

## SUBJECT TEACHING GUIDE

### 509 - Numerical Modelling of Wave-Structure Interaction

#### Erasmus Mundus Joint Master Degree in Coastal Hazards - Risks, Climate Change Impacts and Adaptation

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Erasmus Mundus Joint Master Degree in Coastal Hazards - Risks, Climate Change Impacts and Adaptation			Type and Year	Optional. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	509 - Numerical Modelling of Wave-Structure Interaction				
Number of ECTS credits allocated	1	Term	Semester based (1)		
Web					
Language of instruction	English	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	MARIA EMILIA MAZA FERNANDEZ				
E-mail	mariaemilia.maza@unican.es				
Office	Edificio IH Cantabria. Planta: + 2. SALA COMUN (215-5)				
Other lecturers					

### 3.1 LEARNING OUTCOMES

- Students will be able to numerical simulate wave-structure interaction problems understanding the involved physics.

#### 4. OBJECTIVES

Students will get a basic knowledge of the different numerical approaches that can be applied to the study of wave -structure interaction.

Student will learn how to use a CFD tool for the analysis of wave-structure interaction including mesh and numerical input parameters definition.

Students will learn how to pos-process the numerical results and plot the most relevant variables to study wave-structure interaction problems.

Students will acquire a critical view to analyze numerical results and extract conclusions in wave-structure interaction problems.

#### 6. SUBJECT PROGRAM

##### CONTENTS

1	Introduction to numerical modeling of wave-structure interaction
2	IH2VOF: description of governing equations and graphical interface
3	Mesh definition and input parameters
4	Practical exercises of wave-structure interaction problems

#### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Practical Exercise 1	Work	Yes	Yes	40,00
Practical Exercise 2	Work	Yes	Yes	60,00
TOTAL				100,00
Observations				
Class attendance is mandatory.				
Observations for part-time students				
The same as for full-time students, but with flexibility in the delivery of Practical Exercises.				

#### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

##### BASIC

IH2VOF users manual