

# FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL  
ENGINEERING BS**

**SUBJECT:** APPLIED GEOLOGY

**LECTURER:** GIOVANNI LODDO

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## **OBJECTIVES**

This course will provide:

1. the basic tools to solve engineering problems and mitigate the risks that arise with the interaction between People - Environment;
2. the preparation and the basic tools for the application and interpretation of the data contained in the geological report & geological - technical report;
3. knowledge about the means and methods of investigation used in the field of applied geology.

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## **CONTENTS**

In the following, we list the main topics addressed during the course:

Phenomena within the body of the Earth  
Interior of the Earth  
Seismic Phenomena  
Volcanic Phenomena  
Rock cycle  
Plate Tectonics  
Sedimentary cycle  
Sedimentary rocks  
Deformation of the Earth's crust  
Methods of investigation of the subsoil, direct and indirect  
Geological Survey Techniques  
Geological risk  
Geomechanics classification  
Porosity and permeability in rock masses and soils  
Criteria for assessing the existence of groundwater  
The identification of aquifers and their classification  
Pumping wells  
Landslides: factors, causes and classification  
Geology applied to Civil Engineering works

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## **ASSESSMENT**

Written exam: multiple choice and open questions

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## **RECOMMENDED TEXTBOOKS**

The main concepts of the course will be presented in the teaching support provided by the professor. The teaching material will be mostly self-contained.

Most of the topics can be also studied in depth in the following books:

- Parasnis D.S., (1997), Principles of applied Geophysics, Chapman & Hall, London, UK
  - West Terry R. (2010), Geology Applied to Engineering, ISBN-10: 1577666550,
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