



BASIC CONCEPTS OF GEOLOGY

COMMUNICATION DOSSIER ON THE SUBJECT

University of Miskolc

Faculty of Earth and Environmental Science and Engineering

Institute of Exploration Geosciences

2022/23 Academic Year, 2nd semester

1 COURSE DESCRIPTION

Course Title: Basic Concepts of Geology Instructor: Dr. Éva Hartai, Honorary Professor	Code: MFFTT250 Responsible department/institute: Institute of Exploration Geosciences Subject element: K
Position in curriculum (which semester): 1	Pre-requisites (if any): -
No. of contact hours per week (lecture + seminar): 2 (lecture)	Type of Assessment (examination/ practical mark / other): examination
Credits: 2	Course: full time
<p>Course Description: Formation of the Universe, the solar System and the Earth. Inner structure of the Earth. Origin of the plate tectonic theory, principles of plate tectonics. Magmatic rock forming processes. Sedimentary rock forming processes. Metamorphic rock forming processes. Principles of structural geology. Short review of the Earth and life history. Formation of metallic and non-metallic mineral deposits and fossil fuels.</p> <p>Competencies to evolve:</p> <p><u>Knowledge:</u> T02 Combines the technical and scientific knowledge required for the high-level integration in earth sciences engineering disciplines, among others in numerical methods, technical physics and their contexts. T08 Distinguishes between the methods of exploring mineral deposits.</p> <p><u>Ability:</u> K02 Composes presentations and written documents in Hungarian or in a foreign language. K06 Adapts modern information acquisition and data collection methods. K07 Solves technical problems requiring innovative approach in theory and practice</p> <p><u>Attitude:</u> A01 Perceives the professional and technological methodological developments in the fields of applied earth sciences, participates in their development. A02 Applies innovative skills and knowledge in solving professional problems in the fields of earth science engineering A04 Maximizes professionalism and professional solidarity. A07 Has a sufficient motivation to carry out activities in often changing working, geographical and cultural circumstances.</p> <p><u>Autonomy and responsibility:</u> F01 Plans the work independently, and rules on to lead workgroups. F02 Takes responsibility and is accountable for the work processes carried out under his / her control. F03 Makes decisions carefully, in consultation with representatives of other disciplines</p>	

Assessment and grading:

Students will be assessed with using the following elements.

Attendance:	5 %
Student presentation	10 %
Final exam	85 %
Total	100%

Grading scale:

% value	Grade
85 -100%	5 (excellent)
60 – 85%	4 (good)
55 - 60%	3 (satisfactory)
40 - 55%	2 (pass)
0 - 40%	1 (failed)

Compulsory or recommended literature resources:

- Presentation slides of lectures
- David Rothery: Geology – a complete introduction. McGraw-Hill Companies, 2015. ISBN-13: 978-1473601550
- Edward J. Tarbuck, Frederick K. Lutgens & Dennis G. Tasa: Earth Science. ISBN-13: 978-0134543536

2 CURRICULUM

Basic Concepts of Geology

2022/23 Academic Year, 2nd semester

Timing of lectures: Wednesday, 13:00-15:00

Date	Theme of lecture
2023-03-01	Formation of the Universe, the solar System and the Earth.
2023-03-08	Inner structure of the Earth
2023-03-22	Origin of the plate tectonic theory. Principles of plate tectonics
2023-03-29	Magmatic rock forming processes
2023-04-05	Sedimentary rock forming processes
2023-04-12	Metamorphic rock forming processes.
2023-04-19	Principles of structural geology
2023-04-26	Earth and life history – Precambrian and Phanerozoic
2023-05-03	Formation of ore deposits
2023-05-10	Formation of non-metallic deposits
2023-05-17	Formation of fossil fuels
2023-05-24	Presentations by students
2023-05-31	Presentations by students

3 EXAM DETAILS

Students have to demonstrate sufficient knowledge in form of oral exam. The course leader asks short question covering all topics discussed during the semester, and short answers are expected from the students. The exam results contribute to the final assessment of the students with 85%.

Exam questions:

1. Formation of the Solar System and the Earth
2. Inner structure of the Earth by chemical composition and physical state
3. Magmatic processes
4. Magma types according to the plate tectonic settings
5. Continental sedimentary environments
6. Marine sedimentary environments
7. Metamorphic processes, grades of metamorphism
8. Metamorphic settings
9. Rock deformation, faults and folding
10. Principles of the plate tectonic theory
11. The geologic time scale
12. Main events of the Earth history
13. Basic concepts of ore formation, deposit types
14. Main non-metallic minerals, their formation and use
15. Generation and migration of fossil fuels

Miskolc, 27.02.2023

Dr. Éva Hartai
Honorary Professor