

I. Subject Specification

1. Basic Data

1.1 Title

Rock mechanical modelling

1.2 Code

BMEEOGMDT71

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lab	2

1.5 Evaluation

Midterm grade

1.6 Credits

3

1.7 Coordinator

name	Balázs Vásárhelyi Ph.D.
academic rank	Associate professor
email	vasarhelyi.balazs@emk.bme.hu

1.8 Department

Department of Engineering Geology and Geotechnics

1.9 Website

<http://epito.bme.hu/geotechnika-es-mernokgeologia-tanszek>
<https://edu.epito.bme.hu/course/view.php?id=2533>

1.10 Language of instruction

english

1.11 Curriculum requirements

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1.12 Prerequisites

PhD education program

1.13 Effective date

10 February 2022

2. Objectives and learning outcomes

2.1 Objectives

The scope of this course is to familiarise students with the full range of rock mechanical modelling, with a particular focus on analysing the laboratory tests.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. knows about specialised laboratory investigations for rock mechanical modelling

B. Skills

1. is able to prepare rock mechanical models

C. Attitudes

1. ready to learn

D. Autonomy and Responsibility

1. is autonomous

2.3 Methods

Independent processing of data based on published literature

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Introduction to rock mechanics
2.	Uniaxial compressive test – analysing the stress-strain curve
3.	Brazilian tensile test
4.	Triaxial test – failure criteria
5.	Rock mass classification systems – calculation from borehole
6.	Rock mechanical parameters of the rock mass
7.	Theories of shearing
8.	Unwedge analysis
9.	In situ stress
10.	Modelling a tunnel using RS2 software
11.	Rock mechanical modelling using RS2 software
12.	Rock mechanical modelling using RS2 software
13.	Rock mechanical modelling using RS2 software
14.	Rock mechanical modelling using RS2 software

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

a) Online materials

1. [Papers](#), reports, etc.

2.6 Other information

All the material ([papers](#), exam, files, etc) will be send by e-mail

2.7 Consultation

The instructors are available for consultation during their office hours, as advertised on the department website.

Special appointments can be requested via e-mail: vasarhelyi.balazs@emk.bme.hu

This Subject Datasheet is valid for:

2024/2025 semester II

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

There is a written exam.

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
written exam	E	A.1; B.1; C.1; D.1

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
E	10
Sum	100%

3.4 Requirements and validity of signature

Continuous e-mail contact

3.5 Grading system

Grade	Points (P)
excellent (5)	$85 \leq P$
good (4)	$70 \leq P < 85$
satisfactory (3)	$60 \leq P < 70\%$
passed (2)	$50 \leq P < 60\%$
failed (1)	$P < 50\%$

3.6 Retake and repeat

1) There is no retake

3.7 Estimated workload

activity	hours/semester
participation of site and laboratory visits	14x2=28
preparation for the exam	50
	in total78

3.8 Effective date

10 February 2022

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