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SYLLABUS

COURSE NAME	COURSECODE	SEMESTER	COURSE LOAD	ECTS
ENGINEERING GEOLOGY	CIV-1005	1	150	5

Prerequisite(s)	None

Course Language	Macedonian, Turkish, English
Course Type	Required
Course Level	First Cycle
Course Lecturer	
Course Assistants	
Classroom	
Extra Curricular Office Hours and Location	**Meeting:** **Consultancy:**

Course Objectives	Dam, tunnel, road, etc. To benefit from the main principles of geology in construction, to determine the physical and mechanical behavior of the environment in the investigation of the properties of the building environments by giving Engineering Geology information, and to present the necessary numerical data to the Civil Engineering.
Course Learning Outcomes	1- The student has sufficient knowledge of mathematics, science, and related engineering disciplines; gain the ability to use theoretical and applied knowledge in these fields in complex engineering problems. 2- The student gains the ability to identify, define, formulate and solve complex engineering problems; for this purpose, will have the ability to choose and apply appropriate analysis and modeling methods. 3- As a result of the theoretical and practical teaching of the features specified in the Objective, the student gains the ability to take precautions by predetermining the problems that may be encountered in the aboveground and underground soil/rock environments. 4- The student gains knowledge and skills on issues such as increasing safety in construction sites and reducing costs. 5- The student gains the knowledge of choosing the right route. 6- The student gains the ability to use engineering geology knowledge in civil

	engineering projects and the ability to drill logs and evaluations. 7- The student gains the ability to take a floor section and gains the ability to draws the tunnel or subway route and to find solutions to engineering problems that may be encountered.
Course Contents	Plate tectonics and earthquakes / Substances that make up the Earth's crust / Classification of rocks, areas of use / Engineering properties of rocks and discontinuities / Mass movements, stability of rock slopes /

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Definition of Geology and Construction Geology, its subject, fields of interest, its place in Civil Engineering; Plate Tectonics, Earthquakes (Occurrence mechanism, types, earthquake waves, magnitude, importance of earthquake in engineering works).	Related Chapters of Course Sources
2	Substances that make up the Earth's crust (Mineral and its properties, classifications, places of use, importance in engineering), Rock-forming mineral classes.	Related Chapters of Course Sources
3	Definition of rocks, igneous, sedimentary and metamorphic rocks and their properties, their environments and forms of formation, engineering properties of rocks, and areas of use.	Related Chapters of Course Sources
4	Laboratory (Minerals, Magmatic, Sedimentary, Metamorphic Rocks).	Related Chapters of Course Sources
5	Resistance properties of rocks, structure and texture, tectonic deformations, strike, and dip concepts, fold types, faults, discontinuities, and their importance in engineering.	Related Chapters of Course Sources
6	Classification of rocks and discontinuities in terms of Civil Engineering, stability of rock slopes. Determination of the properties of discontinuities on the surface and in drillings, TCR; SCR RQD, Evaluation of soil survey drilling, determination of drilling depth and location, drilling tests, and preparation and evaluation of drilling log.	Related Chapters of Course Sources
7	Mass Movements (Cryp, Landslide, rockfall, rock overturning, collapse, etc.) Causes, Measures, Basic Geology (The effect of geological factors on the selection of foundation type, foundation ground, road, Engineering Geology studies on routes), Tunnel-Metro route selections, geological Introducing and discussing engineering problems and precautions that may be encountered in environments with current examples.	Related Chapters of Course Sources
8	Slides showing the geological structure drawn from the fields in different regions of Turkey: Minerals, rocks, bedding, dykes, folds, faults, discontinuities, weathering (decay), landslides and their destruction, water resources, dam-tunnel-metro slides, comments, and argument.	Related Chapters of Course Sources
9	Midterm exam 1	
10	Engineering Geology Maps (Features, classification, topographic section preparation, geological section extraction and drawing the tunnel or subway route shown on the sections, engineering problems that may be encountered).	Related Chapters of Course Sources
11	Dam Geology: Dams and geological criteria in dam construction; Types, properties, engineering geology studies in dam construction and factors affecting the selection of dam type and location, effects of rocks on dam construction and environment.	Related Chapters of Course Sources
12	Tunnel Geology: Tunnels and Geological Criteria in Tunnel Construction; Tunnel types, features, geological criteria to be considered in the selection of tunnel route, factors affecting the cost, excavation methods, events encountered in tunnel opening, stress distributions	Related Chapters of Course Sources
13	Classification of rocks in terms of tunneling, geological problems in tunnels, water, gas, and heat problems in tunnels; tunneling methods, etc. Effects of	Related Chapters of Course Sources

	geological structure on the stress state.	
14	Groundwater (Important concepts related to groundwater, precipitation, sources, presence of water underground, aquifer types, karstic structures, groundwater level, types and changes, protection of groundwater, the importance of groundwater in engineering); Drainage: Definition, surface drainage, underground drainage, drainage structures. Geological, Engineering Geology and Geotechnical Studies: Definitions, features, differences, necessary studies in the studies and preparation of Geotechnical Survey Reports.	Related Chapters of Course Sources
15	Groundwater (Important concepts related to groundwater, precipitation, sources, presence of water underground, aquifer types, karstic structures, groundwater level, types and changes, protection of groundwater, the importance of groundwater in engineering); Drainage: Definition, surface drainage, underground drainage, drainage structures. Geological, Engineering Geology and Geotechnical Studies: Definitions, features, differences, studies to be done in the studies and the continuation - completion - checking of the preparation of Geotechnical Survey Reports.	Related Chapters of Course Sources
16	Midterm exam 2	

ECTS / WORKLOAD TABLE

Presentation / Seminar			
Hours for off-the-classroom study (Pre-study, practice)	14	3	42
Midterm Exam	1	12	12
Final examination	1	14	14
Total Work Load			
ECTS	**5**		

GENERAL PRINCIPLE RELATED TO COURSE

Dear students,

In order to be included, learn and achieve full success that you deserve in the courses you need to come well prepared by reading the basic and secondary textbooks. We are expecting from you carefully to obey to the course hours, not to interrupt the lessons unless is very indispensable, to be an active participant on the courses, easily to communicate with the other professor and classmates, and to be interactive by participating to the class discussions. In case of unethical behavior both in courses or on exams, will be acting in framework of the relevant regulations. The attendance of the students will be checked in the beginning, in the middle or at the end of the lessons. Throughout the semester the students who attend to all lectures will be given 15activity-attendance points in addition to their exam grades.

SOURCES

COMPULSORY LITERATURE		
No	**Name of the book**	**Author's Name, Publishing House, Publication Year**
1	E. HOEK	"Kaya Şev Stabilitesi",
2	KELLER, E.A., PINTER, N.,	"Active Tectonics, Earthquakes, Uplift, and Landscape", Pearson Education, 363s, 2002. PRESS, F.,
3	SİEVER, R., GROTZINGER, J., JORDAN, T.H.,	Understanding Earth (IV. Edition), W.H. Freeman and Company, New York, 567s, (2004).
4	ARIOĞLU, E., YILMAZ, A. O	"Çözümlü Problemlerle Tünel/Galerilerin-Sismik Analizi", TMMOB Maden Mühendisleri Odası İstanbul Şubesi Yayın No: 111, 312 s., 2006.
5	Prof.Dr.Mustafa YILDIRIM, Prof.Dr.Erkan GÖKAŞAN	Mühendisler için Jeoloji Bilgileri, Genişletilmiş 2. Baskı" (2013),
6	Prof. Dr. Mahir VARDAR,	"İnşaat Jeolojisi" İTÜ Yayını (1991);
7	Prof. Dr. Kemal ERGUVANLI,	"Mühendislik Jeolojisi", Seç Yayın (1982);

YARDIMCI KAYNAKLAR		
No	**Kitabın İsmi**	**Yazarın İsmi, Yayın Evi, Yayın Yılı**
1	Composite Materials for Aircraft	B. C. Hoskin and A. A. Baker, 1989, Composite Materials for Aircraft
2	Structures, AIAA Education Series	Structures, AIAA Education Series. Krishan K. Chawla, 1998,
3	Composite Materials	Composite Materials, Springer-Verlag. Middleton, D., 1990, Composite
4	Materials in Aircraft Stuructures	Materials in Aircraft Stuructures, Burnt Hill. D. Hull and T. W. Clyne, 1996, An Introduction to Composite Materials, Cambridge University Press.

EVALUATION SYSTEM

Underlying the Assessment Studies	**NUMBER**	**PERCENTAGE OF GRADE**
Attendance/Participation	15	%10
Project / Event	1	%20
Mid-Term Exam	1	%35
Final Exam	1	%35
TOTAL	**17**	**%100**

ETHICAL CODE OF THE UNIVERSITY

In case of the students are cheating or attempt to cheat on exams, and in the case of not to reference the sources used in seminar studies, assignments, projects and presentations, in accordance to the legislations of the Ministry of Education and Science of Republic of Macedonia and International Vision University, will be applied the relevant disciplinary rules. International Vision University students are expected never to attempt to this kind of behavior.