



| Teaching Guide      |   |        |                         |         |
|---------------------|---|--------|-------------------------|---------|
| Identifying Data    |   |        |                         | 2016/17 |
| Subject (*)         | PROXECTO DE SISTEMAS DE PROPULSIÓN                  | Code   | 730G02138               |         |
| Study programme     | Grao en Enxeñaría en Propulsión e Servizos do Buque |        |                         |         |
| Descriptors         |   |        |                         |         |
| Cycle               | Period  | Year   | Type                    | Credits |
| Graduate            | 2nd four-month period                               | Third  | Obligatoria             | 6       |
| Language            | SpanishEnglish                                      |        |                         |         |
| Teaching method     | Face-to-face  |        |                         |         |
| Prerequisites       |   |        |                         |         |
| Department          | Enxeñaría Naval e Oceánica                          |        |                         |         |
| Coordinador         | Seijo Jordan, Indalecio                             | E-mail | indalecio.seijo1@udc.es |         |
| Lecturers           | Seijo Jordan, Indalecio                             | E-mail | indalecio.seijo1@udc.es |         |
| Web                 |   |        |                         |         |
| General description |   |        |                         |         |

| Study programme competences / results |   |
|---------------------------------------|---|
| Code                                  | Study programme competences / results                                 |
| A23                                   | Coñecemento dos métodos de proxecto dos sistemas de propulsión naval. |

| Learning outcomes  |                                       |  |
|--|---------------------------------------|--|
| Learning outcomes  | Study programme competences / results |  |
| To have knowledge of the marine propulsion systems design methodologies. | A23                                   |  |

| Contents                                      |   |
|---|---|
| Topic   | Sub-topic   |
| Introduction to the marine propulsion systems | Introduction  |
| Diesel engines                                | Introduction<br>Working principles<br>Diesel engine selection<br>Ancilliary systems<br>Engine room arrangement          |
| Gas turbines                                  | Introduction<br>Working principles<br>Marine gas turbines<br>Ancilliary systems<br>Engine room arrangement              |
| Electric propulsion                           | Introduction<br>Working principles<br>Electric generator selection<br>Electric motor selection<br>Associated propulsors |
| Combined propulsion systems                   | Introduction<br>Propulsion plant arrangement<br>Propulsion plant selection and associated systems                       |



|  |   |
|--|---|
| Steam turbines                                       | Introduction<br>Working principles<br>Ancillary systems<br>Conventional steam propulsion plants<br>Nuclear steam propulsion plants<br>Engine room arrangement |
| Design of propulsion ancillary systems               | Engine room ventilation<br>Cooling systems<br>Lube oil systems<br>Fuel systems  |
| Non conventional propulsion systems                  | Introduction<br>Characteristics, selection and installation of non conventional propulsors.   |
| Machinery arrangement within the ship design process | Introduction<br>Design constraints<br>Rules and regulations<br>Building strategy  |

| Planning                       |                        |                                      |                               |             |
|--------------------------------|------------------------|--------------------------------------|-------------------------------|-------------|
| Methodologies / tests          | Competencies / Results | Teaching hours (in-person & virtual) | Student's personal work hours | Total hours |
| Supervised projects            |                        | 3                                    | 42                            | 45          |
| Supervised projects            |                        | 1                                    | 9                             | 10          |
| Oral presentation              |                        | 6                                    | 6                             | 12          |
| Objective test                 |                        | 4                                    | 0                             | 4           |
| Guest lecture / keynote speech |                        | 32                                   | 45                            | 77          |
| Personalized attention         |                        | 2                                    | 0                             | 2           |

(\*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

| Methodologies                  |  |
|--------------------------------|--|
| Methodologies                  | Description  |
| Supervised projects            | To develop the design of the engine room of a given vessel, that will be defined at the beginning of the course. On it, some of the knowledge acquired along the course will have to be applied.<br><br>At the beginning of the course, and depending on the number of students, it will be decided if the project has to be done individually or in groups of students. |
| Supervised projects            | To develop a project work about a given topic within the contents of the course, that will be defined at the beginning of it. This project will be orally presented.<br><br>At the beginning of the course, and depending on the number of students, it will be decided if the project has to be done individually or in groups of students.                             |
| Oral presentation              | Oral presentation of the project work about a topic of the course, in front of the professor and the rest of the students.<br>Moreover, the student will also evaluate the oral presentations of the rest of the groups  |
| Objective test                 | Theoretical/practical written examination about the different contents of the course.  |
| Guest lecture / keynote speech | Lecture sessions where the contents of the course will be explained and described by the professor.  |

| Personalized attention |             |
|------------------------|-------------|
| Methodologies          | Description |
|                        |             |



|                     |   |
|---------------------|---|
| Supervised projects | Regarding the two project works to be carried out during the course, individualized guiding sessions will be done, where bibliographic references, information sources and advice will be provided at the different stages of development of both works, also including oral presentation basic techniques. |
|---------------------|---|

| Assessment          |                        |   |               |
|---------------------|------------------------|---|---------------|
| Methodologies       | Competencies / Results | Description   | Qualification |
| Supervised projects |                        | <p>The maximum assigned score to the project work about a specific topic is a 5 % of the total score of the course. It is a compulsory assignment that has to be accomplished to pass the course.</p> <p>Its maximum score will be 10 points. A minimum of 4 points are required to pass the course.</p>  | 5             |
| Objective test      |                        | <p>Theoretical/practical written examination about the different contents of the course.</p> <p>The maximum assigned score to this item is a 6 % of the total score of the course. It is a compulsory assignment that has to be accomplished to pass the course.</p> <p>Its maximum score will be 10 points. A minimum of 4 points are required to pass the course.</p>                     | 60            |
| Oral presentation   |                        | <p>The maximum assigned score to the oral presentation of the project work about a specific topic, together with the evaluation of the other presentations, is a 5 % of the total score of the course. It is a compulsory assignment that has to be accomplished to pass the course.</p> <p>Its maximum score will be 10 points. A minimum of 4 points are required to pass the course.</p> | 5             |
| Supervised projects |                        | <p>Project work about the design of the engine room of a ship.</p> <p>This work has a maximum assigned score of a 30 % of the total score of the course. It is a compulsory assignment that has to be accomplished to pass the course.</p> <p>Its maximum score will be 10 points. A minimum of 4 points are required to pass the course.</p>   | 30            |

| Assessment comments |
|---------------------|
|                     |

| Sources of information |   |
|------------------------|---|
| Basic                  | <ul style="list-style-type: none"> <li>- Casanova Rivas, E. (2001). Máquinas para la Propulsión de Buques. Universidade da Coruña</li> <li>- Watson, D.G.M. (2002). Practical Ship Design. Elsevier</li> <li>- Lamb, T. (2003). Ship Design and Construction. Society of Naval Architects and Marine Engineers (SNAME)</li> </ul> |
| Complementary          |   |

| Recommendations                                      |
|--|
| Subjects that it is recommended to have taken before |



CONSTRUCCIÓN NAVAL E SISTEMAS DE PROPULSIÓN/730G02112

Subjects that are recommended to be taken simultaneously

MOTORES DE COMBUSTIÓN INTERNA ALTERNATIVOS/730G02135

Subjects that continue the syllabus

REGULAMENTACIÓN TÉCNICA APLICABLE AOS SISTEMAS/730G02147

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.