Course guide
2500030 - GECCOBRMAR - Maritime Constructions

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
Degree: BACHELOR'S DEGREE IN CIVIL ENGINEERING (Syllabus 2020). (Compulsory subject).
Academic year: 2022 ECTS Credits: 4.5 Languages: Catalan

LECTURER
Coordinating lecturer: VICENTE GRACIA GARCIA
Others: CARLOS SALVADOR ASTUDILLO GUTIERREZ, FRANCESC XAVIER GIRONELLA I COBOS, VICENTE GRACIA GARCIA, JOSE LUIS MONSO DE PRAT

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
14412. Capacity for construction and conservation of maritime works. (Specific technology module: Civil Construction)

General:
14380. Scientific-technical training for the exercise of the profession of Technical Engineer of Public Works and knowledge of the functions of advice, analysis, design, calculation, project, construction, maintenance, conservation and exploitation.
14383. Ability to project, inspect and direct works, in their field.

TEACHING METHODOLOGY

The course consists of 3 (2 +1) hours per week of classes in a classroom.

In the lectures the teacher explains the concepts and basic materials of the topic, he presents examples and exercises.

In the practical classes are problem-solving approaches with greater interaction with students. Practical exercises to consolidate learning objectives.

It uses material support in the form of detailed teaching plan using the virtual campus ATENEA: content, scheduling of activities and a learning assessment and bibliography.

Although most of the sessions will be given in the language indicated, sessions supported by other occasional guest experts may be held in other languages.
LEARNING OBJECTIVES OF THE SUBJECT


1 Ability to conduct a wave analysis.
2 Ability to carry out the project of a port including basic elements.
3 Ability to conduct a study of coastal dynamics that includes the port-coast interaction.


STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>4,5</td>
<td>4.00</td>
</tr>
<tr>
<td>Self study</td>
<td>63,0</td>
<td>56.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>22,5</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>22,5</td>
<td>20.00</td>
</tr>
</tbody>
</table>

**Total learning time:** 112.5 h

CONTENTS

**Introduction**

Description:
Basic concepts

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

**Tidal waves and currents**

Description:
Regular waves
Random waves
Wave climate
Wave propagation
Wave breaking and currents
Tides and other long waves
Exercises

**Full-or-part-time:** 19h 12m
Theory classes: 5h
Practical classes: 2h
Laboratory classes: 1h
Self study: 11h 12m
Port facilities

Description:
Port design and operation
Interior works

Full-or-part-time: 7h 11m
Theory classes: 3h
Self study: 4h 11m

Rubble mound breakwaters

Description:
Basic concepts and design parameters
Wave-structure interaction
Construction procedures
Maintenance and monitoring
Exercises

Full-or-part-time: 14h 23m
Theory classes: 5h
Laboratory classes: 1h
Self study: 8h 23m

Vertical dikes

Description:
Basic concepts and design parameters
Construction procedures
Maintenance and monitoring
Exercises

Full-or-part-time: 12h
Theory classes: 4h
Laboratory classes: 1h
Self study: 7h

Coastal dynamics and coastal zone management

Description:
Sediment transport
Evolution in plan and profile of a beach
Cost management
Erosion in the coastal zone
Exercises

Full-or-part-time: 12h
Theory classes: 3h
Practical classes: 1h
Laboratory classes: 1h
Self study: 7h
Coastal protection structures

**Description:**
Perpendicular works. Breakwaters
Parallel works. Parallel dikes
Works parallel to the ground. Walls and coatings
Stability of protection works on the Catalan coast
Exercises

**Full-or-part-time:** 16h 48m
Theory classes: 3h
Practical classes: 3h
Laboratory classes: 1h
Self study: 9h 48m

Baech nourishment and sediment management

**Description:**
Basic concepts and design parameters
Design and execution of beach feeding works
Design and execution of a by-pass
Beach food on the Catalan coast
Exercises

**Full-or-part-time:** 14h 23m
Theory classes: 3h
Practical classes: 2h
Laboratory classes: 1h
Self study: 8h 23m

Submarine outfalls

**Description:**
Basic concepts and design parameters
Submarine outfalls

**Full-or-part-time:** 7h 11m
Theory classes: 1h
Practical classes: 2h
Self study: 4h 11m

**GRADING SYSTEM**

The mark of the course is obtained from a system of continuous assessment which includes conducting a series of tests and a set of practices.
Continuous assessment includes the completion of two exams during the semester to help with a weight of 60% in the final and the completion of a set of practices of different issues that contribute to the remaining 40%.

Criteria for re-evaluation qualification and eligibility: Students that failed ordinary evaluation and have been regularly attending tests throughout the course will have the option to perform a re-evaluation test during the period specified in the academic calendar. The highest mark for the subject in the case of attending the evaluation exam will be five. In the case of justified absences to the regular evaluation tests that prevent the assessment of some parts of the contents of the subject, with prior approval of the Head of Studies, students may get evaluated by the re-evaluation test of the contents that have not been previously examined as well as the contents whose tests students have failed. The limitation on the maximum mark shall not apply to the parts assessed for the first time.
EXAMINATION RULES.

If any of the laboratory or continuous assessment activities are not performed in the scheduled period, it will be considered a zero score.

BIBLIOGRAPHY

Basic: