

56-MC3-002 University Microcredential in Sustainable Marine Ecosystems (TRASMARES)

ACADEMIC BOARD

Coordinator

Name	Position	Center	Form. Acad. / Exp. Prof.
JOSÉ A JUANES	Full Professor	Universidad de Cantabria (UC)	PhD in Biology

Certificate Directors

Name	Position	Center	Background
JOSÉ A JUANES	Full Professor	Universidad de Cantabria (UC)	PhD in Biology
BÁRBARA ONDIVIELA	Researcher	Fundación Instituto Hidráulica Ambiental de Cantabria (FIHAC)	PhD in Marine Sciences

Course Directors

Name (Course)	Position	Center	Background
ELVIRA RAMOS (MOOC 1)	Researcher	Fundación Instituto Hidráulica Ambiental de Cantabria (FIHAC)	PhD in Biology
MARÍA RECIO (MOOC 2)	Technologist	Fundación Instituto Hidráulica Ambiental de Cantabria (FIHAC)	PhD in Marine Sciences
MARÍA E MAZA (MOOC 3)	Permanent Professor	Universidad de Cantabria (UC)	PhD in Civil Engineering
BÁRBARA ONDIVIELA (MOOC 4)	Researcher	Fundación Instituto Hidráulica Ambiental de Cantabria (FIHAC)	PhD in Marine Sciences
ARACELI PUENTE (TFP)	Full Professor	Universidad de Cantabria (UC)	PhD in Marine Sciences

International Advisors

Nombre	Categoría	Universidad u Organismo
LAURA AIROLDI	Full Professor	University of Padova (IT))
JOAO NETO	Senior Researcher	University of Coimbra (PT)

UC Department:

Environmental Hydraulics Institute (IHCantabria)

GENERAL INFORMATION

Certificate:	University Microcredential in Sustainable Marine Ecosystems
Acronym:	TRASMARES
Languages:	Mainly English (EN), with subtitles in Spanish, Italian and Portuguese
Plataform:	Virtual classroom (Moodle)
Programme code:	56-MC3-002
Edition #:	1
Qualification:	Level 7 of the European Qualification Framework (EQF). MECES 3 in Spain.
ISCED codes:	0521 Environmental sciences 0532 Earth Sciences 0732 Civil Engineering
Modalidad:	Virtual asIncrinous
Students #:	<u>Min.</u> : 5; <u>Max.</u> : 50

ECTS:

Tipo	ECTS
MOOC courses	8,00
Final Programme Work	2,00
Total	10,00

Academic Fee: 375,00€

Scholarships: The *Programa Santander- Microcredenciales 2026* offers 9 full scholarships (300 €) for students previously enrolled in the Santander Bank - Open Academy platform:

<https://app.santanderopenacademy.com/es/program/microcredenciales-2026-i-edicion>

AGENDA

Starting date:	13-05-2026
Closing date:	31-07-2026
Registration period:	14-04-2026 / 12-05-2026
Final Programme Work (TFP):	
Global Test:	15-06-2026 y 29-06-2026
TFPs Assignment:	16-06-2026 y 30-06-2026
TFPs Evaluation:	27-07-2026

REQUIREMENTS

DOCUMENTS TO REGISTER

- Curriculum Vitae
- Copy of the ID (DNI, NIE or Passport)

BACKGROUND

Open to VET, undergraduate, master and PhD students, professionals and civil servants from different disciplines, with no previous requirements other than the interest in this topic.

JUSTIFICATION

This degree provides an integrated view of a highly relevant topic, the sustainability of coastal systems, through a multidisciplinary approach that combines novel and applied knowledge of marine ecology, environmental management and marine spatial planning.

OVERALL OBJECTIVES

- Learn about the most representative coastal ecosystems, their characteristics, functions and services, and the approaches currently used to analyse their distribution.
- Know the main needs of coastal populations, the activities developed by society to meet them, the consequences for the environment and for society itself and, finally, the possible strategies to reduce environmental damage and improve the benefit to human populations.
- Introduce the concept of Nature-based Solutions (NbS) with real-world marine and coastal examples,
- Explore the intersection between NbS and more traditional conservation practices and concepts, as well as discuss the scientific, socioeconomic and political factors that facilitate the adoption of NbS.
- Present the legal framework that regulates the development of different activities in the coast and marine zone, some of the most representative coastal management tools and practical cases of real application throughout the world.

CONTENTS

1. Innovative methods to assess the distribution of marine ecosystems
 - 1.1. Introduction to marine ecosystems
 - 1.2. Marine ecosystems characterization
 - 1.3. Functions, services and benefits of marine ecosystems
 - 1.4. Direct approaches to characterize the distribution of ecosystems
 - 1.5. Indirect approaches to characterize the distribution of ecosystems
2. Human activities and vulnerability of marine ecosystems
 - 2.1. Introduction to the DPSIR framework
 - 2.2. Driving forces
 - 2.3. Pressures
 - 2.4. Changes of status
 - 2.5. Impacts on the well-being of society
 - 2.6. Response with measures
3. Nature-based Solutions as proactive approaches to conservation
 - 3.1. Introduction to the sustainable management of marine ecosystems and resources
 - 3.2. From species to ecosystem conservation
 - 3.3. Habitat restoration and its value in Nature-based Solutions
 - 3.4. The greening of man-made structures to support nature in the urban ocean
 - 3.5. Incentivising, financing and governing Nature-based Solutions
4. Land-sea-ocean interactions: from coastal management to maritime spatial planning
 - 4.1. Legal framework: from the Romans to the present day
 - 4.2. Conceptual framework
 - 4.3. Integrated Coastal Zone Management (ICZM)
 - 4.4. Marine spatial planning processes
 - 4.5. Marine spatial planning in practice
5. Final Programme Work (TFP)

COMPETENCES

- To know the main characteristics of coastal ecosystems and the techniques applicable to analyse their distribution and evaluation.
- To understand the components of the DPSIR framework as a basic management tool for the conceptualization and assessment of the most relevant problems existing in coastal systems.
- To learn about the concept of SbN through real-world marine and coastal examples, explore the intersection between SbN and more traditional conservation concepts and practices, as well as the scientific, socio-economic and political factors that facilitate the adoption of SbN.
- To differentiate the concepts and possible measures applicable to the management of the effects of human activity on marine systems, based on the principles of Marine Spatial Planning.

LEARNING OUTCOMES

- To be able to apply the knowledge acquired on the sustainability of coastal ecosystems to the development of a practical case study, synthesize the results obtained in a report and defend these results in a public presentation.

LEARNING ACTIVITIES

- Review of recorded lessons
- Resolution of practical exercises
- Elaboration of the final programme work

EVALUATION SYSTEM

- Online tests at the end of each module of each MOOC. The final mark for each MOOC will be obtained as the average mark of the different modules.
- Global test of the 4 MOOCs, previous and compulsory for the assignment of the Final Programme Work (TFP)
- Development and defense of the TFP.

MICROCREDENTIAL ORGANIZATION

Course name	Te ECTS	Pr ECTS	Total ECTS	Tipology
A-56-005 – Innovative methods to assess the distribution of marine ecosystems	2,00	0,00	2,00	Obligatory
A-56-006 – Human activities and vulnerability of marine ecosystems	2,00	0,00	2,00	Obligatory
A-56-007 – Nature-based Solutions as proactive approaches to conservation	2,00	0,00	2,00	Obligatory
A-56-008 – Land-sea-ocean interactions: from coastal management to maritime spatial planning	2,00	0,00	2,00	Obligatory
A-56-009 – Final Programme Work (TFP)	1,80	0,20	2,00	Obligatory
TOTAL			10,00	

	Course.	ECTS	Time (hours)									
			Presential			Virtual						
			Te	Pr	Seg	Te		Pr		Seg		Ta
						S	A	S	A	S	A	
A-56-005 (1)	2,00	0,00	0,00	0,00	0,00	20,00	0,00	0,00	10,00	0,00	20,00	
A-56-006 (1)	2,00	0,00	0,00	0,00	0,00	20,00	0,00	0,00	10,00	0,00	20,00	
A-56-007 (1)	2,00	0,00	0,00	0,00	0,00	20,00	0,00	0,00	10,00	0,00	20,00	
A-56-008 (1)	2,00	0,00	0,00	0,00	0,00	20,00	0,00	0,00	10,00	0,00	20,00	
A-56-009 (1)	2,00	0,00	0,00	0,00	5,00	0,00	0,00	0,00	5,00	0,00	40,00	
Total	10,00	0,00	0,00	0,00	5,00	80,00	0,00	0,00	45,00	0,00	120,00	

Te: Theory, Pr: Practice, Seg: Monitoring, Ta: Autonomous work, S: Synchronous activities, A: Asynchronous activities

FINAL PROGRAMME WORK (TFP)

Students who obtain the certificate of completion of the 4 MOOCs must pass a “global test”, based on a set of 100 predefined questions, before starting the development of their Final Programme Work (TFP).

The TFPs will be selected by the students from a list of works proposed by the teaching team, each one assigned to a teacher. Weekly face-to-face monitoring of students will be organized by each professor at the General Forum of the Moodle.

Each student must develop the TFP individually, having to submit a written document (max 15 pages) and a 5-minute video with the presentation of their work. Once finalized the submitting period, the students will discuss the results obtained with the Academic Committee, concluding the evaluation of the TFP.

RECOGNITION OF CREDITS

Those students who have obtained the diplomas of completion of the MOOCs in previous editions may request the recognition of the credits obtained, at the time of their incorporation into the Program.

UC General criteria for credit recognition

- In order to proceed with the recognition requested, there must be a coincidence of at least 75% of the content and teaching load of the degree, module or subject studied in relation to that of the degree, module or subject to be recognized. Degrees, modules or subjects that are subject to recognition will retain their original grade.
- The Academic Committee or, where appropriate, the Certificate Directors, may also recognize work and professional experience provided that this experience is related to the competences inherent to said degree and they have a level appropriate to it.
- The recognition of degrees, modules or subjects taken at other universities will not affect the price to be paid for this certificate.

RESOURCES

HUMAN RESOURCES

Academic staff of the University of Cantabria (UC):

Nombre	Categoría Profesional
JUANES, JOSÉ ANTONIO	Full Professor
PUENTE, MARÍA ARACELI	Full Professor
MAZA, MARÍA EMILIA	Permanent Professor
SAINZ, SAMUEL	Postdoc Researcher

Academic staff of the Fundación Instituto Hidráulica Ambiental de Cantabria (FIHAC):

Nombre	Categoría Profesional
ONDIVIELA, BÁRBARA	Researcher
RAMOS, ELVIRA	Researcher
GALVÁN, CRISTINA	Researcher
FERNÁNDEZ, CAMINO	Researcher
MAZARRASA, INÉS	Researcher
RECIO, MARÍA	Technologist
MERINO, MARÍA	Technologist
ÁLVAREZ, MARIO	Technologist
GUINDA, XABIER	Technologist
ROYANO, FRANCISCO	Director of Technological Transfer
JIMÉNEZ, MARÍA	Teaching Support staff

TECHNOLOGICAL RESOURCES

- Learning platform: Moodle
- Multipurpose classroom: Aula NILO (IHCantabria)