

## SUBJECT TEACHING GUIDE

### 561 - Dynamics and Transport in Transitional and Coastal Waters

#### Master's degree in integrated management of water systems

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's degree in integrated management of water systems			Type and Year	Compulsory. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	561 - Dynamics and Transport in Transitional and Coastal Waters				
Number of ECTS credits allocated	2	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	MARIA SONIA CASTANEDO BARCENA				
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Other lecturers					

3.1 LEARNING OUTCOMES
- The student will know the fundamentals of integrated water resources management and the key elements that must be taken into account in hydrological planning and land management.
- The student will be able to understand, solve and apply the general equations of long waves, jet dynamics and wave-current interaction, as well as the expressions of equilibrium analysis.
- The student will know the fundamental principles of the scientific method.

#### 4. OBJECTIVES

- The general objective is that the student acquires a wide understanding of coastal system dynamics
- To be able to understand the physical mechanisms that govern the different marine dynamics (waves, currents, tides, wind).
- To be able to identify the domains where the different marine dynamics govern and to know the theoretical -practical approach for their characterization.
- To provide knowledge to understand the interaction between marine dynamics and coastal dynamics.
- To understand the importance of quantifying the marine dynamics as an essential part of the study and design of actions on the coast.
- To be able to apply the acquired knowledge to understand the processes that occur in beaches, ports and estuaries.

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	Introduction to the dynamics and transport processes in coastal waters
2	Wind waves. Generation and propagation
3	Wind waves effects on the coast: currents and sea level
4	Coast morphodynamics
5	Long waves. Generation and propagation.
6	Currents and sea level in estuaries.
7	Estuarine morphodynamic
8	Final test

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Case study #1	Work	No	No	20,00
Case study #2	Work	No	No	20,00
Final test	Written exam	No	Yes	60,00
<b>TOTAL</b>				<b>100,00</b>

### Observations

The evaluation of student learning will be carried out continuously throughout the course and will be completed with a final test.

Only for duly justified causes (eg health restrictions) the evaluation may be organized remotely, with prior authorization from the Direction of the School.

The evaluation criteria will take into account:

- Class participation and interest shown.
- Master the basic concepts exposed in the subject
- Being able to apply the knowledge acquired, solving practical problems
- Present the proposed works correctly and in an orderly manner

The instruments used to carry out the evaluation will be:

a. Practical activities (P1 and P2) (valuation of 20% each)

b. Final written test, which will cover the whole subject and will include theoretical questions and practical exercises (60% of the final grade).

The minimum grade to pass the course must be 5.0 in total (practices + final test), and must obtain at least 5.0 in the final exam to be able to add the mark for the practices. Suspended students will have an extraordinary call in July.

The repeated lack of attendance and punctuality not justified to the classes may give rise to the loss to the continuous evaluation, being necessary to go to the extraordinary call in the month of July.

In relation to the agreements adopted at the ordinary session of the School Board held on June 10, 2010, it is established that, with respect to evaluation activities that are recoverable,

- As a general criterion and unless a different thing is specified in this guide, a student may only recover those activities that he/she has not passed, that is, in which he/she has not obtained a minimum grade of 5/10.
- As a general criterion and unless a different thing is specified in this guide, in the recovery period the evaluation procedure of an activity will be the same as that of the activity that originates it.

Note: according to R.D 1125/2003 on the European credit system and the grading system for official university degrees and valid throughout the national territory, the results obtained by the student in each of the subjects of the Studies Plan will be graded according to the following numerical scale from 0 to 10, with the expression of a decimal, to which their corresponding qualitative qualification may be added:

0,0 - 4,9: Suspenso (SS). 5,0-6,9: Aprobado (AP). 7,0-8,9; Notable (NT). 9,0-10: Sobresaliente (SB)

### Observations for part-time students

Part-time students will apply the same assessment criteria as full-time students. The temporary distribution of activities will be adapted to the particular conditions of each student when deemed necessary

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

Apuntes "Volumen I. Dinámicas" Documento de referencia SMC. Grupo de Ingeniería Oceanográfica y de Costas, GIOC (Universidad de Cantabria).

Presentaciones en Powerpoint de la asignatura

Dean, R. G., Dalrymple, A. (1993). Water wave mechanics for engineers and scientists. Ed. World Scientific. Advanced series on Ocean Engineering. Vol. 2.