ENVIRONMENTAL GEOLOGY

Hydrogeology-, Environmental Engineer MSc course
2020/21 1. Semester

COURSE COMMUNICATION FOLDER

University of Miskolc
Faculty of Earth Science and Engineering
Institute of Mineralogy and Geology

Tartalomjegyzék

Course datasheet

Course title: Environmental Geology	**Neptun code:** MFFTT710008 **Responsible department/institute:** ÁFI
Responsible instructor: Dr Mádai Viktor, associate professor	**Type of course: C**
Position in Curriculum (which semester): 1	**Pre-requisites:**
Number of Contact Hours per Week (lec.+prac.): 2+1	**Type of Assessment (examination/practical mark/other):** exam
Credits: 4	**Course:** full-time
Course Description: ***Knowledge:*** T1, ***Ability:*** K1, K2,	
The short curriculum of the subject: 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.	
A tantárgy tematikus leírása: 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.	
A kurzusra jelentkezés módja: During registration week through NEPTUN system **A tantárgy felvételének előfeltétele:** **Oktatási módszer:** Lectures and seminars	

Assessment and grading:
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.

A tantárgy lezárásának módja: signature + exam mark
Értékelés, a félévi érdemjegy számítása:
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.
Oral exam: 0 - 50%: 1, 50 – 60%: 2, 60 – 70%: 3, 70 – 90%: 4, 90 – 100%: 5

Oktatási segédeszközök
Black board, choke, PC and projector . Course book: *Keller, E A: **Introduction to Environmental Geology**, Prentice Hall, 2011,*

Compulsory or recommended literature resources:
Compulsory:
Edgar, Spencer;Reichard, J S;Reichard, J: **Environmental Geology**, McGraw-Hill, 2009,
Keller, E A: **Introduction to Environmental Geology**, Prentice Hall, 2011,
Erickson, J.: **Environmental Geology: Facing the Challenges of Our Changing Earth (Living Earth)** Amazon com,2002
Recommended:
Foley,Duncan: **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 Inernational, London, 1999.

2. TANTÁRGYTEMATIKA

Lectures: Friday, 09:00 – 11:00
Seminars: Monday and Tuesday 14:00-15:00
Lectures

2020.09.11.	Philosophy and Fundamental Concepts, Internal Structure of Earth and Plate Tectonics + Outlining the half year term tasks, documentation system, basic data, maps
2020.09.18.	Minerals and Rocks, Ecology and Geology + The basic usage of Global Mapper
2020.09.25.	Introduction to Natural Hazards, Earthquakes + Rectification, digitization of contur lines
2020.10.02.	Tsunami, Volcanic Activity + Rectification, digitization of contur lines
2020.10.09.	Rivers and Flooding + Rectification, digitization of contur lines
2020.10.16.	Slope Processes, Landslides, and Subsidence + Geomorfology, geographycal position of the mapped terrain
2020.10.23.	Holiday
2020.10.30.	Coastal Processes + I. Test. Impact of Extraterrestrial Objects + Marking of given slope chategories Geology and geologycal mapping
2020.11.06.	Water Resources, Water Pollution + Marking of given slope chategories
2020.11.13.	Mineral Resources and the Environment + Marking of given slope chategories
2020.11.20.	Energy Resources + Composite maps (Rayons)
2020.11.27.	Soils and Environment + Composite maps (Rayons)
2020.12.04.	Global Climate Change + Corrections, checking
2020.12.11.	Geology, Society, and the Future + II. Test, handing in the tasks

3. MINTAZÁRTHELYI

1. Describe the basic elements of environmental geology! (10%)
2. Give a short description about petrogenetic system of metamorfic rocks! (20%)
3. Describe the earthquake hazards! (20%)
4. Give a short description about Tsunami events! (20%)
5. Describe the volcanic hazards! (10%)
6. Give a short description about floods! (10%)
7. Describe the slope as a dynamic environment! (10%)

4. FÉLÉVES BEADANDÓ FELADAT KÖRNYEZETFÖLDTAN TÁRGYKÖRÉBEN

Create a 6 km^2 map in digitized form from base maps Ratio: 1:10 000

Categorize the :

1, slopes,

2, slope forms,

3, extinctions,

Create composite maps (Rayons) from the above mantioned maps, describing the main possible functions of the given terrain: house building purpose, gardening.

5. VIZSGAKÉRDÉSEK

1. Outline the Internal Structure of Earth!
2. Give a short descriptions about some Minerals and Rocks!
3. Describe the Earthquake hazards!
4. outline the hazardous phenomenon of Rivers and Flooding!
5. Describe the Volcanic Activity from environmental point of view!

6. EGYÉB KÖVETELMÉNYEK

During the writing of tests and exams the usage of mobile phones are forbidden.

Miskolc, 2020. augusztus 27.

Dr. Mádai Viktor
Tantárgyjegyző, egyetemi docens