



GEOLOGICAL MAPPING

Earth Sciences Engineering MSc
2018/19 II. semester

COURSE COMMUNICATION FOLDER

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

Course datasheet

Course Title: Geological mapping Responsible Instructor: György Less Dr., professor, DSc	Neptun code: MFFTT720029 Responsible Department: Dpt. of Mineralogy and Geology Type of course: C
Position in Curriculum (which semester): second Type (lec. / sem. / lab. / consult.) and Number of Contact Hours per Week: lec. 1, lab. 2	Pre-requisites: Physical geology (MFFTT 710001) Type of Assessment (exam. / pr. mark. / other): pr. mark
Credits: 4	Tagozat: nappali
Study goals: The subject gives knowledge on the figuration of geological phenomena on topographic maps, on preparing geological maps, cross-sections, their legend and on assembling explanatory report. Competencies to evolve: Knowledge: T1, T2, T3, T4, T5, T7, T8, T9, Ability: K1, K2, K3, K5, K6, K7, K9, K11, K12, K13, Attitude: A1, A2, A3, A4, A5, A7, Autonomy and responsibility: F1, F2, F3, F4, F5	
Course content: The aim of preparing geological maps. The geological map and its additional parts (geological cross-sections, stratigraphical columns and legend). Geological phenomena figured in the geological maps: lithostratigraphical units, structural characteristics. Different types of geological boundaries and their recognition on the field. Orientation on the field with topographical map and with GPS. Documentation of field observations in the field booklet and on the topographical map. Preparation of geological cross-sections. Preparation of covered and uncovered (without Quaternary deposits) geological maps with stratigraphical column and legend. Assembly of explanatory reports.	
Inter-semester control: Criterion for signature: Preparation of two geological cross-sections based on real Carpathian geological maps (from Slovakia and Romania); Preparation of covered and uncovered (without Quaternary deposits) geological map of an about 2 sq. km territory (in 2-3-man groups) with one geological cross-section, with stratigraphical column and legend. Assembly of a short explanatory report about the territory.	
Grading limits: >90%: excellent, 75-90%: good, 60-75%: medium, 45-60%: satisfactory, <45%: unsatisfactory.	
The 3-5 most important compulsory, or recommended literature (textbook, book) resources: Tearprock, D.J. & Bischke, R.E. (2002): Applied Subsurface Geological Mapping with Structural Methods 2nd Edition, 846 p., Prentice Hall Hamilton, D.E. & Jones, T.A.: Computer modeling of geological surfaces and volumes. – AAPG Computer applications in geology. No.1., 589 p. Tulsa, Oklahoma McClay, K. (1995): The mapping of Geological Structures. Geolog. Soc. of London Handbook. John Wiley Sons, Chichester, New York, Brisbane, Toronto, Singapore. SURFER 8.0 Tutorial and User's Guide. - Golden Software. P512 . Denver	

Syllabus of the semester

Geological mapping

Lecture: Tuesday, 15:00 – 16:00

Practical: Tuesday, 16:00 – 18:00

Week	Thematics of lecture
2019.02.12.	The aim to prepare a geological map.
2019.02.19.	Types of the geological map.
2019.02.26.	The geological map and its accessorial elements (geological cross-sections, legend, stratigraphical column).
2019.03.05.	Phenomena displayed on the geological map: lithostratigraphical units, structural features.
2019.03.12.	Phenomena displayed on the geological map: lithostratigraphical units, structural features.
2019.03.19.	Different types of geological boundaries and their recognition
2019.03.26.	Documentation of geological observations in field-booklet and on the topographical map.
2019.04.02.	Documentation of geological observations in field-booklet and on the topographical map.
2019.04.09.	Documentation of geological observations in field-booklet and on the topographical map.
2019.04.16.	Elements (Introduction with technical data, Physiography, Previous geological investigations, Stratigraphy, Structural geology, Review of the geological development, Hydrogeology, Mineral raw materials, References) and assembly of the brief explanatory report of the geological map
2019.04.23.	Elements (Introduction with technical data, Physiography, Previous geological investigations, Stratigraphy, Structural geology, Review of the geological development, Hydrogeology, Mineral raw materials, References) and assembly of the brief explanatory report of the geological map
2019.04.30.	Elements (Introduction with technical data, Physiography, Previous geological investigations, Stratigraphy, Structural geology, Review of the geological development, Hydrogeology, Mineral raw materials, References) and assembly of the brief explanatory report of the geological map
2019.05.07.	Elements (Introduction with technical data, Physiography, Previous geological investigations, Stratigraphy, Structural geology, Review of the geological development, Hydrogeology, Mineral raw materials, References) and assembly of the brief explanatory report of the geological map
2019.05.14.	Elements (Introduction with technical data, Physiography, Previous geological investigations, Stratigraphy, Structural geology, Review of the geological development, Hydrogeology, Mineral raw materials, References) and assembly of the brief explanatory report of the geological map

Thematics of practices:

1. Preparation of two geological cross-sections for each student on real (Slovakian and Romanian) geological maps after theoretical introduction (February and the beginning of March)
2. Field introduction to geological mapping by the Responsible Instructor. Field orientation based on topographical map and by using GPS. Documentation of geological observations in field-booklet and on the topographical map. Preparation of geological map (end of March and beginning of April)
3. Draft compilation of geological map (in observed, covered and uncovered version) on a 2 km² territory in the vicinity of Ómassa, in 2-3 man teams (second half of April, first half of May).
4. Final compilation of the geological map (in observed, covered and uncovered version) with legend and one cross-section. Assembly of the brief explanatory booklet of the compiled geological map (second half of May).