Teaching Guide				
Identifying Data				2021/22
Subject (*)	Special Cargoes Transport		Code	631G01401
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	Louzan Lago, Felipe	E-mail	felipe.louzan@udc.es	
Lecturers	Louzan Lago, Felipe Pérez Canosa, José Manuel	E-mail	felipe.louzan@udc.es jose.pcanosa@udc.es	
Web				
General description	Materia complementaria de Estiba (3º de Grao) coa finalidade de capacitar aos alumnos en todos os aspectos relacionados coas operacións de carga, descarga, estiba, trincaxe da carga e o transporte seguro das mercadorías nos buques.			

Contingency plan	1. Modifications to the contents No changes will be made. 2. Methodologies *Teaching methodologies that are maintained - Master session - Laboratory practices in medium and small groups (problems, exercises and / or supervised work) - Personalized attention *Teaching methodologies that are modified -All the previously mentioned methodologies will be carried out electronically (Teams) with the support of Moodle for the delivery of the problems, exercises and supervised works. 3. Mechanisms for personalized attention to students -Email: Daily. Of use to make consultations, to request virtual meetings, to solve doubts and to follow up the supervised exercises. - Moodle: Through forums. - Teams: Sessions in large group and medium and small groups for the advance of the theoretical-practical contents in the time slot that has assigned the subject in the official calendar of the School. 4. Modifications in the evaluation The continuous assessment (pre-final) will be done electronically and without any restrictions, ie without the need to have attended a minimum of 80% of the classes that take place in this way (Teams). The face-to-face sessions will alternate between master classes and more interactive sessions, in which the active participation of students will be positively assessed in the continuous assessment (up to 20%), especially in the sessions where the problems are developed and solved. Given the foreseeable unequal participation of students in the follow-up of the subject, it is necessary to establish the official exams of the 1st and 2nd call so that it allows all students to be evaluated in equal conditions to pass the subject. Therefore, the evaluation of the 1ª and 2ª opportunity will be done electronically, with two clearly differentiated parts, theory and problems, and with an assessment that will range from 0-100%. The theoretical part will be evaluated by a test-type exam by Moodle. *Evaluation observations: The minimum calification required to make an arithmetic mean between the two parts (theory and problems) is modified, going from 5.0 points to 4.0 points in one of the parts. In any case, the average grade must be at least 5.0 points. Students must keep and guard the handwritten exams in their possession. The teacher will maintain connection with the students via Teams during the exam to clarify any doubts, and also has the possibility to ask or request the connection of the student's camera at any time. 5. Modifications to the bibliography or webgraphy No changes will be made.

Study programme competences	
Code	Study programme competences
A22	Cargar, manipular e estibar do xeito axeitado as diferentes mercadorías transportables nun buque.
A23	Asegurar o cumprimento das prescricións sobre prevención da contaminación.
A27	Controlar o cumprimento das prescricións lexislativas.

A29	Responder correctamente ás diferentes situacións de emerxencia.
A31	Transporte de cargas perigosas.
A32	Controlar o asento, a estabilidade e os esforzos.
A33	Protexer o medio mariño e aplicar criterios de sostibilidade ambiental ao transporte marítimo.
A39	Ser capaz de inspeccionar y elaborar informes sobre defectos y daños a los espacios de carga, escotillas y tanques de lastre.
B1	Aprender a aprender.
B2	Resolver problemas de xeito efectivo.
B3	Aplicar un pensamento crítico, lóxico e creativo.
B4	Comunicarse de xeito efectivo nun ámbito de traballo.
B5	Traballar de forma autónoma con iniciativa.
B6	Traballar de forma colaboradora.
B9	Capacidade para interpretar, seleccionar e valorar conceptos adquiridos noutras disciplinas do ámbito marítimo, mediante fundamentos físico-matemáticos.
B10	Versatilidade.
B11	Capacidade de adaptación a novas situacións.
B12	Uso das novas tecnoloxías TIC, e de Internet como medio de comunicación e como fonte de información.
B13	Comunicar por escrito e oralmente os coñecementos procedentes da linguaxe científica.
B15	Capacidade para adquirir e aplicar coñecementos.
B16	Organizar, planificar e resolver problemas.
C3	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C7	Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.
C13	Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun modo que haberá de ser en grande medida autodirixido ou autónomo.

Learning outcomes			
Learning outcomes	Study programme competences		
Knowledge of special transport ships: reefer ships, container ships, ro-ro cargo ships, lumber ships and bulk carriers.	A22 A23 A27 A29 A31 A32 A33 A39	B1 B2 B3 B4 B6 B10 B15 B16	C3 C7 C8 C13
knowledge of regulations, codes and other international standards on the safe handling, stowage and transport of goods.	A22 A23 A31 A33	B2 B15 B16	
Planning and stowage criteria: Preparation of stowage cargo plans	A22 A32 A33	B2 B9 B16	C3 C7 C8

Stowage and lashing of heavy cargoes	A22 A27 A32	B2 B3 B4 B6 B9 B11 B16	C3
Calculation of cargo to be loaded and put the ship in drafts	A22 A31 A32	B2 B5 B6 B12 B16	C3
Ability to carry out inspections of the ship's spaces and structure, detect damage and make the corresponding reports on the status of the protective coating and structural damage	A27 A39	B2 B13 B15 B16	C3

Contents	
Topic	**Sub-topic**
1. CARGO STOWAGE AND LASHING	Forzas que se orixinan no transporte de mercadorías por mar Compoñentes dunha trinca Forza de fricción ou rozamento Métodos de trincaxe Determinación da resistencia dos dispositivos de suxeción Camas de estiba Convenios da OMI relativos a seguridade da vida humana no mar e a protección do medio mariño. O Código CSS Suxeción de cargas non normalizadas Método empírico de trincaxe Método de cálculo avanzado Método alternativo: equilibrio de forzas Manual de suxeción da carga Estiba y suxeción de tubarías de gran diámetro na cuberta Outros métodos de trincaxe Coñecemento dos efectos da carga, incluidas as cargas pesadas, na navegabilidade e estabilidade do buque. Procededementos seguros de manipulación, estiba e suxeción da carga e a sua influencia na seguridade da vida humana e do buque

2. LOADS OF WOOD AND OTHER FOREST PRODUCTS	Cargamentos de madeira Propiedades da carga Principios de estiba e suxeción Medios de suxeción Estiba de troncos, postes e trozas Estiba de madeira aserrada solta ou en fardos Métodos alternativos de suxeción da cubertada Precaucións durante o viaxe Estabilidade Estiba de rollos de papel Carga de balas Líñas de carga para o transporte de madeira na cubierta Cálculo da carga máxima a embarcar na cuberta
3. REEFER SHIPS AND PERISHABLE GOODS	Buques frigoríficos Sistemas de refrixeración Transporte de mercadorias perecedeiras Control de atmósferas Transporte de cargas refrixeradas en contenedores Preparación das adegas dun buque reefer Estiba de cargas refrixeradas Cuidados da carga Temperaturas recomendadas de transporte
4. CONTAINER SHIPS	O contenedor: introducción Dimensións e características dos contenedores Tipos de contenedores Buqes portacontenedores Tipos de buques portacontenedores Planos de estiba Elementos de trincaxe dos contenedores Trincaxe de contenedores Forzas e tipos de fallos no trincaxe Principios de estiba Navegación con mal tempo nun buque portacontenedores
5. RO-RO SHIPS AND RO-RO CARGOES	Desenvolvemento do buque ro-ro O buque ro-ro Tipos de buques ro-ro O buque car carrier Rampas de acceso Utillaxe ro-ro Equipos para o manexo e a estiba da carga O AGV IPSI Normas xerais para o transporte de vehículos Estiba e trincaxe de automóviles Estiba e trincaxe de vehículos pesados Diagramas de trincaxe para buques que realicen viaxes cortas Precaucións para a protección e seguridade dos pasaxeiros en situacións de emerxencia

6. STRUCTURAL DAMAGES INSPECTIONS	A corrosión: Tipos de corrosión Fallos doss revestimientos protectores Estados do revestimiento Inspeccións Danos e defectos máis comuns. Causas da corrosión en espacios de carga e nos tanques de lastre. Danos causados durante as operacións de carga e descarga e durante o transporte (mal tempo) Prevención de sinistros e da corrosión Programa mellorado de inspeccións Informes de danos estructurais Informe de danos á carga o ao buque Determinación de elementos da estructura do buque esenciais para a seguridade Precaucións que deben tomarse para evitar a contaminación do medio mariño Primeiras medidas que son necesarias adoptar despois dunha abordaxe ou varada; evaluación inicial e control de averías
7. GRAIN SHIPLOADS	Introducción Código internacional para o transporte de grao Ángulo de reposo Buques para o transporte de grao Documento de autorización Cálculo doss momentos escorantes supostos Exemplo de determinación do momento volumétrico escorante suposto nunha adega chea Prescripcións sobre estabilidade Estiba de grao a granel Métodos para reducir o momento escorante Planificación e control das operacións de carga e descarga Obtención dos momentos escorantes supostos para diferentes estibas Cálculo de estabilidade para os buques que transporten graos a granel Procededementos seguros de manipulación, estiba e suxeción da carga, incluidas as cargas sólidas a granel, e a sua influencia na seguridade da vida humana e do buque. Precaucións que deben tomarse para evitar a contaminación do medio mariño
8. PROBLEMS / PRACTICAL EXERCISES	Resolución de problemas de carga relacionados co programa: Determinación da carga a embarcar e o reparto da carga para deixar o buque en calados. Cálculos de trincaxe da carga nas adegas e na cuberta polo método avanzado e o alternativo. Cálculos de trincaxe de tubarías de gran tamaño na cubierta. Cálculos da máxima carga de madeira a embarcar na cubierta. Cálculos de graos
The development and passing of these contents, together with those corresponding to other subjects that include the acquisition of specific competencies of the degree, guarantee the knowledge, understanding and sufficiency of the competencies listed in table AII / 2, of the STCW Convention, related to the management level of First Officer of Merchant Ships, without limitation of gross tonnage and Captain of Merchant Ships up to a maximum of 3000 GT.	Table A-II / 2 of the STCW Convention. Specification of the minimum competition rules applicable to captains and first officers of gross tonnage vessels equal to or greater than 500 GT.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A22 A23 A27 A29 A31 A32 A33 A39 B1 B2 B3 B4 B5 B6 B9 B10 B11 B12 B13 B15 B16 C3 C7 C8 C13	22	33	55
Objective test	A22 A23 A27 A29 A31 A32 A33 A39 B2 B5	4	4	8
Case study	A22 A32 B2 B3 B4 B5 B6 B9 B12 B16 C3	22	44	66
Introductory activities	B2 B3 B5	1	0	1
Summary	A22 B2	7	0	7
Personalized attention		13	0	13
(*)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	A detailed explanation of the contents of the subject will be carried out. The student will have bibliographic material and notes prepared by the teacher on the subject to be discussed in each master session at all times. Class participation is encouraged through comments that relate the theoretical content to real life experiences.
Objective test	The objective test will consist of a series of conceptual development questions, the number of which will vary between 10 and 20 and the resolution of two practical exercises. The content of the questions will deal with the subjects taught in class and the practical exercises will also be similar to those solved in class. Sufficient material will be provided to the student for the study of the theory and for the practical exercises. Partial tests will be carried out, both for the theoretical part and for problem solving, and a final joint test of the entire subject. Both ordinary and extraordinary exams will be governed by the same format.
Case study	The theory learned will be applied (in the lectures) and the resolution of practical cases of different stowage calculations and in different types of ships
Introductory activities	The first class of the course will be dedicated to the presentation of the subject to the students
Summary	Before each midterm and final exam, there will be a class (in total 3) to summarize the main contents exposed. It is intended to help the student to understand the subject in a global way and to solve those aspects that could give rise to confusion or that were not adequately assimilated

Personalized attention	
Methodologies	Description
Summary Case study	In addition to the hours of tutoring established for all or students, 6 additional hours of personalized tutoring are also established for students with needs.

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A22 A23 A27 A29 A31 A32 A33 A39 B1 B2 B3 B4 B5 B6 B9 B10 B11 B12 B13 B15 B16 C3 C7 C8 C13	The student will have the option of passing the subject by course as long as they have attended 80% of the face-to-face classes. Attendance to classes will be valued with up to 10%, taking into account the student's participation, the resolution of the exercises proposed and the continuous evaluation of the Teacher. Competences: A22, A23, A27, A31, A32, A33, A39 and A40	5

Objective test	A22 A23 A27 A29 A31 A32 A33 A39 B2 B5	It will be the result of the averages obtained in the partial tests and / or the final test. Objective written test to evaluate the knowledge and understanding of the basic contents of the subject, considering the abilities and skills of the student, their strategies and approaches in solving problems. You can combine different types of questions and problems. Each partial test (P1 and P2) will contribute 40% and the global objective test (average mark of both) will report 80% of the total evaluation of the subject. Objective written test. It will be mandatory for those students who have not participated or passed the continuous assessment of the subject throughout the course. It allows evaluating and verifying the expected results regarding the global content of the subject and verifying the degree of achievement of the proposed objectives. The global final exam, as a single assessment, will consist of a test composed of a theoretical part and a problem-solving part with independent assessment, being necessary to obtain a minimum of 5 points in each: a) theoretical (50%); b) practice (50%); Competences: A22, A23, A27, A31, A32, A33, A39 and A40.	90
Case study	A22 A32 B2 B3 B4 B5 B6 B9 B12 B16 C3	The resolution of practical cases in class will be valued with up to 10%. Competences: A22 and A32	5
Others			

Assessment comments
The evaluation criteria contemplated, no cadro A-II / 1 of the STCW Code, and recollection of the Quality Assurance System, will be taken into account at the time of designing and carrying out the evaluation. Or students with part-time dedication recognition and academic exemption from attendance exemption, secondly, it establishes "NORM THAT REGULATES OR RULES OF DEDICATION TO OR STUDY OF TWO STUDENTS FROM GRAO NA UDC (Arts. 2.3; 3.b; 4.3 e 7.5) (05/04/2017) will be able to carry out partial tests, if you are houbere, if you need to attend or 80% of the classes you attend, always when the teachers are duly informed at the beginning of the course. This student body has different jobs / problems or the length of the course to be exhibited during the timetable.

Sources of information

Basic	Estiba de Cargas Sólidas, Felipe Louzán, Cartamar, A Coruña, 2016. Código internacional para la construcción y el equipo de buques que transportes gases licuados a granel. OMI. Código IMDG, IMO 2018. Código IMSBC, IMO 2018. Código de prácticas de seguridad para la estiba y sujeción de la carga. IMO 2011. Código BLU: Código de prácticas de seguridad de las operaciones de carga y descarga de graneleros. IMO 2011. Manual de estiba de mercancías sólidas. Ricardo González Blanco, Ediciones UPC 2006 Tratado de estiba. Capt. J.B.Costa, Tercera edición, 2008. Cargo work. David J. House, Seventh edition, 2007. Thomas Stowage: The properties and stowage of cargoes, 5th edition. Brown, Son & Ferguson, Ltd. 2008. Hatch Cover Inspections: A Practical Guide. Walter Vervloesem AMNI. The Nautical Institute, 2003. Hatch Covers: Operation, Testing and Maintenance. Mike Wall. Witherby Seamanship International, 2008. Steel: Carriage by Sea, fifth edition. Arthur Sparks & Frans Coppers. Lloyd?s Practical Shipping Guides, London 2009. Manejo de cargas: Riesgos y medidas preventivas, 2ª edición. Luis Mª Azcuénaga Linaza. FC Editorial, Madrid 2010. Bulk Carrier Practice, 2nd edition. Captain Jack Isbester. The Nautical Institute, London 2010. Bulk Carrier Notes. Abdul Khalique. Witherby Seamanship International, 2010. Cargo Notes. Dhananjay Swadi. Witherby Seamanship International, 2005. Cargo Ventilation: A Guide to Good Practice. David Anderson and Daniel Sheard. North of England P&I Association. Newcastle upon Tyne, 2006. Hatch Cover Maintenance and Operation: A Guide to Good Practice, Second Edition. David Byrne. . North of England P&I Association. Newcastle upon Tyne, 2005. Draught Surveys: A Guide to Good Práctice. Jim Dibble and Peter Mitchell.. North of England P&I Association 1998. Código de prácticas de seguridad para buques que transporten cubertadas de madera, IMO 1992. Código de prácticas de seguridad para buques que transporten cubertadas de madera, IMO 2011. Cargo Stowage and Securing: A Guide to Good Practice, Second edition. Charles Bliault. North of England P&I Association. Newcastle upon Tyne, 2007. Deck Stowage and Securing of Pipes. Charles Bliault. North of England P&I Association. Newcastle upon Tyne, 2008. Reefer Transport & Technology. Capt. A.W.C. Alders. Rotterdam Marine Chartering Agents B.V., The Neetherlands, 1995. Lashing and Securing of Deck Cargoes, second edition. The Nautical Institute, London 1994. Stability, Trim and Strength for Merchant Ships and Fishing Vessels, second edition. Ian Clark. The Nautical Institute, 2006. El transporte en contenedor. Ricard Mari y Jaime Rodrigo de Larrucea, Marge Books, 2012.
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Ship's Theory I/631G01208 Cargo Stowage/631G01301
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.