



Teaching Guide				
Identifying Data				2022/23
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	Cao Feijóo, Genaro	E-mail	genaro.cao@udc.es	
Lecturers	Cao Feijóo, Genaro Troya Calatayud, Jose Joaquin de	E-mail	genaro.cao@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 / 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	
Ser capaz de resolver problemas de forma efectiva.		A24	B1 B5 B15
Ser capaz de comunicarse de maneira efectiva en un entorno de traballo.		A3 A10	B4 B7
Trabajar de forma colaborativa.			B6
Comportarse con ética y responsabilidad social como ciudadano y como profesional.			B7

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. Compartments and spaces of a ship	Definition and description of the different spaces of the ship. Peaks. Holds. Tanks. Superstructure. Decks
5. Nomenclature and definition of accesses to ship compartments	Hatches. Gates. Doors. Scales.
6. 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.
7. Mooring, anchoring and towing equipment	Equipment number. Anchoring and mooring equipment. Anchors. Chains. Windlass
8. Steering gear	Telemotor. Servomotor. Rudder. Stabilizers
9 Cargo-Handling Equipment	Work rig. Cargo handling cranes. Cargo hatches
10. Rescue equipment	General ideas. Lifeboats. Davits. Davit winches.
11. Equipment and service systems	Ballast system. Valves. Sounding tubes. Aeration tubes. Mooring and anchoring equipment. Fire-fighting systems. Fuel systems. Propulsion. Water systems. Air and ventilation. Electric systems. Ballast, Bilges. Firefighting
12. Regulations	IMO. MARPOL. SOLAS. Classification societies. Regulations.
13. Maintenance	Types of maintenance. Inspections and dry dock.
14. Navigation equipment	General navigation. Navigation charts. Gyroscopic. Navigation systems. Navigation aids.

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	60	90
Workshop	A3 A10 A24 B1 B4 B6 B7 B15 C10	30	0	30
Supervised projects	A10 B1 B4 B5 B6 B7 B15 C10	0	20	20
Mixed objective/subjective test	A3 A10 A24 B1 B4 B5 B6 B7 B15 C10	6	0	6
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.
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	<p>Face-to-face. During tutorial hours and in compliance with current health regulations.</p> <p>Teams. It will depend only on the availability of the teacher.</p> <p>Email. The lecturer undertakes to respond as soon as possible to all queries sent.</p> <p>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.</p>
---------------------	--

Assessment			
Methodologies	Competencies / Results	Description	Qualification
Supervised projects	A10 B1 B4 B5 B6 B7 B15 C10	In relation to supervised works, the following will be valued: <ul style="list-style-type: none"> <li>- The methodological adequacy of the work proposals.</li> <li>- The depth of the content.</li> <li>- Mastery of the applications used in the preparation of socio-educational proposals.</li> <li>- The treatment of a language specific to the disciplinary context.</li> <li>- The use of complementary and current documentary sources.</li> <li>- The presentation and clarity of the exhibition.</li> </ul>	20
Mixed objective/subjective test	A3 A10 A24 B1 B4 B5 B6 B7 B15 C10	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
<p>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 Tutorials. 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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Ignorance of some basic concepts may lead to elimination. These will be mentioned during the course.</p>

Sources of information
------------------------



<b>Basic</b>	<ul style="list-style-type: none"><li>- Dokkum, Klaas van. (2016). Ship knowledge : ship design, construction and operation. 9th ed. Enkhuizen. Dokmar</li><li>- Bonilla de la Corte, Antonio. (1984). Construcción naval y servicios. Madrid</li><li>- Eyres, D.J. (2007). Ship construction. 6th ed. Amsterdam. Elsevier</li><li>- House, David J. (2010). Elements of modern ship construction. Glasgow. Brown, Son &amp; Ferguson</li><li>- Taylor, D.A. (1998). Merchant ship construction. London. Marine Management (Holdings),</li><li>- Pursey, H.J. (1994). Merchant ship construction Especially written for the Merchant Navy. 7th ed. Glasgow. Brown, Son &amp; Ferguson</li><li>- Delgado Lallemand, Luis (2005). de Proa a Popa. Conceptos básicos. Tomo 1. Thomson</li><li>- Delgado Lallemand, Luis (2007). de Proa a Popa. Equipos en el barco. Tomo 2. Thomson</li><li>- Basterretxea Iribar, Imanol (2017). Aplicaciones de teoría del buque y construcción naval. Servicio Editorial de la Universidad del País Vasco</li></ul>
<b>Complementary</b>	

### Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Physics/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.