

Course Unit	it Geology			Field of study	Natural Sciences	
Bachelor in	Environmental Education			School	School of Education	
Academic Year	2021/2022	Year of study	1	Level	1-1	ECTS credits 10.0
Туре	Annual	Semester		Code	9082-620-1004-00-21	
Workload (hours)	270	Contact hours	T - Lectures; TP - Lectures a	54 PL 27 T nd problem-solving; PL - Problem-	C 18 S -	E - OT 18 O - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

#### Name(s) of lecturer(s)

Paulo Miguel Mafra Gonçalves

- Learning outcomes and competences
- At the end of the course unit the learner is expected to be able to: 1. The student should be able to: Know objects and methods of geological sciences. Understanding the dynamic nature of Earth. Understanding the genesis of different kinds of rocks.

- Identify the Earth as an integrated in the solar system and constantly changing planet;
   Understanding the geological diversity of our planet;
   Recognize the contamination of waterways, the air and soil pollution, etc. as forms of aggression to the environment.
   Integrate the knowledge of complex issues in order to judge and propose solutions within the framework of geology.

### Prerequisites

Before the course unit the learner is expected to be able to: Do not have

#### Course contents

Start with the content of this program placing our planet in the solar system, and this, across the vastness of the universe. Then we want to see how it is formed and structural lithological the planet Earth, both domestically and externally. The theory of global tectonics is deeply debated since all issues previously raised are reflected here. Finally, the evolutionary study of the planet, from its birth until today, is mentioned in geological time.

### Course contents (extended version)

- 1. Architecture of the Universe
- The Earth in the Solar System Earth-Moon System
- 2. Movements and deformations of the crust
- Strength and deformation mechanisms, types of deformation
- Continuous deformations FOLDS Elements of a fold
- Classification of folds - Deformations staple - Fracture
- Diaclase Fault: Elements of a failure; Classification of failures
- Internal Structure

   Earthquakes and Volcanoes as indicators of the internal structure of the Earth

   Earthquakes and Volcanoes as indicators of the internal structure
  Types and characteristics of seismic waves, seismograms;
  Volcanism and main types of volcanoes
  Layers constituents (distribution and relative percentages)
  Cycle petrogenetic
  The recycling of constituent materials of the lithosphere
  Main rock types
  Definition of mineral rock concept
  Genesis of the igneous rocks - Main types of metamorphic rocks;
  Genesis of sedimentary rocks - Main types of sedimentary rocks,
  Classification of minerals and rocks by cross examination
- Classification of minerals and rocks by gross examination
   Plate Tectonics

- Plate Tectonics Data support; fragmentation of Pangea seafloor (role of dorsal) resorption funds Oceanic Beniof zones or subduction Role of transform faults

- Model of Plate Tectonics Map of lithosphere
- Relative movement of the plates in the areas of: ridges or areas of expansion;
  The Geological Time

  Dated on; Basics
  Correlation of rock layers

  - Absolute dating by radioactivity
     Geologic time scale

### Recommended reading

- Thompson, R. & Turk, J. (2005). Earth Science and the Environement. Brooks/Cole

- Freitas, M. (2005). Geologia e ambiente: recursos geológicos. Lisboa: Universidade Aberta.
   Caroça, C. (2017). Para que serve a Geologia. Lisboa: Chiado Books.
   Popp, J. H. (2017). Geologia Geral. (7ª ed.). Rio de Janeiro: LTC.
   Grotzinger, J. et al. (2013). Para entender a Terra. (6. ª ed.). Porto Alegre: Bookman.
- Teaching and learning methods

This discipline programmatic content of the presentation will be made whenever possible, using the audio-visual media. In practical classes students develop various activities to be undertaken in the laboratory. The lessons of field used for observation of certain content that were addressed in the classroom. At the end of each work shall be to discuss inter.

## Assessment methods

- Continuous evaluation (Regular, Student Worker) (Final)

   Intermediate Written Test 30% (Written test. Semester 1)
   Intermediate Written Test 30% (Written test. Semester 2)
   Development Topics 40% (Research, Development Report, Presentation and discussion of group work.)

   Assessment Examination (Regular, Student Worker) (Supplementary, Special)

   Final Written Exam 60% (Implementation of a written test)
   Development Topics 40% (Presentation and discussion of a work group.)

# Language of instruction

## Portuguese

Electronic validation				
Paulo Miguel Mafra Gonçalves	Delmina Maria Pires	Paulo Miguel Mafra Gonçalves	Carlos Manuel Costa Teixeira	
03-11-2021	03-11-2021	05-11-2021	24-11-2021	