

### COURSE NAME

Name: **APPLIED GEOLOGY**

Code: 101187

Curriculum: **DEGREE IN ENERGY ENGINEERING AND MINERAL RESOURCES**

Year: 1

Name of the module to which it belongs: BASIC TRAINING MODULE

Subject: GEOLOGY

Nature: BASIC Duration: FIRST SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

### FACULTY DETAILS

Name: LOPEZ SANCHEZ, MANUEL (Coordinator)

Department: MECHANICS

area: MINERAL PROSPECTION AND INVESTIGATION

Location of the office: EPS Belmez. Old building. (2nd Floor)

E-Mail: um1losam@uco.es

Phone number: 957213042

### SKILLS

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|------|--|
| CB1  | Have and understand specific knowledge of the study area of the Degree that gives skills for the exercise of the profession of Technical Mining Engineering.                                       |
| CB3  | Apply knowledge in professional contexts and develop and defend arguments in the field of knowledge of mining engineering.   |
| CB4  | Solve problems within the study area of Mining Engineering.  |
| CB5  | Gather and analyse relevant data within the study area of Mining Engineering, in order to issue judgements that include a reflection on relevant topics of a social, scientific or ethical nature. |
| CB6  | Disclose information, ideas, problems and solutions to both specialised and non-specialised public. CB7 Have the necessary learning skills to undertake studies with a high level of autonomy.     |
| CEB5 | Basic knowledge of geology and ground morphology, and application to engineering-related problems. Climatology.  |

### OBJECTIVES

Students should be able to:

- Know internal and external geological processes, as well as their integration into the global geodynamic model.
- Know the basic characteristics and origin of the several geological materials: rocks, fossil and natural resources.
- Understand the basic principles, laws and mechanisms applicable to Geology.
- Know and handle basic tools of geology.
- Acquire a capacity to observe, represent, organize, assimilate and elaborate geological information.
- Understand engineering in a sustainable framework.

### CONTENTS:

#### 1. Theoretical contents

Unit 1.- Concepts, Principles and method. Geological cycle.

Unit 2.- Minerals and rocks.

Unit 3.- The interior of the Earth.

Unit 4.- Plate tectonics. Basic concepts.

Unit 5.- Weathering and ground. Earth external processes.

Unit 6.- Gravitational processes.

Unit 7.- Glaciers and glacial stage.

Unit 8.- Surface water currents. Hydrogeological cycle.

Unit 9.- Groundwater.

Unit 10.- Coasts and coastal processes.

Unit 11.- Deserts and winds.

Unit 12.- Sedimentology, stratigraphy and sedimentary rocks.

Unit 13.- Metamorphism and metamorphic rocks.

Unit 14.- Seismology.

Unit 15.- Tectonics and deformation of earth's crust.

Unit 16.- Igneous rocks and intrusive igneous activity.

Unit 17.- Mineral and energy deposits. Renewable and non-renewable resources.

Unit 18.- Vulcanism and volcanoes. Volcanic eruptions and morphology.

Unit 19.- Climate and climate change.

Unit 20.- Historical geology, evolution and palaeontology.

Unit 21.- Geology of the Iberian Peninsula and Andalusia.

## 2. Practical contents.

Topographical and geological maps. Geological cross-sections.