Teaching Guide				
Identifying Data				2021/22
Subject (*)	Innovation Management in Marine Engineering		Code	631480214
Study programme	Mestrado Universitario en Enxeñaría Mariña			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optional	3
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Navegación e Enxeñaría Mariña			
Coordinador	Orosa Garcia, Jose Antonio	E-mail	jose.antonio.orosa@udc.es	
Lecturers	Orosa Garcia, Jose Antonio	E-mail	jose.antonio.orosa@udc.es	
Web				
General description	1. Modifications in the contents No changes will be made. 2. Methodologies * Teaching methodologies are maintained Master Session Tutored works * Teaching methodologies that change No changes are made 3. Mechanisms of personalized attention to students E-mail: To make inquiries, resolve doubts and monitor supervised work. Moodle: Through forums. Teams: Sessions in the official schedule for the development of theoretical-practical contents. 4. Modifications in the evaluation Tutored jobs are now 100%. * Evaluation observations: 5. Modifications to the bibliography or webography No changes will be made. The student will have information related to the subject in the Moodle platform itself.			

Contingency plan	1. Modifications in the contents No changes will be made. 2. Methodologies * Teaching methodologies are maintained Master Session Tutored works * Teaching methodologies that change No changes are made 3. Mechanisms of personalized attention to students E-mail: To make inquiries, resolve doubts and monitor supervised work. Moodle: Through forums. Teams: Sessions in the official schedule for the development of theoretical-practical contents. 4. Modifications in the evaluation Tutored jobs are now 100%. * Evaluation observations: 5. Modifications to the bibliography or webography No changes will be made. The student will have information related to the subject in the Moodle platform itself.

Study programme competences	
Code	Study programme competences
A18	Planificar e programar un proxecto no ámbito de investigación operativa e controlar a súa execución e futuro mantemento estimando a influencia dos costos de explotación durante o ciclo de vida para especificar as condicións óptimas de eficiencia e seguridade. Xestionar inventarios.
A22	Capacidade para desenrolar métodos e procedementos para gañar competitividade na industria marítima.
A23	Capacidade de autoformación, creatividade e investigación en temas de interese científico e tecnolóxico.
A24	Capacidade para detectar necesidades de mellora e innovar sistemas enerxéticos buscando alternativas viables aos sistemas convencionais e implementar cos métodos, técnicas e tecnoloxías emerxentes máis eficientes para o apoio, asistencia e supervisión da Enxeñaría Mariña.
B1	Aprender a aprender.
B2	Resolver problemas de forma efectiva.
B4	Traballar de forma autónoma con iniciativa.
B5	Traballar de forma colaborativa.
B6	Comportarse con ética e responsabilidade social como cidadán e como profesional.
B7	Capacidade para interpretar, seleccionar e valorar conceptos adquiridos noutras disciplinas do ámbito marítimo, mediante fundamentos físico-matemáticos.
B8	Versatilidade.
B9	Capacidade para a aprendizaxe de novos métodos e teorías, que lle doten dunha gran versatilidade para adaptarse a novas situacións.
B11	Capacidade para resolver problemas con iniciativa, toma de decisións, creatividade, razoamento crítico e de comunicar e transmitir coñecementos, habilidades e destrezas.
B12	Posuír e comprender coñecementos que aporten unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, a miúdo nun contexto de investigación

B13	Que os estudantes saiban aplicar os coñecementos adquiridos e a sua capacidade de resolución de problemas en contornas novas ou pouco coñecidas dentro de contextos máis amplos (ou multidisciplinares) relacionados coa súa área de estudo
B14	Que os estudantes sexan capaces de integrar coñecementos e enfrontarse á complexidade de formular xuízos a partires dunha información que, sendo incompleta ou limitada, inclúa reflexións sobre as responsabilidades sociais e éticas vencelladas á aplicación dos seus coñecementos e xuízos
B15	Que os estudantes saiban comunicar as súas conclusións e os coñecementos e razóns últimas que as sustentan a públicos especializados e non especializados dun xeito claro e sin ambigüidades
B16	Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun xeito que haberá de ser en grande medida autodirixido ou autónomo.
C3	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C4	Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C5	Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C8	Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.
C9	Falar ben en público

Learning outcomes			
Learning outcomes	Study programme competences		
Coñecer a metodoloxía investigadora.	AC18 AC22 AC23 AC24	BC1 BC2 BC4 BC5 BC6 BC7 BC8 BC9 BC11 BC12 BC13 BC14 BC15 BC16	CC3 CC4 CC5 CC8 CC9
Habilidade para interpretar e reconocer tendencias de mercado no ámbito da Enxeñaría mariña. Desenrolar estratexias e modos de analizar, sintetizar e implementar posibles cambios ou evolucions técnicas avanzadas no entorno marítimo.			C1 CJ1
Realizar os cálculos correspondientes para os distintos tipos de estudos, así como obter conclusiones e propoñer solucions en cada caso.			CJ1
Aplicar o coñecemento de forma que favorezca unha constante acción innovadora e competitiva.	AJ1 AJ1		
Coñecer procedementos de transferencia de resultados.		B1 B1	

Contents	
Topic	Sub-topic

1. Introduction	1.1. Definition of the Scientific Method 1.2. Analytical method. 1.3. Synthetic method. 1.4. Inductive method. 1.5. Deductive method. 1.6. Cartesian Thought. 1.6.1. The Rules of the Cartesian Method. 1.6.2. Methodical doubt. 1.6.3. THE First Cartesian Principle. 1.7. The Induction Procedures according to J. Mill Stuart.
2.- Stages of the Scientific Method	2.1. The Choice of the Theme. 2.2. Problem Statement. 2.2.1. Delimitation of the Problem. 2.3. Justification of the Research problem. 2.4. Research objectives. 2.5. Structuring the Research Scheme. 2.6. Theoretical framework. 2.7. Preparation of the Hypothesis. 2.8. Methodology. 2.9. Schedule. 2.10. Annexes or graphics. 2.11. Glossary of terms. 2.12. Bibliography.
3. Scientific Laws.	3.1. Function of the Scientific Law. 3.1.1. Scientific Law Classes.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Problem solving	A18 A22 A23 A24 A25 B1	3	12	15
Case study	A41 A44 B6 B8 B2 B4 B5 B6 B7 B8 C8 C9 C11	2	10	12
Document analysis	B9 B11 B12 B13 B15 B16	1	2	3
Guest lecture / keynote speech	B14 C3 C4 C5 C6 C8 C9	6	3	9
Supervised projects	A1 A35 B1 B7 C1	12	24	36
Personalized attention		0		0
(*)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	The proposed problems will be solved by the student, being carried out a permanent follow-up.
Case study	Cases for which there is inefficient exploitation documentation will be chosen for analysis, monitoring their development on an individual basis.
Document analysis	Personalized attention will be paid to the selection of bibliographic sources and specialized publications.
Guest lecture / keynote speech	Master session of the theoretical contents of the syllabus.

Supervised projects	Attention in the office or in the classroom for the resolution of proposed analysis works.

Personalized attention	
Methodologies	**Description**
Supervised projects	They will be carried out at tutoring hours or established at the beginning of the course and expository not on the desk. This personalized attention is essential because it is or work carried out by the student.

Assessment			
Methodologies	**Competencies**	**Description**	**Qualification**
Supervised projects	A1 A35 B1 B7 C1	Traballos de certa complexidadea realizar polo alumno.	50
Problem solving	A18 A22 A23 A24 A25 B1	Solución de problemas básicos	25
Case study	A41 A44 B6 B8 B2 B4 B5 B6 B7 B8 C8 C9 C11	Estudo de casos teóricos	25

Assessment comments
Objective test. Evaluation of knowledge and understanding of the basic contents of the subject, considering the abilities and skills of the student, their strategies and approaches in solving problems. The degree of evolution of the student and their ability to analyze, judge and solve specific problems will be expressly valued, requiring a balanced theoretical-practical training. The evaluation criteria contemplated in tables A-III / 1 and A-III / 3 of the STCW Code, and included in the Quality Assurance System, will be taken into account when designing and carrying out the evaluation. Students with recognition of part-time dedication and academic exemption from attendance exemption, as established by the "RULE THAT REGULATES THE REGIME OF DEDICATION TO DEGREE STUDENTS AT THE UDC (Arts. 2.3; 3.b; 4.3; 7.5) (05/04/2017): You will have the right to take an objective test with the possibility of obtaining 100% of the grade.

Sources of information	
Basic	
Complementary	- José A. Orosa García (). Apuntes de Clase. - Raúl Gutiérrez (2006). Introducción al método científico. Esfinge - Ramón Ruiz (2007). Historia y evolución del pensamiento científico. on-line

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously

Maintenance Engineering/631480102 Computational Methods Applied to Marine Engineering/631480201
Subjects that continue the syllabus
Maintenance Engineering/631480102
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.