

Course Unit	Geology		Field of study	-	
Bachelor in	Environmental Education		School	School of Education	
Academic Year	2023/2024	Year of study	1	Level	1-1
Type	Annual	Semester	-	ECTS credits	10.0
Code			9082-768-1004-00-23		
Workload (hours)	270	Contact hours	T	-	TP
			54	PL	27
			TC	18	S
			-	E	-
			OT	18	O
			-		-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Paulo Miguel Mafra Gonçalves, Raphael de Vicq Ferreira da Costa

### 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.
2. Identify the Earth as an integrated in the solar system and constantly changing planet;
3. Understanding the geological diversity of our planet;
4. Recognize the contamination of waterways, the air and soil pollution, etc. as forms of aggression to the environment.
5. 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
3. Internal Structure
  - Earthquakes and Volcanoes as indicators of the internal structure of the Earth
  - Types and characteristics of seismic waves, seismograms;
  - Volcanism and main types of volcanoes
  - Layers constituents (distribution and relative percentages)
4. 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 magnetic rocks;
  - Genesis of metamorphic rocks - Main types of metamorphic rocks
  - Genesis of sedimentary rocks - Main types of sedimentary rocks,
  - Classification of minerals and rocks by gross examination
5. 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;
6. The Geological Time
  - Dated on: Basics
  - Correlation of rock layers
  - Absolute dating by radioactivity
  - Geologic time scale

### Recommended reading

1. Thompson, R. & Turk, J. (2005). Earth Science and the Environment. Brooks/Cole
2. Freitas, M. (2005). Geologia e ambiente: recursos geológicos. Universidade Aberta.
3. Carocha, C. (2017). Para que serve a Geologia. Chiado Books.
4. Popp, J. H. (2017). Geologia Geral. (7ª ed. ). Editora LTC.
5. Grotzinger, J. et al. (2013). Para entender a Terra. (6.ª ed. ). 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

1. 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.)

2. 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			
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14-02-2024	14-02-2024	17-02-2024	18-02-2024