

Course title : Engineering Geology

Course Basic Information	
Academic Unit:	Faculty of Civil Engineering
Course title:	Engineering Geology
Level:	Bachelor
Course Status:	Obligatory
Year of Study:	Second year, Third Semester
Number of Classes per Week:	2 + 1
ECTS Credits:	3
Time /Location:	According to the Schedule
Teacher:	Prof. Dr. Islam Fejza
Contact Details:	Islam.fejza@uni-pr.edu Phone: 383 (0)49 260 649
Course Description:	<p>The first part includes the major principles of physical geology covering the structure of the Earth, volcanism and other mountain building processes, plate tectonics, the surface erosion process, and the formation and properties of minerals and rocks.</p> <p>The second part includes concerns with the application of geological knowledge to civil engineering problems such as landslide, subsidence and earthquake etc. The third part includes the engineering classification of soil and rocks.</p>
Course Goals:	<p>To introduce the basic geology to civil engineering students</p> <p>To inspire the students to think clearly and critically the solution of the civil engineering problems in the context of geological knowledge such as earth, earthquake, volcanism and to apply this knowledge in projects such as dams, tunnels, bridges, roads, airport and harbor as well as to choose types of foundations.</p>
Expected Learning Outcomes:	<p>At the end of this course students should be able to:</p> <ul style="list-style-type: none"> • Apply the geological knowledge of the most important rocks and minerals in the civil engineering • Understand the internal structure and composition of the earth • Gain knowledge about the structures of the rocks and their considerations in the selection of site for dams, tunnels, bridges and highways • Understand weathering as they influence in civil engineering works

	<ul style="list-style-type: none"> • Understand mass movement as they influence in civil engineering works • Effectively utilize earth's materials such as mineral, rocks and water in civil engineering practices • Assess various structural features and geological tools in ground water exploration, Natural resource estimation and solving civil engineering problems • Understand the soil and rocks classification system • Apply and asses use of building materials in construction and asses their properties
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Student Workload (should be in compliance with student's Learnign Outcomes)

Activity	Hours	Day/ Week	Total
Lectures	2	15	30
Theory/ Lab Work/Exercises	1	15	15
Practical Work			2
Consultations with the teaher	0.5	4	2
Field Work			3
Test, seminar paper	1	4	4
Homework	0.5	14	7
Self-study (library or home)			3
Preparation for final exam			4
Assessment time (test, quiz, final exam)			3
Projects, presentations, etc.			2
Total			75

Teaching Methods: *Lectures, exercises during class using different materials, one project work in group of 2-3 students (independent work), individual homework*

Assessment Methods: Presence at lectures 5%,
Individual assignments completed in class 10%;
Individual assignments completed at home 10%;
Assessment by tests 25%
Final Exam 50%.

Primary Literature:

1. Islam Fejza. 2020 – Authorized lectures
2. Nikolla Konomi., 2006. Engineering Geology, University text. Tiranë. Albania

Additional Literature:

1. Esa Lwisa., Hasan Arman. 2021. Engineering Geology. ISBN: 978-1-83881-894-4. United Arab Emirates University.
2. Blyth F.G.H. and de Freitas M.H., Geology for

- Engineers, Edward Arnold, London, 2010.
 3. Bell .F.G.. “Fundamentals of Engineering Geology”, B.S. Publications. Hyderabad 2011.

Designed teaching plan

Week	Title of the Lecture
Week 1:	The role and importance of geology in the civil engineering studies
Week 2:	The earth and the solar system
Week 3:	Minerals (definition, chemical composition, crystal system)
Week 4:	Minerals(Physical properties, classification of minerals)
Week 5:	Rocks and their study, rock cycles
Week 6:	Igneous rocks - Description of certain important igneous rocks
Week 7:	Sedimentary rocks - Description of certain important sedimentary rocks
Week 8:	Metamorphic rocks- Description of certain important metamorphic rocks
Week 9:	Physical - mechanical properties of rocks and soils
Week 10:	Plate tectonics – Geological structures (folds, faults, joints) and their impact in the civil engineering
Week 11:	Methods of geological - engineering studies
Week 12:	Geological - engineering studies in the design of motorways and railway
Week 13:	Geological - engineering studies in the design of bridges and tunnels
Week 14:	Geological - engineering studies in hydro-technical facilities
Week 15:	Geological - engineering classification of rocks and soils and their features

Academic Policies and Code of Conduct

We start and finish class on time.
 Tools used during class must be cleaned and stored away at the end of class.
 Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.
 Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.