

SUBJECT TEACHING GUIDE

534 - Fundamentals of Coastal Dynamics

Master's Degree in Coasts and Ports

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Master's Degree in Coasts and Ports			Type and Year	Compulsory. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	534 - Fundamentals of Coastal Dynamics				
Number of ECTS credits allocated	3	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	ERNESTO MAURICIO GONZALEZ RODRIGUEZ				
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Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. ERNESTO MAURICIO GONZALEZ RODRIGUEZ (0046A)				
Other lecturers	RAUL MEDINA SANTAMARIA				

3.1 LEARNING OUTCOMES

- To know the spatial and temporal scales of variability of the beaches
- To know the morphodynamic states of a beach
- To know the conditions required for a beach to be in equilibrium
- To be able to establish the stability condition of a beach
- To be able to design a beach nourishment project
- To be able to design the monitoring program of a beach nourishment project
- To be able to perform a technical report covering the above aspects (diagnosis, proposals for action and monitoring of a beach nourishment project)
- To be able to present in public a technical report on the above mentioned issues, presenting the results in a concise and clear way
- To be able to establish the technical requirements for a specific coastal problem

4. OBJECTIVES

The aim of the course is to give students the theoretical and practical knowledge required for the design of coastal works, particularly those intended to protect the coastline from erosion and the restoration of beaches.

6. SUBJECT PROGRAM

CONTENTS	
1	Coastal morphology
2	Beach morphodynamic states
3	Beach profile
4	Beach plan form
5	Beach nourishment projects and monitoring programs
6	Case studies
7	Final written evaluation

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
		No	No	0,00
Test (e-learning)	Activity evaluation with Virtual Media	No	Yes	20,00
Practice 1: Beach morphodynamics	Activity evaluation with Virtual Media	No	Yes	10,00
Practice 2: Beach profile	Activity evaluation with Virtual Media	No	Yes	15,00
Practice 3: Beach plan form	Activity evaluation with Virtual Media	No	Yes	15,00
Exam: written evaluation	Written exam	Yes	Yes	40,00
TOTAL				100,00
Observations				
Only for duly justified causes (eg sanitary restrictions), the evaluations may be organized remotely, with prior authorization from the Center's Direction.				
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
Hsu, John R.C., Lee, Jung L., H. F. Klein, Antonio, González, Mauricio, Medina, Raúl (2021) Headland-Bay Beaches. Static Equilibrium Concept for Shoreline Management. Ed. World Scientific
Dean, R.G. (2002) Beach nourishment: theory and practice. Advances Series on Ocean Engineering. Ed. World Scientific.
Short, A.D. (1999) Handbook of beach and shoreface morphodynamics. Ed. John Wiley & Sons.
Hsu, John R.C. (1999) Coastal stabilization. Advances Series on Ocean Engineering. Ed. World Scientific.