Course guides
250558 - GEOLGEOMCO - Geology and Coastal Geomorphology

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
Degree: BACHELOR’S DEGREE IN MARINE SCIENCE AND TECHNOLOGY (Syllabus 2018). (Compulsory subject).
Academic year: 2020 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: VICENTE GRACIA GARCIA
 Others: VICENTE GRACIA GARCIA, OCTAVIO CESAR MÓSSO ARANDA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
13388. To know and apply the lexicon and concepts of the Marine Sciences and Technologies and other related fields.
13390. Establish a good practice in the integration of common numerical, laboratory and field techniques in the analysis of any problem related to the marine environment.
13401. Apply spatial and cartographic representation techniques for different environments and scales.

Generical:
13380. Develop a professional activity in the field of Marine Sciences and Technologies.
13381. Address in a comprehensive manner the analysis and preservation of the marine environment with sustainability criteria.

TEACHING METHODOLOGY

The course consists of 2.3 hours per week of classroom activity (large size group) and 1.2 hours weekly with half the students (medium size group).

The 2.3 hours in the large size groups are devoted to theoretical lectures, in which the teacher presents the basic concepts and topics of the subject, shows examples and solves exercises.

The 1.2 hours in the medium size groups is devoted to solving practical problems with greater interaction with the students. The objective of these practical exercises is to consolidate the general and specific learning objectives.

The rest of weekly hours devoted to laboratory practice.

Support material in the form of a detailed teaching plan is provided using the virtual campus ATENEA: content, program of learning and assessment activities conducted and literature.
LEARNING OBJECTIVES OF THE SUBJECT

In this course, the different geomorphological environments of the littoral zone are described, starting from the tectonic settings that broadly determines its characteristics at a geological scale, and the processes and factors that determine its recent morphological evolution, centered on erosion and accretion. The objective is to understand the morphological behaviour of coastal environments at different scales of time and space.

1.- Define the main elements of the coast, and classify the different littoral environments according to geological, hydrodynamic or geomorphological criteria.
2.- Show the existing differences between rocky, sedimentary coasts, intertidal flats, estuaries and coastal lagoons and Deltas. General relation the coastal typologies and the general tectonic settings.
3.- Understand the processes related to relative changes in sea level in a geological climate change context.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Guided activities</td>
<td>6,0</td>
<td>4.00</td>
</tr>
<tr>
<td>Self study</td>
<td>84,0</td>
<td>56.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

Introduction

Description:
Temporal and Spatial scales
Practice evolution of the coastline

Full-or-part-time: 9h 36m
Theory classes: 2h
Laboratory classes: 2h
Self study : 5h 36m

Properties of materials

Description:
Cohesive materials and rocks
Non-cohesive materials
Practice of granulometric analysis

Full-or-part-time: 14h 23m
Theory classes: 4h
Practical classes: 2h
Self study : 8h 23m
## Coastal processes

**Description:**
- Wind
- Waves
- The average level of the sea
- The sea currents

**Full-or-part-time:** 19h 12m
- Theory classes: 8h
- Self study: 11h 12m

## Rocky coastlines

**Description:**
- Cliffs and platforms
- Models of behavior

**Full-or-part-time:** 9h 36m
- Theory classes: 2h
- Laboratory classes: 2h
- Self study: 5h 36m

## Reefs

**Description:**
- Characteristics and morphodynamic processes
- Models of behavior

**Full-or-part-time:** 9h 36m
- Theory classes: 4h
- Self study: 5h 36m

## Beaches

**Description:**
- Morphology and typology
- Morphodynamic processes
- Models of behavior

**Full-or-part-time:** 19h 12m
- Theory classes: 8h
- Self study: 11h 12m
Deltas

Description:
Genesis, morphology and classification
Deltaic processes
Models of behavior
Prudential model of delta evolution

Full-or-part-time: 19h 12m
Theory classes: 6h
Laboratory classes: 2h
Self study: 11h 12m

Dunar systems

Description:
Genesis and morphology
Dune-beach interaction
Models of behavior
The Dune rule

Full-or-part-time: 19h 12m
Theory classes: 6h
Laboratory classes: 2h
Self study: 11h 12m

Wetlands and lagoons

Description:
Typology and characteristics
Sedimentary dynamics

Full-or-part-time: 9h 36m
Theory classes: 4h
Self study: 5h 36m

Estuaries

Description:
Characteristics and classification
Influence on coastal dynamics

Full-or-part-time: 9h 36m
Theory classes: 4h
Self study: 5h 36m

Anthropic environments

Description:
They show the impacts induced by man on the coast

Full-or-part-time: 4h 48m
Theory classes: 2h
Self study: 2h 48m
GRADING SYSTEM

The mark of the course is obtained from the ratings of continuous assessment and their corresponding laboratories and/or classroom computers.

Continuous assessment consist in several activities, both individually and in group, of additive and training characteristics, carried out during the year (both in and out of the classroom).

The teachings of the laboratory grade is the average in such activities.

The evaluation tests consist of a part with questions about concepts associated with the learning objectives of the course with regard to knowledge or understanding, and a part with a set of application exercises.

EXAMINATION RULES.

Failure to perform a laboratory or continuous assessment activity in the scheduled period will result in a mark of zero in that activity.

BIBLIOGRAPHY

Basic:

Complementary: