulai Ákos
1	Data and information processing	PS	MFGFT	2	1	4	P	Dr. Dobróka Mihály
1	Graduate research seminar	EH	MFFAT	0	2	2	P	Dr. Mádai Ferenc
2	Structural geology	PS	MFFTT	1	2	4	E	Dr. Németh Norbert
2	Mineral deposits	PS	MFFTT	2	1	4	E	Dr. Földessy János
2	Engineering geology and hydrogeology	PS	MFKHT	2	1	4	E	Dr. Szűcs Péter
2	Analytical technics in mineralogy and petrology	PS	MFFAT	1	1	2	P	Dr. Zajzon Norbert
3	Geological interpretation and prospecting	PS	MFFTT	2	2	4	E	Dr. Földessy János
3	Geophysical interpretation and prospecting	PS	MFGFT	2	2	4	E	Dr. Ormos Tamás
3	Quality management	EH	GTVVE	2	0	2	P	Dr. Szintay István
3	Legal and economic studies for mining and geology	EH	MF	2	0	2	E	Dr. Hámor Tamás

semester	course	subject group	department	Lect.	Prac.	ECTS	assignment	lecturer
3	Diploma thesis consultation 1.					6		
4	Strategic Management	EH	GTVVE	2	0	2	E	Dr. Kunos István
4	Safety techniques and labor safety	EH	MFKOT	2	0	2	E	Dr. Szabó Tibor
4	Diploma thesis consultation 2.					24		
Geophysical engineering module (Specific professional subjects – SPS)								
2	Geophysical measurements	SPS	MFGFT	2	1	4	E	Dr. Ormos Tamás
2	Engineering and environmental geophysics	SPS	MFGFT	2	1	4	P	Dr. Ormos Tamás
2	Geophysical inversion	SPS	MFGFT	2	2	4	E	Dr. Dobróka Mihály
2	Applied geophysics II.	SPS	MFGFT	2	1	4	E	Dr. Turai Endre
3	Geophysical data processing	SPS	MFGFT	2	2	4	E	Dr. Turai Endre
3	Global environmental geophysics	SPS	MFGFT	1	1	2	E	Dr. Gyulai Ákos
3	Elective course I.	EL		2	2	4	E	
3	Elective course II.	EL		2	2	4	E	
Geological engineering module (Specific professional subjects – SPS)								
2	Historical geology	SPS	MFFTT	2	1	4	E	Dr. Less György
2	Hydrocarbon geology	SPS	MFFAT	2	0	2	E	Dr. Bérczi István
2	Geological mapping	SPS	MFFTT	1	2	4	P	Dr. Less György
2	Sedimentology	SPS	MFFAT	1	1	2	P	Dr. Bérczi István
2	Geochemical prospecting methods	SPS	MFFAT	1	2	4	P	Dr. Mádai Ferenc
3	Non-metallic industrial minerals	SPS	MFFTT	2	2	4	E	Dr. Földessy János
3	Applied environmental geology	SPS	MFFAT	2	2	4	E	Dr. Mádai Viktor
3	Elective course I.	EL		2	2	4	E	
3	Elective course II.	EL		1	1	2	P	

Graduation requirements:

- Students must have completed all the core, specialization and elective course requirements.
- Students must have achieved a minimum of 120 credits.
- Students will have successfully completed the mandatory internship.
- Students will have submitted a Thesis Work.
- Students will have fulfilled all administrative and financial requirements towards the university.

Graduation comprises two parts: the defend of the Thesis Work and passing final exams.

The final exam is an oral exam, discussing the the following topics:

- on the Geological engineering module:
    - Geological and geophysical interpretation and prospecting (A1)
    - Geology (A2)
    - Mineral deposits (A3)
- on the Geophysical engineering module:
    - Geological and geophysical interpretation and prospecting (A1)
    - Geophysics (A2)
    - One topic from the elective subjects (A3)

The overall result of the final examination (ZV) is calculated as:

$$ZV=(A1+A2+A3+3\times D) / 6$$

where:

- D = the final grade of the Thesis work, defined by the examination board,
- A1, A2 and A3 = grades of the three exams.
- Grades are integer numbers and given on a scale from 5 (the highest grade) to 1 (the lowest grade). The lowest passing grade is 2.