UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2019/20
Subject (*)	Ship auxiliary systems 1		Code	730G05028
Study programme	Grao en Enxeñaría Naval e Oceánica			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Third	Obligatory	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Naval e Industrial			
Coordinador	Carral Couce, Luis Manuel	E-mail	l.carral@udc.es	
Lecturers	Carral Couce, Luis Manuel Villa Caro, Raul	E-mail	l.carral@udc.es raul.villa@udc.es	
Web				
General description	Coñecemento, proxecto e deseño dos equipos, servizos e sistemas auxiliares do buque. Ventilacion y climatización, detección y extinción de incendios, dispòsitivos de salvamento			

Study programme competences / results	
Code	Study programme competences / results
A33	Knowledge of the equipment and naval auxiliary systems.
A37	Knowledge of the methods of project of the auxiliary systems of the ships and artifacts.
B2	That the students know how to apply its knowledge to its work or vocation in a professional way and possess the competences that tend to prove itself by the elaboration and defense of arguments and the resolution of problems in its area of study
B3	That the students have the ability to bring together and to interpret relevant data (normally in its area of study) to emit judgments that include a reflection on relevant subjects of social, scientific or ethical kind
B4	That the students can transmit information, ideas, problems and solutions to a public as much specialized as not specialized
B6	Be able to carrying out a critical analysis, evaluation and synthesis of new and complex ideas.
C1	Using the basic tools of the technologies of the information and the communications (TIC) necessary for the exercise of its profession and for the learning throughout its life.
C4	Recognizing critically the knowledge, the technology and the available information to solve the problems that they must face.
C6	Recognizing the importance that has the research, the innovation and the technological development in the socioeconomic and cultural advance of the society.
C7	Capacidade de traballar nun ámbito multilingüe e multidisciplinar.

Learning outcomes			
Learning outcomes	Study programme competences / results		
Know and project equipment, services and systems of the ship.	A33 A37	B2 B3 B4 B6	C1 C4 C6 C7

Contents	
Topic	Sub-topic

Block 1. Two ship systems, typology and applicable regulations.	Common systems Special systems Ship systems. Systems of machines. Typology of merchant ships according to their activity. Typology of merchant ships according to their propulsion. Applicable regulations (Administration, international agreements, classification societies). Access and supply from outside and inside the ship. Real scale. Ironing of disembarkation. Scale side and practical. Davit.
Block 2. Means and devices of rescue	Individual rescue devices. Survival craft. Rescue boats. Launching and embarkation devices. Other lifesaving devices Applicable regulation.
Block 3. Fire prevention, detection and extinction systems fire prevention	Factors of the fire. Active protection systems. Passive protection systems. Applicable regulation.
Block 4. Ventilation and air conditioning systems	Pumps. Ventilation needs on ships. General ventilation Localized extraction. Calculation of ventilation. Air conditioner. Fans Applicable regulations
Block 5. Enabling. Accommodation spaces	Design principles of accommodation spaces. Thermal conditioning. Acoustic conditioning. Light conditioning

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A37 B4 C4 C6	30	30	60
Field trip	A33 B2 B3 B6	5	0	5
Supervised projects	A33 B2 B3 B6 C1	9	51	60
Problem solving	A37 B3 B6 C7	6	6	12
Mixed objective/subjective test	A33 B2 B3 C1 C7	10	0	10
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	Master class sessions of the course content.
Field trip	Activities developed in a context external to the university academic environment (companies, institutions, organizations, monuments, etc.) related to the field of study of the subject. These activities focus on the development of skills related to direct and systematic observation, information gathering, product development (sketches, designs, etc.), etc. THE PROPOSED VISITS WILL BE BASED ON THE KNOWLEDGE OF SHIPS EQUIPPED WITH FACILITIES AND SERVICES STUDIED IN THE SUBJECT
Supervised projects	Methodology designed to promote the autonomous learning of students, under the tutelage of the teacher and in varied scenarios (academic and professional). It is referred primarily to the learning of "how to do things." It is an option based on the assumption by students of the responsibility for their own learning. This teaching system is based on two basic elements: the independent learning of the students and the monitoring of that learning by the teacher-tutor.
Problem solving	Related to the supervised work that will be done in the course.
Mixed objective/subjective test	Mixed objective/subjective test

Personalized attention	
Methodologies	Description

Guest lecture / keynote speech Problem solving Mixed objective/subjective test Field trip Supervised projects	ACADEMIC DISPENSE IS NOT ACCEPTED Resolution of doubts and questions related to the subjects of the contents of the subject.

Assessment			
Methodologies	Competencies / Results	Description	Qualification
Problem solving	A37 B3 B6 C7	Related to the supervised work that will be done in the course.	1
Mixed objective/subjective test	A33 B2 B3 C1 C7	realización dunha proba escrita de opción múltiple que incluirá conceptos teóricos. O peso desta proba será de 4 puntos sobre 10	40
Field trip	A33 B2 B3 B6	Actividades desenvolvidas nun contexto externo ao contorno académico universitario (empresas, institucións, organismos, monumentos, etc.) relacionadas co ámbito de estudo da materia. Estas actividades céntranse no desenvolvemento de capacidades relacionadas coa observación directa e sistemática, a recollida de información, o desenvolvemento de produtos (bosquexos, deseños, etc.), etc.	10
Supervised projects	A33 B2 B3 B6 C1	Metodoloxía deseñada para promover a aprendizaxe autónoma dos estudantes, baixo a tutela do profesor e en escenarios variados (académicos e profesionais). Está referida prioritariamente ao aprendizaxe do ?cómo facer as cousas?. Constitúe unha opción baseada na asunción polos estudantes da responsabilidade pola súa propia aprendizaxe. Este sistema de ensino baséase en dous elementos básicos: a aprendizaxe independente dos estudantes e o seguimento desa aprendizaxe polo profesor-titor.	49

Assessment comments
The evaluation of the subject will be based on the realization of a written test of multiple answers in which theoretical concepts will be included. The weight of this test will be 4 out of 10. Class attendance and participation in scheduled field trips (visits to ships and naval industrial facilities) will be valued with 1 point out of 10. Finally, a supervised work will be carried out on a vessel proposed in class that following the standards required by the EPS for the preparation of Notebook 12 of the TFG, contain at least the following topics: ventilation, air conditioning, rescue, and fire-fighting. The weight of this work will be 5 points out of 10 ACADEMIC DISPENSING IS NOT ALLOWED

Sources of information

Basic	- Fraguela Formoso, José Ángel (1994). Instalaciones de Protección Contra Incendios. El Instalador - Fraguela Formoso, José Ánge (2014). Bombas. Apuntes de clase - Organización Marítima Internacional (). REGULAMENTOS, RESOLUCIÓNS E OUTROS. OMI - Asociación Española de Normalización (). Normas del Grupo Naval. AENOR - Comité Europeo de Normalización (). Normas del Grupo Naval. CEN - International Organization for Standardization (). Normas del Grupo Naval. ISO - UNIÓN EUROPEA (). Directiva 2014/90/UE del Parlamento Europeo y del Consejo, de 23 de julio de 2014, sobre equipos marinos. Unión Europea - JOSE ANGEL FRAGUELA FORMOSO (). Sistemas de Ventilación. - JOSE ANGEL FRAGUELA FORMOSO (). Principios de diseño de los espacios de alojamiento y alojamientos. - JOSE ANGEL FRAGUELA FORMOSO (). Sistemas de comunicación . - JOSE ANGEL FRAGUELA FORMOSO (). Acondicionamiento térmico. - JOSE ANGEL FRAGUELA FORMOSO (). Acondicionamiento sonoro. - Raúl Villa Caro; Luis Carral Couce; José Ángel Fraguela Formoso (2014). VENTILACION en BUQUES: CALCULO de CONDUCTOS. Createspace Independent Pub
Complementary	

Recommendations
Subjects that it is recommended to have taken before
SHIPBUILDING AND SHIP PROPULSION/730G01112
Subjects that are recommended to be taken simultaneously
RULES AND REGULATIONS FOR SHIP DESING AND SHIPBUILDING/730G01142
Subjects that continue the syllabus
Other comments
Para axudar a conseguir unha contorna inmediata sostido e cumprir co obxectivo da acción número 5: ---?Docencia e investigación saudable e sustentable ambiental e social? do "Plan de Acción Green Campus Ferrol":   A entrega dos traballos documentais que se realicen nesta materia: - Solicitaranse en formato virtual e/ou soporte informático   - Realizarase a través de Moodle, en formato dixital sen necesidade de imprimilos   - En caso de ser necesario realizalos en papel: -   Non se empregarán plásticos   -   Realizaranse impresións a dobre cara.   -   Empregarase papel reciclado.   -   Evitarase a impresión de borradores.- Débese de facer un uso sustentable dos recursos e a prevención de impactos negativos sobre o medio natural

(*)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.