Teaching Guide				
Identifying Data				2014/15
Subject (*)	Hidrodinámica do Buque		Code	631480212
Study programme	Mestrado Universitario en Enxeñaría Mariña			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optativa	3
Language	Spanish			
Prerequisites				
Department	Enerxía e Propulsión Mariña			
Coordinador	Baaliña Insua, Alvaro	E-mail	alvaro.baalina@udc.es	
Lecturers		E-mail		
Web				
General description				

Study programme competences	
Code	Study programme competences
A20	Capacidade para desenrolar tarefas de análise e síntese de problemas teórico-prácticos en base a conceptos adquiridos noutras disciplinas do ámbito marítimo, mediante fundamentos físico-matemáticos.
A22	Capacidade para desenrolar métodos e procedementos para gañar competitividade na industria marítima.
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.
B3	Comunicarse de maneira efectiva nun entorno de traballo.
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.
B10	Comunicar por escrito e oralmente os coñecementos procedentes da linguaxe científica.
B11	Capacidade para resolver problemas con iniciativa, toma de decisións, creatividade, razoamento crítico e de comunicar e transmitir coñecementos, habilidades e destrezas.
C1	Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.
C2	Dominar a expresión e a comprensión de forma oral e escrita dun idioma estranxeiro.
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.
C6	Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.

Learning outcomes	
Subject competencies (Learning outcomes)	Study programme competences

Conocer la configuración, operación, parámetros de funcionamiento,	AC20	BC1	CC1
interpretación de los mismos, cálculo, mantenimiento, optimización y	AC22	BC2	CC2
reparación de todo tipo de intercambiadores de calor	AC24	BC3	CC4
Gestionar problemas y describir el comportamiento y evolución		BC4	CC6
intercambiadores mediante herramientas físico-matemáticas.		BC5	
Conocer la terminología de los elementos que componen estos equipos.		BC6	
Elaborar una memoria/informe de modo riguroso y sistemático.		BC7	
		BC10	
		BC11	

Contents	
Topic	Sub-topic
Hidrodynamics and propulsion.	1.-Hull sizing and optimization 3.-Propeller project. Systematic series. 3.- Wake configuration 4.-Cavitation, noise and vibration. 5.-Resistance. Appendices. 6.-Propeller-hull interaction. 7.-Estimated propulsion power.

Planning			
Methodologies / tests	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	14	14	28
Problem solving	7	14	21
Supervised projects	7	7	14
Objective test	2	6	8
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
Guest lecture / keynote speech	There will be a detailed explanation of the contents of the material, distributed across topics. The student will have a typed copy of the subject matter in each keynote session. Students are encouraged to participate in class, through comments linking the theoretical contents with real life experiences.
Problem solving	Problems will be solved for each item proposed, allowing the application of mathematical models appropriate to each case, including managing software, applying the most appropriate assumptions, the theoretical relation developed in lectures and relation with professional practice
Supervised projects	Problems more difficult than those solved in class or issues of special relevance.
Objective test	The degree of acquired knowledge about the contents assessed, taking into account both theory and problem solving.

Personalized attention	
Methodologies	Description
Problem solving Supervised projects	The student is guided in all contents, specially those difficult to understand. The corresponding revisions of examinations are also included. Channels of information and contact will be the Virtual School together individualized tutoring for six hours throughout the week.

Assessment		
Methodologies	Description	Qualification

Guest lecture / keynote speech	Attendance at the lectura sessions will report as part of the final qualification Assessed competencies: B1, B2, B3, B4, B5, B6, B7, B10, B11, C1, C2, C4, C6	10
Problem solving	Problem solving, if possible, with software. Assessed competencies: A20; A22; A24; B2; B4; B5; B7; B11	10
Objective test	The degree of acquired knowledge about the learning contents is assessed, taking into account both the theoretical part and the problems. Understanding of basic topics, problem solving strategies , evolution and capacity to analyse criticaly are assessed as well. Two term exams contribute to 70% of the qualification. Final objetive test with the same 70 % contribution is programmed for students who failed term exams. Assessed competencies: A20; A22; A24; B1; B2; B3; B4; B5; B6; B7; B10; B11; C1; C2; C4; C6	70
Supervised projects	Presentation and defense of the project. Structure, neatness, originality and expository method are valued. Assessed comptencies: A20; A22; A24; B2; B3; B4; B5; B6; B7; B10; B11; C1;C6	10

Assessment comments
A final examination to collect all course methodologies and representing 100% of the grade, is planned for those students with assistance less than 80% of programmed teaching methodologies (85 % of supervised projects), as long as they pass mandatory laboratory practices. The evaluation criteria listed in Table A-III / 2, of the STCW Code, as amended, relating to this matter will be taken into account when designing and conducting evaluation.

Sources of information	
Basic	- Rawson and Tupper (2001). Basic Ship Theory. Oxford. Butterworth-Heinemann - John Carlton (2007). Marine Propellers and Propulsion. Butterworth-Heinemann - Volker Bertram (2011). Practical Ship Hydrodynamics. Butterworth-Heinemann; 2 edition
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.