UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2015/16
Subject (*)	Automatización de Instalacións Marítimas		Code	631G02357
Study programme	Grao en Tecnoloxías Mariñas			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Third	Obligatoria	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Industrial			
Coordinador	Ferreiro Garcia, Ramon	E-mail	ramon.ferreiro@udc.es	
Lecturers	Ferreiro Garcia, Ramon	E-mail	ramon.ferreiro@udc.es	
Web				
General description	Teniendo en cuenta que se trata de una materia troncal se pretende que el alumno adquiera los conocimientos teóricos y prácticos necesarios y suficientes, conducentes a la obtención del título académico que pretende; y en el ejercicio de su profesión, pueda resolver cuantas cuestiones se le presenten en la ingeniería de la supervisión y control de las máquinas e instalaciones industriales.			

Study programme competences	
Code	Study programme competences
A15	CE15 - Manexar correctamente a información procedente da instrumentación e sintonizar controladores, no ámbito da súa especialidade.
A20	CE20 - Ser capaz de identificar, analizar e aplicar os coñecementos adquiridos nas distintas materias do Grao, a unha situación determinada formulando a solución técnica máis axeitada dende o punto de vista económico, ambiental e de seguridade.
A40	CE47 - Operar a maquinaria principal e auxiliar e os sistemas de control correspondentes.
A42	CE30 - Prestar primeiros auxilios a bordo.
A43	CE31 - Prevención, control e loita contra incendios a bordo.
B1	CT1 - Capacidad para gestionar los propios conocimientos y utilizar de forma eficiente técnicas de trabajo intelectual
B2	CT2 - Resolver problemas de forma efectiva.
B4	CT4 - Traballar de forma autónoma con iniciativa.
B10	CT10 - Comunicar por escrito e oralmente os coñecementos procedentes da linguaxe científica.
B11	CT11 - Capacidade para resolver problemas con iniciativa, toma de decisións, creatividade, razoamento crítico e de comunicar e transmitir coñecementos habilidades e destrezas.

Learning outcomes			
Learning outcomes	Study programme competences		
Supervisión das instalacións mariñas	A15 A20 A40 A42 A43	B1 B2 B4 B10 B11	

Contents	
Topic	Sub-topic
Tema 1: Marine Systems Modeling and Simulation.	1.1. Marine installation and Marine plants architectures. 1.2. Mathematical models of Marine Installations and Control Systems. 1.3. Application of simulation tools. 1.4. Dynamic Simulation of Marine Plants Control Systems.

Tema 2: Marine plants control systems.	2.1. Structure of the marine installation control systems. 2.2. Control algorithms and controller applied on Marine Contol Sistems. 2.3. Practical controllers' tuning methods. 2.4. Adaptive controllers, and optimum tuning parameters.
Tema 3: Advanced control structures applied on Marine control systems.	3.1. Advanced control structures: 3.2. Feedback-cascade control. 3.3. Control por realimentación e adelanto. 3.4. Feedback-feerforward control 3.5. Ratio Control. 3.6. Fuzzy logic controllers. 3.7. Aplications on Marine installations. 3.7.1. Boiler control: level. pressure, combustion control) 3.7.2. Turbine control (Speed and power). 3.7.3. Reciprocating inter nal combustion engin control:(water cooling temp. lube oil temp., speed, acceleration and power control) 3.7.4. Fuel, lube oil and water transfer system control. 3.7.5. Fresh water plant control. 3.7.6. Cargo Control systems, Ballast control, DSteering control, and Dynamic positioning control systems.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Objective test	A15 A20 A40 A42 A43 B1 B2 B4 B10 B11	5	0	5
Guest lecture / keynote speech	A15 A20 A40 A42 A43 B1 B2 B4 B10 B11	10	120	130
Personalized attention		15	0	15
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Objective test	The aim consists of achieving the capacity to design and implement a given marine plant control system proposed by the instructor.
Guest lecture / keynote speech	The methidology is centered on appliucations to the supervision of marine installations with the aim of achieve the specific competences and skills.

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech	Individually, the aim is to provide the means to find the correct path in those questions regaring the topics of the program. The main contact channel will consists of the tools provided by the tutor (Virtual faculty, and individual assistance in class-room).

Assessment			
Methodologies	Competencies	Description	Qualification
Objective test	A15 A20 A40 A42 A43 B1 B2 B4 B10 B11	O alumno deberá deseñar un sistema de control automático para un proceso industrial real proposto polo evaluador	100

Assessment comments
The evaluation criteria considered in the amendments A-III/1 and A-III/2 of the STCW code, as well as related amendments will be taken into account for evaluation tasks.

Sources of information	
Basic	Astrom, Karl Johan. (1988). Sistemas controlados por computador Andrés Puente, E. (1986). Regulación automática I, II Ferreiro García, Ramón. (1999). Nociones dobre control industrial basado en teglas difusas Ferreiro García. R. (1995). Nociones sobre aplicación de PLC?s al control de procesos industriales. ed. Universidad de A Coruña
Complementary	

Recommendations
Subjects that it is recommended to have taken before
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.