



Teaching Guide

| Identifying Data | | | | | 2014/15 |
|----------------------------|---|---------------|-----------------------|----------------|---------|
| 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 | | | | | |
| Prerequisites | | | | | |
| Department | Enxeñaría Industrial | | | | |
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| 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 suxección 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 | Capacidade para comunicar as súas conclusións e os coñecementos e razóns últimas que as sustentan a públicos especializados e non especializados dun modo claro e sen ambigüidades |
| B16 | Capacidade para desenvolver as habilidades de aprendizaxe que lles permitan continuar estudando dun modo que habrá de ser en gran 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

| Subject competencies (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 fighting systems |

Planning

| Methodologies / tests | Ordinary class hours | Student?s personal work hours | Total hours |
|--------------------------------|----------------------|-------------------------------|-------------|
| Case study | 6 | 3 | 9 |
| Guest lecture / keynote speech | 20 | 10 | 30 |
| Laboratory practice | 2 | 5 | 7 |
| Objective test | 2 | 5 | 7 |
| Document analysis | 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. |
| 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. |
| Laboratory practice | Consists of lab exersises to acquire skills on lab instrumernts used on board . |
| Objective test | The aim is to verify the acquired knowledge by means of solving individuassly 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 | Description | Qualification |
|--------------------------------|--|---------------|
| Document analysis | Revision of the proper bibliography. | 10 |
| Case study | Practical case studies related with the program topics. | 25 |
| Guest lecture / keynote speech | Generic and concrete concepts related with the program topics. | 40 |
| Laboratory practice | Instrumentation calibration exercises related with the program topics. | 15 |



| | | |
|----------------|--|----|
| Objective test | Knowledge (skills) verification on all studied topics. | 10 |
|----------------|--|----|

Assessment comments

Sources of information

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

Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

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

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.