



Teaching Guide				
Identifying Data			2023/24	
Subject (*)	Maritime Safety and Pollution	Code	631G03019	
Study programme	Grao en Máquinas Navais			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Second	Obligatory	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Navegación e Enxeñaría Mariña			
Coordinador	Lama Carballo, Francisco Javier	E-mail	javier.lama@udc.es	
Lecturers	Lama Carballo, Francisco Javier Pacheco Martínez, Eliseo Antonio Pérez Canosa, José Manuel	E-mail	javier.lama@udc.es eliseo.pacheco@udc.es jose.pcanosa@udc.es	
Web				
General description	NORMATIVE. SAFETY ON BOARD. FIRE PREVENTION AND FIGHT. SURVIVAL AT SEA. POLLUTION PREVENTION			

Study programme competences	
Code	Study programme competences
A7	CE07 - Manter a navegabilidade do buque.
A8	CE08 - Vixiar o cumprimento das prescricións legislativas.
A10	CE10 - Utilizar os sistemas de comunicación interna.
A12	CE12 - Garantir o cumprimento das prescricións sobre prevención da contaminación.
A13	CE13 - Prevención, control e loita contra incendios a bordo.
A14	CE14 - Facer funcionar os dispositivos de salvamento.
A17	CE17 - Contribuír á seguridade do persoal e do buque
A27	CE27 - Supervivencia no mar en caso de abandono do buque.
A28	CE28 - Reducir ao mínimo os riscos de incendio, e manter un estado de preparación que permita responder en todo momento a situacións de emerxencia nas que se produzan incendios.
A29	CE29 - Loitar contra incendios e extinguiolos.
A30	CE30 - Adoptar medidas inmediatas ao producirse un accidente ou outro tipo de emerxencia médica.
A31	CE31 - Cumprir os procedementos de emerxencia.
A32	CE32 - Tomar precaucións para previr a contaminación do medio mariño.
A33	CE33 - Observar as prácticas de seguridade no traballo.
A34	CE34 - Contribuír a que as comunicacións a bordo do buque sexan eficaces.
A35	CE35 - Contribuír a que as relacións humanas a bordo do buque sexan boas.
A36	CE36 - Comprender e adoptar as medidas necesarias para controlar a fatiga.
A37	CE37 - Facer cargo dunha embarcación de supervivencia ou dun bote de rescate durante e despois da posta á boia.
A38	CE38 - Facer funcionar o motor dunha embarcación de supervivencia.
A39	CE39 - Organizar aos sobrevivente e a embarcación de supervivencia tras abandonar o buque.
A40	CE40 - Utilizar os dispositivos de localización, incluídos os aparellos de comunicación e sinalización e os sinais pirotécnicos.
A41	CE41 - Dispensar primeiros auxilios aos sobreviventes.
A42	CE42 - Controlar as operacións de loita contra incendios a bordo.
A43	CE43 - Organizar e capacitar a cuadrillas de loita contra incendios.
A44	CE44 - Inspeccionar e manter os sistemas e o equipo de detección e extinción de incendios.



A45	CE45 - Investigar e recompilar informes sobre sucesos nos que se produzan incendios.
A59	CE59 - Levar a cabo operacións de loita contra incendios en buques tanque
A61	CE61 - Tomar precaucións para previr a contaminación del medio ambiente debida a la descarga de hidrocarburos o produtos químicos
A65	CE65 - Levar a cabo operacións de loita contra incendios en buques tanque para o transporte de gas licuado.
A98	CE98 - Ter a capacidade para a xestión, dirección, control, organización e planificación de industrias ou explotacións relacionadas coas actividades da enxeñería mariña tanto en competencias referidas á calidade, medio ambiente, seguridade mariña e prevención de riscos laborais como todas as actividades relacionadas coa posta no mercado da súa produción.
A99	CE99 - Ter a capacidade para exercer como Oficial de Máquinas da Mariña Mercante, unha vez superados os requisitos esixidos pola Administración Marítima.
A100	CE100 - Ter a capacidade para exercer como oficial ETO da Mariña Mercante, unha vez superados os requisitos esixidos pola Administración Marítima.
B4	CB4 - Poder transmitir información, ideas, problemas e solucións a un público tanto especializado como non especializado.
B5	CB5 - Ter desenvolvido aquelas habilidades de aprendizaxe necesarias para emprender estudos posteriores con un alto grao de autonomía.
B8	CG03 - Comunicarse de maneira efectiva nunha contorna de traballo.
B9	CG04 - Traballar de forma autónoma con iniciativa.
B10	CG05 - Traballar de forma colaborativa.
B15	CG10 - Capacidade para resolver problemas con iniciativa, toma de decisións, creatividade, razoamento crítico e de comunicar e transmitir coñecementos habilidades e destrezas.
B16	CG11 - Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben afrontarse.
C3	CT03 - 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.
C4	CT04 - Desenvolverse para o exercicio dunha cidadanía respectuosa coa cultura democrática, os dereitos humanos e a perspectiva de xénero.
C5	CT05 - Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C6	CT06 - Adquirir habilidades para a vida e hábitos, rutinas e estilos de vida saudables.
C7	CT07 - Desenvolver a capacidade de traballar en equipos interdisciplinares ou transdisciplinares, para ofrecer propostas que contribúan a un desenvolvemento sostible ambiental, económico, político e social.
C8	CT08 - Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.
C9	CT09 - Ter a capacidade de xestionar tempos e recursos: desenvolver plans, priorizar actividades, identificar as críticas, establecer prazos e cumprilos.

## Learning outcomes

Learning outcomes	Study programme competences
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Control good practices of safety and health at work.	A7	B4	C3
Being able to respond to the different emergency situations that can occur on board, related to maritime safety and pollution prevention.	A8	B5	C4
	A10	B8	C5
	A12	B9	C6
	A13	B10	C7
	A14	B15	C8
	A17	B16	C9
	A27		
	A28		
	A29		
	A30		
	A31		
	A32		
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	A44		
	A45		
	A59		
	A61		
	A65		
	A98		
	A99		
	A100		

Contents	
Topic	Sub-topic



BASIC TRAINING IN SAFETY

Types of emergency situations that can occur, such as collisions, fires, or sinking

Types of life-saving devices normally carried on ships.

Survival Craft Equipment

Location of personal lifesaving devices

Principles related to survival, including:

- .1 usefulness of training and exercises
- .2 personal protective clothing and equipment
- .3 need to be prepared for any emergency
- .4 steps to take when called to survival craft stations
- .5 actions to be taken when requested to abandon ship
- .6 actions to take when in the water
- .7 actions to be taken on board the craft

survival

- .8 main dangers for survivors

Organization of fire fighting on board

Location of fire-fighting devices and

escape routes in case of emergency

Elements of fire and explosion (the fire triangle)

Types and sources of ignition

Flammable materials, risk of a fire being produced and spread  
fire

Need for constant vigilance

Measures to be taken on board ships

Fire and smoke detection, and automatic alarm systems

Classification of fires and extinguishing agents that  
can be used

Fire fighting equipment and its location on board

Instruction in:

- .1 fixed installations
- .2 fire fighting equipment
- .3 personal equipment
- .4 fire fighting devices and equipment
- .5 fire fighting methods
- .6 fire fighting officers
- .7 fire fighting procedures
- .8 use of respiratory equipment for fire fighting and rescue operations

Comply with emergency procedures

Take precautions to prevent pollution of the marine environment.

Observe safe work practices

Contribute to communications on board the ship being  
effective and good

Take immediate action in the event of an accident or other type of medical emergency



Understand and adopt the necessary measures to control the fatigue



SURVIVAL CRAFT AND RESCUE BOATS (NOT FAST)	1.- TAKE CHARGE OF A SURVIVAL VESSEL OR RESCUE BOAT, DURING AND AFTER LAUNCHING 2.- HANDLING THE ENGINE OF A SURVIVAL BOAT 3.- ORGANIZE THE SURVIVORS AND THE SURVIVAL VESSEL AFTER LEAVING THE SHIP. 4.- USE LOCATION DEVICES: COMMUNICATIONS EQUIPMENT, SIGNALING AND PYROTECHNICAL SIGNALS 5.- PROVIDE FIRST AID TO SURVIVORS.
ADVANCED TRAINING IN FIRE FIGHTING (For students who opt for this certificate)	1.- CONTROL OF FIGHTING OPERATIONS C.I. ORGANIZATION OF THE FIGHT C.I. 2.- INSPECTION AND MAINTENANCE OF THE FIRE DETECTION AND EXTINGUISHING SYSTEMS AND EQUIPMENT 3.- INVESTIGATION AND COLLECTION OF REPORTS ON INCIDENTS IN WHICH THEY OCCUR
MARINE POLLUTION	MARPOL ANEX I ANEX II ANEX III ANEX IV ANEX V ANEX VI
The development and overcoming of these contents, together with those corresponding to other subjects that include the acquisition of specific competencies of the degree, guarantees the knowledge, comprehension and sufficiency of the competencies contained in Table AIII / 2, of the STCW Convention, related to the level of management of First Engineer Officer of the Merchant Navy, on ships without power limitation of the main propulsion machinery and Chief Engineer officer of the Merchant Navy up to a maximum of 3000 kW.	Table A-III / 2 of the STCW Convention. Specification of the minimum standard of competence for Chief Engineer Officers and First Engineer Officers on ships powered by main propulsion machinery of 3000 kW or more.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A8 A10 A12 A13 A17 A28 A30 A31 A32 A33 A34 A35 A36 A61 A98 A99 A100 B4 B5 B8 B9 B10 B15 B16 C3 C4 C5 C6 C7 C8 C9	30	65	95
Laboratory practice	A7 A10 A13 A14 A17 A27 A28 A29 A30 A31 A33 A34 A35 A37 A38 A39 A40 A41 A42 A43 A44 A45 A59 A65 A99 A100 B5 B9 B10 B15 C4 C6 C8	30	10	40



Objective test	A8 A10 A12 A13 A14 A17 A27 A28 A29 A31 A32 A33 A36 A37 A38 A39 A40 A41 A42 A43 A44 A45 A59 A61 A65 A98 B8 B15 B16 C3 C9	9	0	9
Personalized attention		6	0	6
(*)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	Exposición oral complementada co uso de medios audiovisuais e a introdución dalgunhas preguntas dirixidas aos estudantes, coa finalidade de transmitir coñecementos e facilitar a aprendizaxe. A clase maxistral é tamén coñecida como &quot;conferencia&quot;, &quot;método expositivo&quot; ou &quot;lección maxistral&quot;. Esta última modalidade sóse reservar a un tipo especial de lección impartida por un profesor en ocasións especiais, cun contido que supón unha elaboración orixinal e baseada no uso case exclusivo da palabra como vía de transmisión da información á audiencia.
Laboratory practice	Prácticas na Aula Clube, prácticas en embarcacións e C.I. Actividades desenvolvidas nun contexto externo ao contorno académico universitario
Objective test	.

Personalized attention	
Methodologies	Description
Laboratory practice Objective test Guest lecture / keynote speech	A atención personalizada realizarase en horario de tutorías

Assessment			
Methodologies	Competencies	Description	Qualification
Laboratory practice	A7 A10 A13 A14 A17 A27 A28 A29 A30 A31 A33 A34 A35 A37 A38 A39 A40 A41 A42 A43 A44 A45 A59 A65 A99 A100 B5 B9 B10 B15 C4 C6 C8	Obrigatorio superalos para facer media	0
Objective test	A8 A10 A12 A13 A14 A17 A27 A28 A29 A31 A32 A33 A36 A37 A38 A39 A40 A41 A42 A43 A44 A45 A59 A61 A65 A98 B8 B15 B16 C3 C9	Exame final (é necesario aprobalo para que se teñan en conta as outras metodoloxías)	100



Guest lecture / keynote speech	A8 A10 A12 A13 A17 A28 A30 A31 A32 A33 A34 A35 A36 A61 A98 A99 A100 B4 B5 B8 B9 B10 B15 B16 C3 C4 C5 C6 C7 C8 C9	Attendance	0
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Assessment comments

To pass the subject by continuous assessment, the minimum attendance at the master sessions will be 80%. To pass the subject by continuous assessment, the minimum attendance at the compulsory practices will be 100%. The obligatory practices of the subject, along with passing the rest of the methodologies, are associated with obtaining the following certificates: Basic Training in Safety and Survival Craft and Non-Fast Rescue Boats. To obtain these certificates, it will also be mandatory to carry out 100% of these practices. The mandatory practices consist of 30 contact hours, 40 hours in total, as can be seen in step 4. Of these 30 contact hours, 8 hours correspond to Basic Fire Fighting. The Advanced Fire Fighting Course is presented as an elective for students and consists of 33 H. Students who wish to obtain this Certificate must complete the remaining 25 H of the course and that are out of planning. To do media you have to overcome all methodologies. The evaluation criteria contemplated in tables A-III/1 and A-III/3 of the STCW Code, and included in the Quality Assurance System, will be taken into account when designing and carrying out the evaluation. THE SURVIVAL PRACTICES IN ITS ENTIRETY ARE MANDATORY TO PASS THE SUBJECT. THE FIRE FIGHTING PRACTICES CORRESPONDING TO BASIC TRAINING ARE MANDATORY TO PASS THE SUBJECT. Students with recognition of part-time dedication and academic exemption from attendance exemption, second establishes the "RULE THAT REGULATES THE REGIME OF DEDICATION TO THE STUDY OF UNDERGRADUATE STUDENTS AT UDC (Articles 2.3; 3. b; 4.3 and 7.5 ) (05/04/2017) may take the partial tests, if necessary, without having to attend 80% of the face-to-face classes, as long as the teachers are duly informed at the beginning of the course. These students may be asked to do different jobs/problems throughout the course to be exposed during lecture hours. Due to the very nature of the practices, which are not recoverable, no academic waiver is contemplated for their evaluation. The fraudulent performance of the tests or evaluation activities will imply the qualification of fail in the call in which the offense is committed and the student will be graded with "suspense" (numerical grade 0) in the corresponding call of the academic year, both if the commission of the foul occurs in the first how in the second opportunity. To do this, its qualification will be modified in the first opportunity certificate if necessary.

Sources of information

Basic	SOLAS consolidated edition 2020. Consolidated text of the International Convention for the Safety of Life at Sea, 1974. International Maritime Organization. London. 2020 Código internacional de dispositivos de salvamento (Código IDS). Edición 2017. Organización Marítima Internacional. Londres. 2017 Código Internacional de Sistemas de Seguridad Contra Incendios (Código SSCI). Edición 2015. Organización Marítima Internacional. Londres. 2016 Manual IAMSAR. Vol III. Manual internacional de los servicios aeronáuticos y marítimos de búsqueda y salvamento. Edición 2019. OMI/OACI. Londres/ Montreal. 2019 MSC.1/Circ.1182/Rev.1. Guía sobre las Técnicas de Rescate. IMO. 2014 MSC.1/Circ.1185/Rev.1. Guía para la Supervivencia en Aguas Frías. IMO. 2012 A.918(22) IMO Standard Marine Communication Phrases. Model course 1.19. Proficiency in personal survival techniques. 2019 Edition. International Maritime Organization. London. 2019 Model Course 1.20. Fire Prevention and Basic Fire Fighting. 2000 Edition. International Maritime Organization. London. 2001 Model Course 1.21. Personal safety and social responsibilities. 2016 Edition. International Maritime Organization. London. 2016 Model course 1.23. Proficiency in survival craft and rescue boats other than fast rescue boats. 2000 Edition. International Maritime Organization. London. 2016 Model Course 2.03. Advanced training in fire fighting. 2000 Edition. International Maritime Organization. London. 2001 MARPOL edición refundida 2017. Convenio internacional para prevenir la contaminación por los buques. Organización Marítima Internacional. London. 2017
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<b>Complementary</b>	<p>Model course 3.05. Survey of fire appliances and provisions. 2004 Edition. International Maritime Organization. London. 2004</p> <p>Model course 3.06. Survey of life-saving appliances and arrangements. 2004 Edition. International Maritime Organization. London. 2004</p> <p>Model course 3.11. Safety investigation into marine casualties and marine incidents. 2014 Edition. International Maritime Organization. London. 2014</p> <p>Model course 1.39. Leadership and teamwork. 2014 Edition. International Maritime Organization. London. 2004</p> <p>Manual de Formación SOLAS. Dispositivos de salvamento y Técnicas de supervivencia. I.C. Brindle &amp; Co. 2003</p> <p>Manual de Formación Contra Incendios. I.C. Brindle &amp; Co. 2ª Edición. 2011</p> <p>Supervivencia en la mar. Ricard Marí Sagarra, Enrique González Pino. Instituto Social de la Marina. Madrid. 1990</p> <p>Técnicas, sistemas y organización de la prevención, protección y lucha contra incendios en los buques. Ricard Marí Sagarra. Enrique González Pino. Instituto Social de la Marina. Madrid. 1989</p> <p>The Naval Handbook for Ship Fire Fighters. 8th Ed. The Nautical Institute. London. 2006</p> <p>Marine Survival. D.J. House. 3rd Ed. Witherby. Edinburgh. 2011</p> <p>Manual sobre la Contaminación ocasionada por Hidrocarburos. Parte I Prevención. Edición 2011. Organización Marítima Internacional. Londres. 2011.</p> <p>Manual sobre la contaminación ocasionada por hidrocarburos. Parte IV Lucha contra los derrames de hidrocarburos. Organización Marítima Internacional. Londres. 2005.</p> <p>Manual sobre la contaminación ocasionada por hidrocarburos. Parte V Aspectos administrativos de la lucha contra la contaminación por hidrocarburos. Edición 2009. Organización Marítima Internacional. Londres. 2011</p> <p>Model course 1.38. Marine environmental awareness. 2011 Edition. International Maritime Organization. London. 2011</p>
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### Recommendations

#### Subjects that it is recommended to have taken before

English/631G02155

Chemistry/631G02157

Naval Construction and Ship Theory/631G02160

#### Subjects that are recommended to be taken simultaneously

Naval Hygiene and Risks at Work/631G02255

#### Subjects that continue the syllabus

\*\*Special Maritime Transports and dangerous shipment/631G02358

#### 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.