

SUBJECT TEACHING GUIDE

M1459 - Coastal Engineering

Master's Degree in Civil Engineering

Academic year 2019-2020

1. IDENTIFYING DATA					
Degree	Master's Degree in Civil Engineering			Type and Year	Compulsory. Year 2
Faculty	School of civil Engineering				
Discipline	Oceanographic and Coastal Engineering				
Course unit title and code	M1459 - Coastal Engineering				
Number of ECTS credits allocated	4,5	Term	Semester based (1)		
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	RAUL MEDINA SANTAMARIA
E-mail	raul.medina@unican.es
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. DESPACHO (0050)
Other lecturers	ERNESTO MAURICIO GONZALEZ RODRIGUEZ JAVIER LOPEZ LARA MELISA MENENDEZ GARCIA

3.1 LEARNING OUTCOMES

- To know the different types of marine works and understand the reasons for their inclusion in the different classifications
- To know the procedures for the design, construction, operation and dismantlement of maritime works set in ROM-00
- To be able to formulate and use existing formulations for calculating the design parameters of vertical and mound breakwaters
- To be able to formulate and use existing formulations for calculating the failure modes of vertical and mound breakwaters
- To be able to formulate and use existing formulations for calculating the wave forces on vertical and mound breakwaters
- 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 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 establish the technical requirements for a specific coastal problem

4. OBJECTIVES

The first goal of this course is that the student is able to identify the characteristics of the different types of coastal works and is able to design the most common protection works used in both port engineering and coastal engineering

The second goal of the course is to give students the knowledge for the design, construction and management of the activities carried out on the coast aimed at the restoration and nourishment of a beach

6. COURSE ORGANIZATION

CONTENTS

1	Beach morphodynamic states
2	Beach profile
3	Beach plan form
4	Beach nourishment
5	Beach monitoring
6	Coastal modelling system
7	Functional and structural design of mound breakwaters
8	Functional and structural design of vertical breakwaters
9	Functional and structural design of quays
10	design of piles
11	written evaluations

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Class attendance. E-learning Tests	Activity evaluation with Virtual Media	No	Yes	10,00
Practice 1, Morphodynamics	Activity evaluation with Virtual Media	No	Yes	5,00
Practice 2, Beach Profile	Activity evaluation with Virtual Media	No	Yes	7,50
Practice 3, Beach Plan Form	Activity evaluation with Virtual Media	No	Yes	7,50
Written Exam 1, Beaches	Written exam	Yes	Yes	20,00
Practice 4, Coastal works	Activity evaluation with Virtual Media	No	Yes	15,00
Written Exam 2, Coastal works	Written exam	Yes	Yes	35,00
TOTAL				100,00
Observations				
<p>As a general criterion, and unless a different thing is specified in this guide, a student may be submitted only to the recovery of those activities that have failed, that is, where it has not obtained a minimum score of five out of ten.</p> <p>As a general criterion, and except a different thing is specified in this guide, in the recovery period the assessment procedure of an activity is the same as the activity that originates</p> <p>Non-Attending Students:</p> <p>Non-Attending students with the right of evaluation of this course will be evaluated with a written exam that will cover the topics included in written exams 1 and 2.</p>				
Observations for part-time students				
<p>In accordance with the regulation of the evaluation processes, collected and regulated in the academic management regulations of the University of Cantabria, students enrolled part-time may undergo a single evaluation process consisting of a written examination of the whole of the subject on the date established for this purpose by the school</p> <p>The student enrolled part-time must, at the beginning of the subject, communicate in writing to the responsible professor the option of evaluation that he/she wishes to follow, continuous evaluation or one final written exam</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Krystian W. Pilarczyk. Dikes and revetments. A.A. Balkema. 1998
Per Bruun. Design and construction of mounds for breakwaters and coastal protection. Elsevier. 1985
Vicente Negro, Ovidio Varela, Jaime H. García y José Santos. Diseño de diques verticales. Colegio de Ingenieros de Caminos, Canales y Puertos. 2001
Vicente Negro y Ovidio Varela. Diseño de diques rompeolas. Colegio de Ingenieros de Caminos, Canales y Puertos. 2002
Hsu, John R.C. (1999) Coastal stabilization. Advances Series on Ocean Engineering. 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