Teaching Guide				
Identifying Data				2023/24
Subject (*)	Naval Construction		Code	631G01105
Study programme	Grao en Náutica e Transporte Marítimo			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	First	Obligatory	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Navegación e Enxeñaría Mariña			
Coordinador	Prieto Cabo, Verónica	E-mail	v.prietoc@udc.es	
Lecturers	Prieto Cabo, Verónica Troya Calatayud, Jose Joaquin de	E-mail	v.prietoc@udc.es joaquin.troya@udc.es	
Web				
General description	The main objective of the course is to know the nomenclature of the structural elements of the ship´s hull and their importance and mission.			

Study programme competences	
Code	Study programme competences
A55	RA2C-Identify and relate acquired knowledge to other disciplines
A57	RA4C-Collecting and interpreting relevant data
A58	RA5C-Identify ship components.
B31	RA9H-Effectively solve practical problems associated with the subject by applying the knowledge acquired.
B32	RA10H-Know, analyse, synthesise and apply the contents, fundamental concepts and applications of the subject.
B33	RA11H-Develop both individual and group work
B34	RA12H-Handle bibliographic material and computer resources.
B55	RA54H?Controlling trimming, stability and stresses
B81	RA82H?Contribute to good human relations on board the ship.
B93	RA96H?Contribute to increased maritime security by raising awareness.
C15	RA17X-Communicating effectively in a work environment.
C25	RA33X?Maintaining the seaworthiness of the ship
C26	RA34X?Preventing, controlling and fighting fires on board
C27	RA37X?Monitoring compliance with legislative requirements
C28	RA39X?Contributing to the safety of personnel and the vessel
C34	RA55X?Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, maritime security and protection of the marine environment.

Learning outcomes			
Learning outcomes	Study programme competences		
RA2C-Identify and relate acquired knowledge to other disciplines	A55		
RA4C-Collecting and interpreting relevant data	A57		
RA5C-Identify ship components.	A58		
RA9H-Effectively solve practical problems associated with the subject by applying the knowledge acquired.		B31	
RA10H-Know, analyse, synthesise and apply the contents, fundamental concepts and applications of the subject.		B32	

RA11H-Develop both individual and group work		B33	
RA12H-Handle bibliographic material and computer resources.		B34	
RA54H-Controlling trimming, stability and stresses		B55	
RA82H-Contribute to good human relations on board the ship.		B81	
RA96H-Contribute to increased maritime security by raising awareness.		B93	
RA17X-Communicating effectively in a work environment.			C15
RA33X-Maintaining the seaworthiness of the ship			C25
RA34X-Preventing, controlling and fighting fires on board			C26
RA37X-Monitoring compliance with legislative requirements			C27
RA39X-Contributing to the safety of personnel and the vessel			C28
RA55X-Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, maritime security and protection of the marine environment.			C34

Contents	
Topic	**Sub-topic**
1. Classification of ships	Definition of shipbuilding. Ship concept. Types of fleets. Classification of ships.
2. Nomenclature and definition of the characteristics of a ship.	Main parts and dimensions of a ship. Displacement. Dead weight. Coefficients. Arching. Freeboard. Load lines. Power of marine machines. Ship movements.
3. Hull structure	Longitudinal. Transverse. Joints between reinforcements. Bulkheads. Skin.
4. Efforts in the ship. Materials used in shipbuilding	Steel. Aluminum. Composite materials. Characteristics of the materials. Union types. Welding. Efforts to which ships are subjected. Sheer. Torsion.Vibrations
5. Compartments and spaces of a ship	Definition and description of the different spaces of the ship. Peaks. Holds. Tanks. Superstructure. Decks
6. Nomenclature and definition of accesses to ship compartments	Hatches. Gates. Doors. Scales.
7. Mooring, anchoring and towing equipment	Equipment number. Anchoring and mooring equipment. Anchors. Chains. Windlass
8. Steering gear	Telemotor. Servomotor. Rudder. Stabilizers
9. Regulations	IMO. MARPOL. SOLAS. Classification societies. Regulations.
10. Cargo-Handling Equipment	Own and third-party means related to loading and unloading. Cranes
11. Life-saving equipment.	General ideas. Lifeboats, davits,life ring, lifejackets, etc.
12. Equipment and service systems	Ballast system. Valves. Sounding tubes. Aeration tubes. Mooring and anchoring equipment.Fire-fighting systems. Fuel systems. Propulsion. Water systems. . Types of maintenance and inspections

Planning				
Methodologies / tests	**Competencies**	**Ordinary class hours**	**Student?s personal work hours**	**Total hours**
Guest lecture / keynote speech	A55 A58 B32 B55 C25 C26 C27 C34	30	60	90
Workshop	A57 A58 B31 B32 B81 B93 C28	24	12	36
Supervised projects	A55 A57 B33 B34 B93 C15	1	16	17

Mixed objective/subjective test	A58 B32 B55 B93 C25 C26 C27 C28 C34	4	0	4
Personalized attention		3	0	3
(*)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	Lectures on blackboard supported by PP presentations. Oral presentation complemented by the use of audiovisual media and the introduction of some questions addressed to students, in order to transmit knowledge and facilitate learning.
Workshop	Consolidation classes of the contents in small groups. Training modality oriented towards the application of learning in which various methodologies/tests can be combined (presentations, problem solving, guided practice, etc.) through which students carry out eminently practical tasks on a specific subject, with the support and supervision of the teaching staff.
Supervised projects	Autonomous or group work developing the contents of the subject. Methodology designed to promote autonomous learning by students, under the supervision of the lecturer and in a variety of scenarios (academic and professional).
Mixed objective/subjective test	Test that integrates essay-type test questions and objective-type test questions. In terms of essay questions, it comprises open-ended essay questions. In addition, as objective questions, it may combine multiple-choice, ordering, short answer, discrimination, completion and/or association questions.

Personalized attention	
Methodologies	**Description**
Supervised projects	Face-to-face. During tutorial hours and in compliance with current health regulations. Teams. It will depend only on the availability of the teacher. Email. The lecturer undertakes to respond as soon as possible to all queries sent. For "Students with recognition of part-time dedication and academic dispensation of exemption from attendance" the teacher may offer the possibility of online tutorials. Teacher and students will coordinate this assistance.

Assessment			
Methodologies	**Competencies**	**Description**	**Qualification**
Supervised projects	A55 A57 B33 B34 B93 C15	In relation to supervised works, the following will be valued: - The methodological adequacy of the work proposals. - The depth of the content. - Mastery of the applications used in the preparation of socio-educational proposals. - The treatment of a language specific to the disciplinary context. - The use of complementary and current documentary sources. - The presentation and clarity of the exhibition.	20
Mixed objective/subjective test	A58 B32 B55 B93 C25 C26 C27 C28 C34	Each Mixed Test may include essay, open-ended essay, multiple-choice, multiple-choice, ordering, short-answer, discrimination, completion, and/or association questions.	80

Assessment comments
In order to be entitled to continuous assessment, a minimum of 80% of attendance to face-to-face classes will be required. The final grade of the Continuous Assessment will be 80% of the Mixed Exam and 20% of the Tutored Work. The mark for the Mixed Examination will be the average of the Mixed Examinations throughout the course. In order to be able to take the average of these mixed exams, it is necessary to obtain a minimum mark of 4 out of 10 in each one. Students with recognition of part-time dedication and academic dispensation of exemption from attendance (as established in the "Norma que Regula el Régimen de Dedicación al Estudio de los Estudiantes de Grado en la UDC") will be able to take the Continuous Assessment without the need to attend 80% of the face-to-face classes. In order to do so, these students must duly inform the lecturers at the beginning of the course of their academic dispensation, as well as of their availability to attend classes. Apart from the Autonomous Work included in this Teaching Guide, teachers may ask these students to carry out different projects/problems throughout the course to be presented or solved during tutorial hours. Students who do not follow the on-site course (attendance less than 80%), or who have not passed the Continuous Assessment, may sit the final exams in January and July. The assessment of these exams will consist of a Mixed Examination which may include essay-type questions, open questions, multiple-choice, multiple-choice, ordering, short-answer, discrimination, completion and/or association questions. The contents of these mixed tests may cover any content of the subject. In the mixed test corresponding to the January call, the marks obtained in the partial tests will be maintained, and the student may present himself only to those not passed. The Mixed Test of the June call will mean 100% of the grade, so the entire subject will be evaluated. Ethical behaviour is expected throughout the course. The use of equipment or materials not allowed in the exams, copying answers by any unauthorised means or plagiarism will lead to a mark of 0 in the final assessment of the subject. Ignorance of some basic concepts may lead to elimination. These will be mentioned during the course. The fraudulent performance of tests or assessment activities, once verified, will directly imply the loss of the right to the opportunity in which the offence is committed and with respect to the subject in which it was committed. The student will be graded with "suspenso" (numerical grade 0) in the corresponding call of the academic year, whether the fault is committed at the first opportunity or the second. For this, the student's grade will be modified in the first opportunity report, if necessary.

Sources of information	
Basic	- Dokkum, Klaas van. (2016). Ship knowledge : ship design, construction and operation. 9th ed. Enkhuizen. Dokmar - Bonilla de la Corte, Antonio. (1984). Construcción naval y servicios. Madrid - Eyres, D.J. (2007). Ship construction. 6th ed. Amsterdam. Elsevier - House, David J. (2010). Elements of modern ship construction. Glasgow. Brown, Son & Ferguson - Taylor, D.A. (1998). Merchant ship construction. London. Marine Management (Holdings), - Pursey, H.J. (1994). Merchant ship construction Especially written for the Merchant Navy. 7th ed. Glasgow. Brown, Son & Ferguson - Delgado Lallemand, Luis (2005). de Proa a Popa. Conceptos básicos. Tomo 1. Thomson - Delgado Lallemand, Luis (2007). de Proa a Popa. Equipos en el barco. Tomo 2. Thomson - Basterretxea Iribar, Imanol (2017). Aplicaciones de teoría del buque y construcción naval. Servicio Editorial de la Universidad del País Vasco
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Phisics/631G01103 Chemistry/631G01107
Subjects that continue the syllabus
Ship's Theory I/631G01208
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.