

SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Civil Engineering
1.3	Department	Structuri
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil, Industrial and Agricultural Buildings /Engineer (English language)
1.7	Form of education	Full time
1.8	Subject code	6.0

2. Data about the subject

2.1	Subject name				Geologie inginereasca						
2.2	Course responsible/lecturer				Asist.Dr.Ing. Bruchental Calin-calin.bruchental@dst.utcluj.ro						
2.3	Teachers in charge of seminars				Asist.Dr.Ing. Bruchental Calin-calin.bruchental@dst.utcluj.ro						
2.4	Year of study	1	2.5	Semester	1	2.6	Assessment	E	2.7	Subject category	DID/DI

3. Estimated total time

3.1	Number of hours per week	2	3.2	of which, course:	1	3.3	applications:	
3.4	Total hours in the curriculum	28	3.5	of which, course:	14	3.6	applications:	
Individual study								hours
Manual, lecture material and notes, bibliography								12
Supplementary study in the library, online and in the field								2
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								5
Tutoring								1
Exams and tests								2
Other activities								0
3.7	Total hours of individual study		22					
3.8	Total hours per semester		50					
3.9	Number of credit points		2					

4. Pre-requisites (where appropriate)

4.1	Curriculum	
4.2	Competence	

5. Requirements (where appropriate)

5.1	For the course	On-site - Cluj Napoca, 25 Barițiu Building
5.2	For the applications	On-site - Cluj Napoca, 25 Barițiu Building, Room 170, Geology Laboratory

6. Specific competences

Professional competences	<ul style="list-style-type: none"> -- Adequate usage of concepts in order to determine the Earth's shape, dimension and internal structure. -- Macroscopic identification of the most important rock categories and their physical-mechanical properties in areas where constructions are to be built. -- Identification of dynamic phenomena and processes affecting an area. -- Interpretation of geological and hydrogeological maps, geological sections, and lithological columns. -- Adequate usage of the geological compass and clinometer in order to determine the spatial orientation of the rock beds (geological bodies).
Cross competences	<ul style="list-style-type: none"> -- Efficient application of teamwork methods. -- Application of effective and responsible work strategies, punctuality, responsibility and personal liability based on principles, norms and values of professional ethics. -- Documentation in Romanian and in a foreign language, for professional and personal development through continuous training and effective adaptation to new technical specifications.

7. Discipline objectives (as results from the *key competences gained*)

7.1	General objective	Evaluation, selection, and optimal utilization of different rock types for foundation purposes.
7.2	Specific objectives	Recognizing the main geological aspects with implications in the construction domain. The goal is to understand or prepare geotechnical reports and to properly use the rocks from a technical and qualitative point of view.

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
1. Introduction to geology. General data about the Earth. Minerals	Discussions, presentations	Video-projector
2. Igneous and metamorphic rocks. Formation, classifications, general characters.		
3. Sedimentary rocks. Formation, classifications, general characters.		
4. Folding and faulting of rocks. Practical importance.		
5. Geological timescale. Age of rocks. Superficial deposits and bedrock.		
6. Earthquakes, Mass Wasting, Karstic phenomena.		
7. Ground water.		
Bibliography		
Bibliography		
1. Balog A.- Geologie inginerească, Editura UT Press, Cluj-Napoca, 2010		
2. Florea M. – Mecanica rocilor, Editura Tehnică, 1983		

3. Băncilă I, Florea M., etc.- Geologie Inginerească, vol I, Editura Tehnică, 1980		
4. Băncilă I, Florea M., etc.- Geologie Inginerească, vol II, Editura Tehnică, 1981		
5. Dragoș V.-Geologie generală și stratigrafică, Editura Didactică și Pedagogică, București, 1982		
6. Gridan T. - Petrologia - Știință a rocilor, Editura Albatros, București, 1983		
7. Mușat V., Boțu N.- Geologie, Editura “Gh. Asachi” , Iași, 1999.		
8. Anastasiu N.- Petrologie sedimentară, Editura Tehnică, București, 1988		
8.2. Applications/Seminars	Teaching methods	Notes
1. Properties of minerals and their identification	Interactive solutions for various problems	Usage of minerals and rock samples, geological maps and compasses
2. Igneous, Metamorphic and Sedimentary Rocks		
3. Grain size analysis		
4. Physical and mechanical properties of rocks		
5. Structural geology. Geological maps, lithological columns and cross sections. Lithostatic (geostatic) pressure.		
6. The determination of strike, dip, and dip direction of a bedding surface		
7. Groundwater		
Bibliography		
Bibliography		
1. Balog A.- Geology for engineering- Laboratory manual - DVD, Editura UT Press, Cluj- Napoca, 2011		
2. Stanciu A., Lungu I. etc.- Fundații II, Editura Tehnică, București, 2016		
3. Clichici O., Stoici S.- Cercetarea geologică a substanțelor minerale solide, Editura Tehnică, București, 1986		
4.Popa A., Suciu A-A - Geologie, îndrumător pentru lucrări de laborator, U.T.Press, Cluj-Napoca, 2002		
5. V. Farcas, N. Ilies etc., Geotehnica. Îndrumător de laborator, Ed. UTPress, 2014		

9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

The acquired skills will provide good knowledge for graduates who are willing to work in the construction domains.

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	On-site - Written test with 9 questions and 1-2 numerical applications	Written examination-duration 1.5 hours	80 % (50% theoretical questions+30% numerical applications

10.5 Applications	On-site - Written test with 2-3 questions /applications	Written test -duration 30 min	20 %
10.6 Minimum standard of performance			
(a) minimal eligibility criteria for attending the examination: The test grade from laboratory $L \geq 5$ (b) Components of the final mark: Theory (mark T), Laboratory (mark L), Applications (mark A). Mark computation formula: $E = 0,5T + 0,3A + 0,2L$; is calculated only if: $L \geq 5$, $A \geq 5$ and $T \geq 5$ Conditions for obtaining the credits: $E \geq 5$ OBS. The final grade will consider the engagement of the student during the semester: such as attendance, answering to question during the laboratory etc			

Date of filling in:		Title Surname Name	Signature
	Lecturer	Asist.Dr.Ing. Bruchental Calin	
	Teachers in charge of application	Asist.Dr.Ing. Bruchental Calin	

Date of approval in the department	Head of department conf.dr.ing. Attila Puskas
18/06/2025	
Date of approval in the faculty	Dean prof.dr.ing Daniela Manea
25/06/2025	