

**Course description** (structured according to decree nb. 614/2002 Z .z.)

<b>University:</b> Comenius University in Bratislava	
<b>Faculty:</b> Faculty of Natural Sciences	
<b>Code:</b> PriF.KIHG/N-mGIH-100/15	<b>Course:</b> Engineering Geological Research and Survey
<b>Study design:</b> 2 hours lesson and 2 hours exercise weekly, personal attendance	
<b>Education form:</b> internal	
<b>Number of credits earned:</b> 5	
<b>Recommended semester:</b> 1st	
<b>Degree:</b> 2nd	
<b>Prerequisite courses:</b> –	
<b>Grading policy:</b> The conditions for passing the course: elaboration of exercise protocols (maximum 40 points), a written final test (maximum 30 points) and an oral exam (maximum 30 points). For admission to the oral exam, obtaining at least 18 points by the written test is necessary. Minimum 18 points from the oral exam are required to successfully complete the course. Grades: A - 92 % to 100% of 100 points, B - 84 % - 91%, C - 76 % - 83%, D - 68 %-75%, E - 67% - 60 %, Fx less than 60 %.	
By completing the course, the student will know the differences between regional research and construction site survey, the principles of method selection in both, the regional field research and the construction site survey. He will be familiar with the classification of engineering geological maps, with the rules for compiling maps of engineering geological conditions and engineering geological zoning, with appendices. He will learn to read them with comprehension, he will also acquire practical skills for compiling such maps and the course will prepare him for the Engineering Geological Mapping Course, where he will apply these knowledge and skills in the field. He will also become familiar with the technique, work procedure and result interpretation of basic field tests of the physical and mechanical properties of rock masses. The acquired knowledge and skills are the starting point for next master courses as Engineering Geology in Construction, Regional Engineering Geology, Field Exercise and, they may be of key importance in the case of a diploma thesis focused on regional research or construction site survey. The knowledge and skills acquired by completing this subject are a basic prerequisite for practice in the engineering geology and will be fully applicable when solving practical tasks in geotechnics, partly also in geophysics.	
<b>Syllabus:</b> I. circuit: Regional engineering geological research and construction site survey. Engineering geological maps - definition and classification. Map of engineering geological conditions - purpose, content, principles and rules for interpreting engineering geological conditions (guideline). Map of engineering geological zoning. Map legends, engineering geological cross-sections, final report. Acquisition of geological information for regional engineering geological mapping: preparatory works, project of engineering geological works, principles of area reconnaissance. Identification and in-situ description of rocks and rock masses in the outcrops according to STN. Technical survey in engineering geological mapping: an overview of digging and drilling works and the specifics of their use in mapping. Penetration tests, their use in regional research and construction site survey. II. circuit: Engineering geological survey of the construction site. Determining the in-situ physical properties of rocks and rock masses by field tests: bulk density and granulometry of non-cohesive soils, permeability of hard rock masses and fine-grained soils. Determining the deformation parameters of rock masses. Determination of strength characteristics of rock masses. Determining the stress state of rock	

masses. The role of the engineering geologist in the design, implementation and evaluation of field tests.

**Suggested readings:**

UNESCO, 1976: Engineering geological maps. Guidelines to their preparation. Paris: The UNESCO Press. <https://unesdoc.unesco.org/ark:/48223/pf0000016580>

Look B., 2014 : Handbook of Geotechnical Investigation and Design Tables. 2nd ed. CRC Press/Balkema, Leiden, NL, 393 p.

Small J.C., 2016: Geomechanics in Soil, Rock, and Environmental Engineering. CRC Press: Boca Raton, USA, 541 p.

**The course is held in:** English language

**Other course information:** -

**Grading history**

**Professor:**

Assoc. Prof. RNDr. Renáta Adamcová, PhD.

**Last update:** March 25, 2023

**Approved by:** Assoc. Prof. RNDr. Martin Bednarik, PhD.