UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2020/21
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	Galician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Navegación e Enxeñaría Mariña			
Coordinador	Pacheco Martínez, Eliseo Antonio	E-mail	eliseo.pacheco@udc.es	
Lecturers	Pacheco Martínez, Eliseo Antonio Troya Calatayud, Jose Joaquin de	E-mail	eliseo.pacheco@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.			
Contingency plan	1. Modifications to the contents No changes will be made. 2. Methodologies *Teaching methodologies that are maintained Guest lecture / keynote speech Workshop Supervised projects Objective test *Teaching methodologies that are modified No changes will be made. 3. Mechanisms for personalized attention to students Teams. Synchronous tutoring is open at any time, with the limit of the teacher's availability. An attempt will be made to coordinate the tutoring time with the student. E-mail. The teacher agrees to respond as soon as possible to all questions sent asynchronously. 4. Modifications in the evaluation No changes will be made. *Evaluation observations: 5. Modifications to the bibliography or webgraphy No changes will be made.			

Study programme competences / results	
Code	Study programme competences / results
A3	Interpretar e representar as formas do buque e das súas instalacións.
A10	Redactar e interpretar documentación técnica e publicacións náuticas.
A24	Manter a navegabilidade do buque.
B1	Aprender a aprender.
B4	Comunicarse de xeito efectivo nun ámbito de traballo.

B5	Traballar de forma autónoma con iniciativa.
B6	Traballar de forma colaboradora.
B7	Comportarse con ética e responsabilidade social como cidadán e como profesional.
B15	Capacidade para adquirir e aplicar coñecementos.
C10	Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en contornas novas ou pouco coñecidas dentro de contextos máis amplas (ou multidisciplinares) relacionados coa súa área de estudo

Learning outcomes			
Learning outcomes	Study programme competences / results		
General knowledge of the main structural elements of the ship.	A3 A10 A24	B1 B4 B5 B6 B7 B15	C10
Knowledge of the correct nomenclature of the various parts of the ship	A3 A10 A24	B1 B4 B5 B6 B7 B15	C10

Contents	
Topic	Sub-topic
1. Definition. Fleet Types.	Definition of shipbuilding. Ship concept. Fleet types: merchant, military and recreational. Special service and port service ships.
2. Nomenclature.	Parts of the ship. Ship elements. Ship dimensions.
3. Structural elements of the ship.	Structural elements of the bottom. Structural elements of the bulkheads and columns. Structural elements of the side. Structural elements of the deck. Structural elements of the bow body. Superstructures.
4. Construction Materials and Techniques.	Steels: their classification and on-board applications. Rolled steel plates and profiles. Molded and forged steel parts. Welding. Construction systems: longitudinal, transversal and mixed. Integral shipbuilding.
5. Stresses	Concepts of resistance of materials. Longitudinal and transverse stresses. Local stress. Fatigue. Vibrations

6. Conservation, Repair and Maintenance	Corrosion. Galvanic action. Types of corrosion. Thicknesses Areas subject to increased corrosion. Marine paintings. Types. Surface preparation. Paint application systems. Periodic inspections of the hull dry and afloat.
7. General services.	Ballast and shear. Bilge and reachique. Fire protection. Abandon. Sweet water. Sanitary. Ventilation, heating and cooling. Radio and electrical service. Internal communications.
8. Loading and unloading equipment.	Warehouses, hatch covers, props, cranes. Tanks, pipes, pumps.
9. Propulsion, mooring and steering gear.	Wheel, telemotor, servomotor and rudder. Types of rudders. Anchoring equipment. Chains. Anchors. Mooring equipment. Winches. Capstains. Ropes.. Main engine, auxiliary engines, crankshaft, shaft, propeller.
10. Propellers.	Theories that explain the action of the propeller. The construction and materials used in the propellers. The controllable pitch propeller. The KORT nozzle. The Voith Schneider system. Jet propulsion. Propellers with plates at the ends of the blades (TVF and CLT).
11. Regulations.	General information on legal provisions and regulations that affect shipbuilding. Provisions of the SOLAS International Convention related to construction. Classification Societies: purposes, general description of their regulations; the most important. The current Spanish Regulation regarding the recognition of ships and their construction.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A3 A24 B1 B4 B5 B7 B15 C10	30	45	75
Workshop	A3 A10 A24 B1 B4 B6 B7 B15 C10	28	28	56
Supervised projects	A10 B1 B4 B5 B6 B7 B15 C10	0	11	11
Objective test	A3 A10 A24 B1 B4 B5 B7 B15 C10	4	0	4
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	Chalkboard classes supported by PP presentations.
Workshop	Consolidation classes of content in small groups.

Supervised projects	Autonomous or collective works unrolling contents of the subject.
Objective test	Evaluation of the knowledge acquired in the course.

Personalized attention	
Methodologies	**Description**
Guest lecture / keynote speech Supervised projects Workshop Objective test	Face-to-face. Mentoring during tutoring hours. E-mail. The teacher agrees to answer all the questions sent as soon as possible.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Supervised projects	A10 B1 B4 B5 B6 B7 B15 C10	Supervised works (100%): 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
Objective test	A3 A10 A24 B1 B4 B5 B7 B15 C10	As an objective test, you can combine different types of questions: multiple-choice, ranking, short-response, discrimination, completion and association questions. Tamén can be built on these kinds of questions.	80

Assessment comments
- Students who follow the face-to-face course (80% attendance): The final grade of these students will be 80% objective test and 20% supervised work. The mark of the objective test will be the average of two partial exams. To be able to average these exams it is necessary to obtain a minimum grade of 4 out of 10. - Students who do not follow the face-to-face course (less than 80% attendance): Those students who do not follow the face-to-face course will have to pass the objective test of the subject with all the subject.

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
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.