



UNIVERSITY OF MISKOLC

**FACULTY OF
EARTH AND ENVIRONMENTAL
SCIENCES AND ENGINEERING**

Environmental Geology

Hydrogeology Engineer MSc
Environmental Engineer MSc

MFFTT10008

COURSE COMMUNICATION FOLDER

**UNIVERSITY OF MISKOLC
FACULTY OF EARTH AND ENVIRONMENTAL SCIENCES AND ENGINEERING
INSTITUTE OF EXPLORATION GEOSCIENCES**

Miskolc, 2023/24. I. Semester

Course title: Environmental Geology	Code: MFFTT10008 Responsible department/institute: Department of Applied Mineralogy / Institute of Exploration Geosciences
Responsible instructor: Dr. Norbert Zajzon, habil. associate professor Instructors: Dr. Ferenc Krstály senior researcher, Dr. Ferenc Móricz associate professor, Dr. Norbert Zajzon habil. associate professor, Boglárka Anna Topa assistant lecturer Responsible instructor for seminars: Dr. Ferenc Má dai, associate professor	Type of course: K/Compulsory
Position in curriculum: 1 st semester	Pre-requisites (if any): -
No. of contact hours per week (lecture + seminar): 2+1	Type of assessment (examination/practical mark / other): exam
Credits: 4	Course: full time
Competencies to evolve: <i>knowledge:</i> T1, <i>ability:</i> K1, K2	
Course description: The main objective of the course is to make the students familiar with the effects of geological medium on the state and changes of the environment, and prepare them for revealing the geological background of environmental problems as well as mitigating or minimizing these problems.	
The short curriculum of the subject: System approach in geology, changes in the four main systems of the Earth. The objects, methods and legal background of environmental geology. Environmental minerals, their characteristics and role in causing and mitigating of environmental problems. Geological hazards (volcanism, earthquakes, mass movements). The role of geological medium in the anthropogenic contamination and pollution (processes of environmental geochemistry, interactions between soil, rocks and contamination, geological conditions effecting on the spreading of contamination). Geological and geochemical concerns of the effects of mining on the environment. Geological background of the radioactive waste disposal. Geology in nature protection. Geological tasks in the environmental assessment. Practical work: self-made solutions of simple case-study problems.	
Assessment and grading of the seminar: Handing in the half year task in an exceptable format and level in time (last week of the semester), writing two tests at least on the minimum level of 51%. Failed tests are rewritable on the last week of the semester. Attendance of lectures and seminars are compulsory. Missing more than three occasions from lectures or seminars cause deny of signature.	

Assessment and grading: Evaluation of the knowledge happens in 100% by the result of the exam. Reaching the 80% of the minimum questions, which is a compulsory constrain to start the oral or written exam.

Written exam:

90 – 100%: 5 (excellent)

70 – 90%: 4 (good)

60 – 70%: 3 (satisfactory)

50 – 60%: 2 (pass)

0 - 50%: 1 (failed)

Compulsory literature resources:

Spencer S.; Reichard, J S; Reichard, J: Environmental Geology, McGraw-Hill, 2009,
Keller E. A.: Introduction to Environmental Geology. 5th edition, Pearson Education Inc.,
New Jersey, 2012

Erickson J.: Environmental Geology: Facing the Challenges of Our Changing Earth (Living Earth) Amazon com,2002

Recommended literature resources:

Duncan F.: Investigations in environmental geology, Prentice Hall, Upper Saddle River N.J, 2009

Holland, H D.: Treatise on geochemistry, Elsevier, New York NY, 2003

Keith S.: Environmental hazards, Routledge,, Abingdon, Oxon ;;New York :, 2008,

Knödel Klaus: Environmental geology : handbook of field methods and case studies, Springer, Berlin ;;New York, 2007

Montgomery, C W: Environmental Geology, McGraw-Hill, 2010

Patnaik, P.: Handbook of environmental analysis: chemical pollutants in air, water, soil, and solid wastes, Taylor and Francis, 2009

Bell F. G.: Geological Hazards: their assessment, avoidance and mitigation. E & FN Spon, London, 1999

Lundgren L. W.: Environmental Geology. Prentice-Hall International, London, 1999.

Curriculum of the subject

Environmental Geology thematic teaching programme

2023/24 1st semester

Hydrogeology Engineer MSc

Environmental Engineer MSc

Lectures:

Friday from 9.00 to 11.00, Place: Pettkó hall

- 1. week:** Introduction
- 2. week:** Minerals and Rocks, Ecology and Geology
- 3. week:** Introduction to Natural Hazards, Earthquakes
- 4. week:** Tsunami, Volcanic Activity
- 5. week:** Rivers and Flooding,
- 6. week:** Slope Processes, Landslides, and Subsidence
- 7. week:** Coastal Processes,
- 8. week:** Holiday
- 9. week:** Water Resources, Water Pollution
- 10. week:** Mineral Resources and the Environment
- 11. week:** Energy Resources
- 12. week:** Soils and Environment
- 13. week:** Global Climate Change
- 14. week:** Geology, Society, and the Future

Seminars:

Wednesday from 14.00 to 15.00, Place: XIII. hall

- 1. week:** 2023.09.13 – Program, QGIS intro
- 2. week:** 2023.09.20 – Sport Day
- 3. week:** 2023.09.27 – Landuse planning model
- 4. week:** 2023.10.04 – Landuse planning model
- 5. week:** 2023.10.11 – Landuse planning model
- 6. week:** 2023.10.18 – Landuse planning model
- 7. week:** 2023.10.25 – Stone deterioration exercise
- 8. week:** 2023.11.01 – Holiday
- 9. week:** 2023.11.08 – Stone deterioration exercise
- 10. week:** 2023.11.15 – TMF safety issue
- 11. week:** 2023.11.22 – TMF checklist
- 12. week:** 2023.11.29 – TMF checklist
- 13. week:** 2023.12.06 – TMF checklist
- 14. week:** 2023.12.13 – TMF checklist

Miskolc, 2023. szeptember 11.

Norbert Zajzon, PhD
associate professor
responsible instructor