UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2024/25
Subject (*)	Ship's Theory II		Code	631G01404
Study programme	Grao en Náutica e Transporte Marítimo			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Fourth	Optional	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Navegación e Enxeñaría Mariña			
Coordinador	Freire Piñeiro, Ramon	E-mail	ramon.freire@udc.es	
Lecturers	Freire Piñeiro, Ramon Pérez Canosa, José Manuel Pérez López, Lidia	E-mail	ramon.freire@udc.es jose.pcanosa@udc.es lidia.perezl@udc.es	
Web				
General description	Se reforzan e amplían os coñecementos e habilidades adquiridos na asignatura de Teoría del Buque I.			

Study programme competences / results	
Code	Study programme competences / results
A55	RA2C-Identify and relate acquired knowledge to other disciplines
A61	RA20C-Interpret plans and/or technical documentation
B31	RA9H-Effectively solve practical problems associated with the subject by applying the knowledge acquired.
B54	RA53H?Transporting dangerous goods
B55	RA54H?Controlling trimming, stability and stresses
B56	RA57H?Develop contingency plans for fault control, and act effectively in such situations.
C20	RA25X?Respond to emergencies
C23	RA30X?Overseeing the loading, stowage and securing of cargo, and its care during the voyage and disembarkation.
C25	RA33X?Maintaining the seaworthiness of the ship
C27	RA37X?Monitoring compliance with legislative requirements
C28	RA39X?Contributing to the safety of personnel and the vessel
C30	RA48X?Take action in case of navigational emergencies
C32	RA51X?Plan and ensure the loading, stowage and securing of cargo, and its care during the voyage and disembarkation.
C33	RA52X?Assess reported failures and defects, in cargo spaces, hatch covers and ballast tanks, and take appropriate action
C35	RA56X?Maintaining the safety and security of the ship, crew and passengers, and the proper functioning of life-saving, fire-fighting and other safety systems

Learning outcomes			
Learning outcomes	Study programme competences / results		
RA2C-Identify and relate acquired knowledge to other disciplines	A55		
RA20C-Interpret plans and/or technical documentation	A61		
RA9H-Effectively solve practical problems associated with the subject by applying the knowledge acquired.		B31	
RA53H-Transporting dangerous goods		B54	
RA54H-Controlling trimming, stability and stresses		B55	
RA57H-Develop contingency plans for fault control, and act effectively in such situations		B56	
RA25X-Respond to emergencies			C20
RA30X-Overseeing the loading, stowage and securing of cargo, and its care during the voyage and disembarkation.			C23
RA33X-Maintaining the seaworthiness of the ship			C25

RA37X-Monitoring compliance with legislative requirements			C27
RA39X-Contributing to the safety of personnel and the vessel			C28
RA48X-Take action in case of navigational emergencies			C30
RA51X-Plan and ensure the loading, stowage and securing of cargo, and its care during the voyage and disembarkation.			C32
RA52X-Assess reported failures and defects, in cargo spaces, hatch covers and ballast tanks, and take appropriate action			C33
RA56X-Maintaining the safety and security of the ship, crew and passengers, and the proper functioning of life-saving, fire-fighting and other safety systems			C35

Contents	
Topic	**Sub-topic**
Transverse Static Stability	Calculation of the transverse static stability curve and characteristics Grave Angle Calculation of GZ arms for ships with vertical sides
Dynamic transverse stability	Concept of dynamic stability Concept and calculation of the dynamic equilibrium angle Determination of the heeling arm to cancel stability
Free surfaces	Variation of the ship's centre of gravity due to the effect of free surfaces Effects on stability and heeling Correction for free surfaces by the approximate method
Grounding	Concept and types of grounding. Effects of grounding on transverse static stability, heel and draft. Calculation of the reaction on the bottom according to the position of the grounding point. Descent on the tide to cancel out stability. Operations to be carried out in order to be clear of the grounding point.
Flooding	Types of flooding Loss of buoyancy method Added weight or displacement change method
Structural strength of the hull	Stresses affecting the ship Longitudinal ship forces Bending theory Maximum permissible bending moment Curves
Grain shipment	Variation in stability and heel as grain is moved Stability calculations for grain-carrying vessels Stability calculations corrected for grain shifting
The development and passing of these contents, together with those corresponding to other subjects that include the acquisition of specific competences of the qualification, guarantee the knowledge, understanding and sufficiency of the competences included in table AII/2, of the STCW Convention, related to the management level of the First Officer of the Merchant Navy, without limitation of gross tonnage and Captain of the Merchant Navy up to a maximum of 3000 GT.	Table A-II/2 of the STCW Convention. Specification of minimum standards of competence for masters and chief mates on ships of 500 GT and above

Planning				
Methodologies / tests	**Competencies / Results**	**Teaching hours (in-person & virtual)**	**Student?s personal work hours**	**Total hours**

Guest lecture / keynote speech	A55 A61 B55 B56 C20 C23 C25 C27 C28 C30 C33 C35	30	30	60
Laboratory practice	A55 A61 B31 B54 B55 C25 C32 C33	30	50	80
Objective test	A55 A61 B55 B31 C33 C32	3	0	3
Personalized attention		7	0	7
(*)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	Class presentation of the theoretical contents of the subject.
Laboratory practice	Solving different problems related to the subject
Objective test	Theoretical and practical assessment test to evaluate the knowledge acquired during the course.

Personalized attention	
Methodologies	**Description**
Objective test	It is important to consult with the teacher on the progress made progressively in order to offer the necessary guidance in each case and to ensure the quality of the work in accordance with the criteria that will be indicated. Monitoring will preferably be done on an individual basis.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Objective test	A55 A61 B55 B31 C33 C32	Based on an ordinary assessment of the knowledge acquired during the four-month period on applied ship theory studies. The ordinary assessment, both in the first and second opportunity, requires a minimum of 5 points out of 10 to pass the subject. This mark is the result of the sum of the two written tests on which the evaluation is based. One is a multiple-choice test with 20 questions with four answers, only one of which is good, and the second is a problem-based test. The first with a weight of 20 % of the overall mark and the second with 80 %. For the first, a maximum time of 15 minutes is estimated for its completion and the second with two hours.	100

Assessment comments
NOTE The assessment criteria set out in table A-II/1 of the STCW Code and those set out in the Quality Assurance System will be taken into account when designing and carrying out the assessment. All aspects related to "academic dispensation", "dedication to study", "permanence" and "academic fraud" will be governed in accordance with the current academic regulations of the UDC.

Sources of information

Basic	- Bonilla de la Corte, Antonio (1994). Teoría del Buque. . - Olivella Puig,Joan (1996). Teoría del Buque:estabilidad,varada e inundación.. UPC - Olivella Puig,Joan (1998). Teoria Del Buque: Ola Trocoidal,Movimientos y Esfuerzos. UPC - Clark, I.C. (2002). The management of merchant ship stability, trim& strength. The Nautical Institute - Clark, I.C (2005). Ship Dynamics for Mariners. The Nautical Institute - Derrett,D. R., Barrass, C. B. (2006). Ship Stability for Masters and Mates. Butterworth-Heinemann. - Bertram, Volker (2000). Practical Ship Hydrodynamics. Butterworth-Heinemann
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Ship's Theory I/631G01208
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.