UNIVERSIDADE DA CORUÑA

Teaching Guide			
Identifying Data			2015/16
Subject (*)	Operación e Control Automático de Instalacións Marítimas	Code	631510213
Study programme	Mestrado Universitario en Enxeñaría Náutica e Transporte Marítimo		

Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optativa	3

Language			
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			

Study programme competences	
Code	Study programme competences
A11	Capacidade para utilizar os telemandos das instalacións de propulsión e dos sistemas e servizos de maquinaria.
A12	Capacidade para planificar e garantir o embarco, estiba e suxeción da carga, e o seu coidado durante a viaxe e o desembarco.
A13	Capacidade para a avaliación das avarías e defectos notificados, nos espazos de carga, as tapas de escotilla e os tanques de lastre, e adoptar as medidas oportunas.
A14	Capacidade para o transporte de mercadorías perigosas.
B2	Capacidade para resolver problemas de forma efectiva.
B9	Capacidade de análise e síntese.
B10	Capacidade para adquirir e aplicar coñecementos.
B15	CB9-Que os estudantes saiban comunicar as suas conclusións e os coñecementos e razóns últimas que as sustentan a públicos especializados e non especializados dun xeito claro e sin ambigüidades
B16	CB10-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.
C1	Capacidade para expresarse correctamente tanto de forma oral como escrita, nas linguas oficiais da comunidade autónoma
C2	Capacidade para dominar a expresión e a comprensión de forma oral e escrita nun idioma estranxeiro
C8	Capacidade para valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade

Learning outcomes			
Learning outcomes	Study programme competences		
	AJ11	BC2	CC1
	AJ12	BC9	CC2
	AJ13	BC10	CC8
	AJ14	BC15	
		BC16	

Contents	
Topic	Sub-topic
Ship automatic steering control	Steering control systems description emergency operation (man-auto changes)

Dynamic positioning systems (DPS)	DPS clasification. Description of DP types (I, II e III). DPS components. Operation modes.
Ballast control system	Automatic ballast system components and operation. Control de heelong and trim by ballast management.
Roll and heading control systems	Actual models description. Trim and heeling control systems Rudder roll control and anti-heeling control systems. Gravity tanks based control Lateral and stern flaps based control
Bull cargos (LPG, LNG, Crude oil, refined oil and chemicals)	Level, temperature and flow rate control systems. Maintenance of liquid cargoes (LPG) . Control of Inertization operations and manegement .
Fire fighting and fire protection control systems	Detection systems Monitoring systems Automatic fire fightinng systems

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Case study	A11 A12 A13 A14 B2 B9 B10 B15 B16 C1 C2 C8	6	3	9
Laboratory practice	A11	2	5	7
Guest lecture / keynote speech	A11	20	10	30
Objective test	A11	2	5	7
Document analysis	A11	2	5	7
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
Case study	Consists of analysing different class room-studed cases providing an inside of the studied topic.
Laboratory practice	Consists of lab exersises to acquire skils on lab instrumernts used on board .
Guest lecture / keynote speech	The aim is to learn as much as possible all related with the programmed topics with the help of graphic descriptions on examples of practical applications.
Objective test	The aim is to verify the acquired knowledge by means of solving individuaslly case studies.
Document analysis	The objective is to select and analyse the technical available information related with the studied topics.

Personalized attention	
Methodologies	Description
Case study	Tratarase de aprender a resolver casos individualmente para adequerir autonomía.

Assessment			
Methodologies	Competencies	Description	Qualification
Document analysis	A11	Revision of the proper bibliography.	10

Case study	A11 A12 A13 A14 B2 B9 B10 B15 B16 C1 C2 C8	Practical case studies related with the program topics.	25
Guest lecture / keynote speech	A11	Generic and concrete concepts related with the program topics.	40
Laboratory practice	A11	Instrumentation calibration exercises related with the program topics.	15
Objective test	A11	Knowledge (skils) verification on all studied topics.	10

Assessment comments

Sources of information	
Basic	- Job van Amerongen (1998). Ship steering. Encyclopedia of Life Support Systems (EOLSS), United Nations - Asgeir J. Sørensen (2013). Marine Control Systems. Department of Marine Technology, Norwegian University of Science and Technology
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Hidrostática e Estabilidade/631510201 Xestión e control das operacións de carga/631510207 Resistencia ao Avance e Propulsión/631510216 Informática de Control/631510212 Manobra Avanzada /631510204
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.