



## Course Syllabus

<b>Course Code</b>	<b>Course Title</b>	<b>ECTS Credits</b>
GEOL-121	Engineering Geology	5
<b>Prerequisites</b>	<b>Department</b>	<b>Semester</b>
None	Engineering	Fall, Spring
<b>Type of Course</b>	<b>Field</b>	<b>Language of Instruction</b>
Elective	Civil & Environmental Engineering	English
<b>Level of Course</b>	<b>Lecturer(s)</b>	<b>Year of Study</b>
1 <sup>st</sup> Cycle	Dr Ernestos Sarris	1 <sup>st</sup>
<b>Mode of Delivery</b>	<b>Work Placement</b>	<b>Corequisites</b>
Face-to-face	N/A	None

### Course Objectives:

The main objectives of the course are to:

- Introduce the students to the discipline of engineering geology.
- Provide the general concepts arising from the theory of plate tectonics.
- Obtain knowledge on the internal and external processes that take place on the Earth's interior and exterior.
- Appraise the consequences that arise from the external process of the erosion cycle which include the physical and mechanical properties of soils and rocks.
- Teach methods for controlling landslides and slope stability analysis.
- Prepare the students for both theoretical and applied examples specifically designed for Civil Engineers.
- Provide the principles for field methods for geological exploration of soils and rocks.

**Learning Outcomes:**

After completion of the course students are expected to be able to:

- Demonstrate knowledge of the Geology's most important theory: Plate Tectonics.
- Explain the internal and external processes of the Earth and the erosion process of the rock cycle.
- Discuss how these processes (internal and external) are useful in the analysis of the physical and mechanical properties of rocks and soils.
- Explain the implications of failures like landslides and slope stability in both weak and hard soils and rocks.
- Demonstrate practical knowledge on the solution of applied problems specifically designed for civil engineers and learn also from case studies.
- Understand and explain physical phenomena that are related with geomechanics.
- Demonstrate basic knowledge and solving skills on numerical problems in geotechnics.

**Course Content:**

- Introduction to Engineering Geology.
- Geology and theory of plate tectonics.
- Physical properties of rocks.
- Mechanical properties of rocks.
- Soil and rock slopes
- Landslides of soils and rocks.
- Geological exploration of soils and rocks.

**Learning Activities and Teaching Methods:**

Lectures, Projects, Experiments, in-class assignments, discussion.

**Assessment Methods:**

Homework, Project, mid-term exam, final exam.

**Required Textbooks / Readings:**

<b>Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
Engineering Geology: Principles and Practice	David George Price	Springer	2009	9783540292494

**Recommended Textbooks / Readings:**

<b>Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
Foundations of Engineering Geology, 3 <sup>rd</sup> Edition	Tony Waltham	Taylor Francis	2009	9780203894538
Principles of Geotechnical Engineering, 8 <sup>th</sup> Edition	Braja M. Das, Khaled Sobban	Cengage Learning	2013	9781133108665