Teaching Guide					
Identifying Data					2021/22
Subject (*)	Dynamics of Oceanic Artifacts			Code	730496209
Study programme	Mestrado Universitario en Enxeñaría Naval e Oceánica (plan 2018)				
Descriptors					
Cycle	Period	Year		Type	Credits
Official Master's Degree	2nd four-month period	Second		Obligatory	6
Language	SpanishGalicianEnglish				
Teaching method	Face-to-face				
Prerequisites					
Department	Enxeñaría Naval e Industrial				
Coordinador	Díaz Casás, Vicente		E-mail	vicente.diaz.casas@udc.es	
Lecturers	Díaz Casás, Vicente Santiago Caamaño, Lucía		E-mail	vicente.diaz.casas@udc.es lucia.santiago.caamano@udc.es	
Web					
General description	Esta materia aborda o analise do comportamento dinámico de artefáctos oceánicos.				
Contingency plan	In case of new quarantine, the subject will go online. Class schedules will be maintained, which will be done through Teams. The evaluation will be maintained, but in online mode.				

Study programme competences / results	
Code	Study programme competences / results
A11	A10 - Coñecemento dos sistemas de posicionamento e da dinámica de plataformas e artefactos.
B1	CB06 Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, a miúdo nun contexto de investigación
B4	CB09 Que os estudantes saiban comunicar as súas conclusións e os coñecementos e razóns últimas que as sustentan a públicos especializados e non especializados dun modo claro e sen ambigüidades.
B5	CB10 Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun modo que haberá de ser en boa medida autodirixido ou autónomo.
C2	C1 Capacidade pra desenrolar a actividade profesional nun entorno multilingue
C3	ABET (a) An ability to apply knowledge of mathematics, science, and engineering.
C7	ABET (e) An ability to identify, formulate, and solve engineering problems.
C12	ABET (j) A knowledge of contemporary issues.
C13	ABET (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Learning outcomes			
Learning outcomes	Study programme competences / results		
Knowledge of the methods of analysis of the dynamic behavior of oceanic artifacts in order to establish the dynamic loads implicit in their operation when they are subjected to harmonic excitations, linear loads, impulse loads and random loads, and that affect their design and their anchoring elements.	AJ10	BC1 BC4 BC5	CC2 CC3 CC7 CC12 CC13

Contents	
Topic	Sub-topic

Study of positioning of the artifacts in the sea.	- Introduction to the positioning and types of positioning. - Description. - Applications. - Redundancy and classification of DP systems.
Study and response of artifacts.	- Classification of mathematical models. - Reference systems. - General equations of motion. - Implicit forces in the design. - Control system.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Problem solving	A11 B1 B4 B5 C2 C3 C7 C12 C13	22.5	40	62.5
Supervised projects	A11 B1 B4 B5 C2 C3 C7 C12 C13	2.5	5	7.5
Objective test	A11 B1 B4 B5 C2 C3 C7 C12 C13	1	0	1
Guest lecture / keynote speech	A11 B1 B4 B5 C2 C3 C7 C12 C13	35	40	75
Personalized attention		4	0	4
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Problem solving	Throughout the course, a series of problems will be proposed for the different parts of the subject in order to complement the theoretical training included in the master sessions.
Supervised projects	Throughout the course, a supervised project will be proposed, individually or in groups, related to the subject. This will be obligatory, and its realization and public presentation will be essential to pass the subject. The public presentation will take place in the hours of the subject, being able to agree with the students, in exceptional cases and always at the teacher's discretion, other defense schedules. The details of the dates / deadlines of the works, as well as its content and its individual or group nature, will be published on the subject's website (Moodle) and will be made public in the classroom.
Objective test	An objective test that will consist of a theoretical and practical examination of the contents of the subject.
Guest lecture / keynote speech	Presentation and development of theoretical and practical issues cited in the content section.

Personalized attention	
Methodologies	Description

Problem solving Supervised projects	Problem solving: Individualized tutorials are proposed in which the student can solve doubts about the problems proposed in class. Supervised projects: Individualized tutorials are proposed in which the student will be guided in the correct realization of the project, providing possible bibliography and sources of information and advice in the different phases of its development. Personalized attention will be totally analogous for students with attendance waivers and full-time students. The tutorials will be held at the times established for this purpose for the current academic year.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Supervised projects	A11 B1 B4 B5 C2 C3 C7 C12 C13	The grade of the supervised project will represent a maximum of 40% in the grade of the subject, provided that the grade of the objective test is greater than 4, as can be seen in the Objective Test section. The qualification of the oral presentation of the supervised project, as well as the participation in the evaluation of the presentations of the rest of the students, will suppose a maximum of 20% of the grade of the work.	40
Objective test	A11 B1 B4 B5 C2 C3 C7 C12 C13	The objective test of the subject will have a theoretical and a practice part. It will be necessary to obtain more than 4 points in the final qualification of the objective test to be able to pass the course.	60

Assessment comments
On the second opportunity or in the extraordinary opportunity, students must again deliver all the works and orally present them. Since class attendance is not evaluated within the subject, the requirements that those students with a class attendance waiver will have to meet, both first and second time, will be the same requirements as those without this waiver, being necessary the delivery in time of the supervised works and realization of the oral presentation of the even. The delivery of the works carried out in this subject: It will be requested in virtual format and / or computer support. It will be done through Moodle, in digital format without the need to print them.

Sources of information	
Basic	Thor I. Fossen (2011). Handbook of Marine Craft Hydrodynamics and Motion Control. John Wiley & Sons, Ltd. Print ISBN:9781119991496, Online ISBN:9781119994138, DOI:10.1002/9781119994138.A R J M Lloyd (1998). Seakeeping: ship behaviour in rough weather. ISBN 10:0953263401, ISBN 13:9780953263400.ABS (2014). Guide for Dynamic Positioning Systems: American Bureau of Shipping.Thor I. Fossen (2011). Handbook of Marine Craft Hydrodynamics and Motion Control. John Wiley & Sons, Ltd. Print ISBN:9781119991496, Online ISBN:9781119994138, DOI:10.1002/9781119994138.A R J M Lloyd (1998). Seakeeping: ship behaviour in rough weather. ISBN 10:0953263401, ISBN 13:9780953263400.ABS (2014). Guide for Dynamic Positioning Systems: American Bureau of Shipping.
Complementary	

Recommendations
Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.