

COURSE NAME

Name: **MARITIME AND COAST ENGINEERING**

Code: 101144

Curriculum: **DEGREE IN CIVIL ENGINEERING**

Year: 3

Subject: **MARITIME AND COAST ENGINEERING**

Nature: OBRIGATORY Duration: FIRST SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

FACULTY DETAILS

Name: GONZÁLEZ GALLARDO, FRANCISCO MANUEL (Coordinator)

Department: RURAL ENGINEERING

Area: CONSTRUCTION ENGINEERING

Location of the office: EPS Belmez

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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 Civil Engineering. |
| CB2 | Have and understand current and cutting-edge knowledge of the field of mining engineering. |
| CB3 | Be able to apply the knowledge acquired in professional contexts and to elaborate and defend arguments in the field of knowledge of mining engineering. |
| CB7 | Possess the learning skills necessary to undertake studies with a high degree of autonomy. |
| CECC3 | Ability to construct and conserve marine works. |

OBJECTIVES

- Identify and characterise marine agents.
- Understand and solve practical examples of wave dynamics and propagation.
- Understand the main phenomena associated with the wave propagation and breaking.
- Learn about the different types of marine works.
- Train the students to design and calculate marine works.

CONTENTS:

1. Theoretical contents

I. WAVE THEORY

TOPIC 1: INTRODUCTION TO MARITIME AND COASTAL ENGINEERING.

TOPIC 2: ATMOSPHERIC DYNAMICS. THE WIND, DEFINITION.

TOPIC 3: WAVES. FUNDAMENTALS OF HYDRODYNAMICS.

TOPIC 4: WAVE PROPAGATION AND TRANSFORMATION: WAVE SHOALING.

TOPIC 5: LONG WAVES: LINEAR LONG WAVE THEORY.

TOPIC 6: WAVE CHARACTERISATION: SOURCES OF WAVE INFORMATION.

II. MARINE ENGINEERING

TOPIC 7: INTRODUCTION TO MARINE ENGINEERING.

TOPIC 8: MOUND BREAKWATER: PARTS OF A MOUND BREAKWATER.

TOPIC 9: VERTICAL BREAKWATER: PARTS OF A VERTICAL BREAKWATER.

TOPIC 10: BERTHING AND MOORING WORKS: CLASSIFICATION AND TYPOLOGIES

TOPIC 11: DREDGING WORKS: DREDGING CLASSIFICATION AND CHARACTERISTICS. DREDGE CLASSES AND TYPES

III. COASTAL ENGINEERING

TOPIC 12: INTRODUCTION TO COASTAL ENGINEERING: COASTAL FORMS.

TOPIC 13: COASTAL DYNAMICS: POTENTIAL AND ACTUAL SEDIMENT TRANSPORT.

TOPIC 14: COASTAL ACTIONS: RIGID ACTIONS: GROYNES, FREE-STANDING BREAKWATERS.

2. Practical contents.

Various practical problems related to the theory that has been taught and presented in previous sessions will be undertaken.

Seven practical problems will have to be solved and handed in independently with the final objective of consolidating the theoretical knowledge acquired.