



Teaching Guide

| Identifying Data | | | | | 2020/21 |
|----------------------------|---|---------------|--|----------------|---------|
| Subject (*) | Dynamics of Oceanic Artifacts | Code | 730496209 | | |
| Study programme | Mestrado Universitario en Enxeñaría Naval e Oceánica (plan 2018) | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Official Master's Degree | 2nd four-month period | Second | Obligatory | 6 | |
| Language | SpanishGalicianEnglish | | | | |
| Teaching method | Face-to-face | | | | |
| Prerequisites | | | | | |
| Department | Enxeñaría Naval e Industrial | | | | |
| Coordinador | Díaz Casás, Vicente | E-mail | vicente.diaz.casas@udc.es | | |
| Lecturers | Díaz Casás, Vicente Santiago Caamaño, Lucía | E-mail | vicente.diaz.casas@udc.es lucia.santiago.caamano@udc.es | | |
| Web | | | | | |
| General description | Esta materia aborda o análise do comportamento dinámico de artefactos oceánicos. | | | | |
| Contingency plan | In case of new quarantine, the subject will go online. Class schedules will be maintained, which will be done through Teams. The evaluation will be maintained, but in online mode. | | | | |

Study programme competences / results

| Code | Study programme competences / results |
|------|---|
| A11 | A10 - Coñecemento dos sistemas de posicionamento e da dinámica de plataformas e artefactos. |
| B1 | CB06 Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, a miúdo nun contexto de investigación |
| B4 | CB09 Que os estudantes saiban 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. |
| B5 | CB10 Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun modo que haberá de ser en boa medida autodirixido ou autónomo. |
| C2 | C1 Capacidade pra desenrolar a actividade profesional nun entorno multilingue |
| C3 | ABET (a) An ability to apply knowledge of mathematics, science, and engineering. |
| C7 | ABET (e) An ability to identify, formulate, and solve engineering problems. |
| C12 | ABET (j) A knowledge of contemporary issues. |
| C13 | ABET (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. |

Learning outcomes

| Learning outcomes | Study programme competences / results | | |
|---|---------------------------------------|-------------------|-----------------------------------|
| Knowledge of the methods of analysis of the dynamic behavior of oceanic artifacts in order to establish the dynamic loads implicit in their operation when they are subjected to harmonic excitations, linear loads, impulse loads and random loads, and that affect their design and their anchoring elements. | AJ10 | BC1 BC4 BC5 | CC2 CC3 CC7 CC12 CC13 |

Contents

| Topic | Sub-topic |
|-------|-----------|
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|---|---|
| Study of positioning of the artifacts in the sea. | <ul style="list-style-type: none"> - Introduction to the positioning and types of positioning. - Description. - Applications. - Redundancy and classification of DP systems. |
| Study and response of artifacts. | <ul style="list-style-type: none"> - Classification of mathematical models. - Reference systems. - General equations of motion. - Implicit forces in the design. - Control system. |

| Planning | | | | |
|--------------------------------|----------------------------------|--------------------------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies / Results | Teaching hours (in-person & virtual) | Student?s personal work hours | Total hours |
| Problem solving | A11 B1 B4 B5 C2 C3 C7 C12 C13 | 22.5 | 40 | 62.5 |
| Supervised projects | A11 B1 B4 B5 C2 C3 C7 C12 C13 | 2.5 | 5 | 7.5 |
| Objective test | A11 B1 B4 B5 C2 C3 C7 C12 C13 | 1 | 0 | 1 |
| Guest lecture / keynote speech | A11 B1 B4 B5 C2 C3 C7 C12 C13 | 35 | 40 | 75 |
| Personalized attention | | 4 | 0 | 4 |

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

| Methodologies | |
|--------------------------------|--|
| Methodologies | Description |
| Problem solving | Throughout the course, a series of problems will be proposed for the different parts of the subject in order to complement the theoretical training included in the master sessions. |
| Supervised projects | <p>Throughout the course, a supervised project will be proposed, individually or in groups, related to the subject.</p> <p>This will be obligatory, and its realization and public presentation will be essential to pass the subject.</p> <p>The public presentation will take place in the hours of the subject, being able to agree with the students, in exceptional cases and always at the teacher's discretion, other defense schedules.</p> <p>The details of the dates / deadlines of the works, as well as its content and its individual or group nature, will be published on the subject's website (Moodle) and will be made public in the classroom.</p> |
| Objective test | An objective test that will consist of a theoretical and practical examination of the contents of the subject. |
| Guest lecture / keynote speech | Presentation and development of theoretical and practical issues cited in the content section. |

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



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|---|---|
| <p>Problem solving</p> <p>Supervised projects</p> | <p>Problem solving: Individualized tutorials are proposed in which the student can solve doubts about the problems proposed in class.</p> <p>Supervised projects: Individualized tutorials are proposed in which the student will be guided in the correct realization of the project, providing possible bibliography and sources of information and advice in the different phases of its development.</p> <p>Personalized attention will be totally analogous for students with attendance waivers and full-time students. The tutorials will be held at the times established for this purpose for the current academic year.</p> |
|---|---|

| Assessment | | | |
|---------------------|----------------------------------|--|---------------|
| Methodologies | Competencies / Results | Description | Qualification |
| Supervised projects | A11 B1 B4 B5 C2 C3 C7 C12 C13 | <p>The grade of the supervised project will represent a maximum of 70% in the grade of the subject, provided that the grade of the objective test is greater than 4, as can be seen in the Objective Test section.</p> <p>The qualification of the oral presentation of the supervised project, as well as the participation in the evaluation of the presentations of the rest of the students, will suppose a maximum of 20% of the grade of the work.</p> | 70 |
| Objective test | A11 B1 B4 B5 C2 C3 C7 C12 C13 | <p>The objective test of the subject will have a theoretical and a practice part.</p> <p>It will be necessary to obtain more than 4 points in the final qualification of the objective test to be able to pass the course.</p> | 30 |

| Assessment comments |
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| <p>On the second opportunity, students must again deliver all the works and orally present them.</p> <p>Since class attendance is not evaluated within the subject, the requirements that those students with a class attendance waiver will have to meet, both first and second time, will be the same requirements as those without this waiver, being necessary the delivery in time of the supervised works and realization of the oral presentation of the even.</p> <p>The delivery of the works carried out in this subject:</p> <p style="padding-left: 20px;">It will be requested in virtual format and / or computer support. It will be done through Moodle, in digital format without the need to print them.</p> |

| Sources of information | |
|------------------------|---|
| Basic | <p>Thor I. Fossen (2011). Handbook of Marine Craft Hydrodynamics and Motion Control. John Wiley & Sons, Ltd. Print ISBN:9781119991496, Online ISBN:9781119994138, DOI:10.1002/9781119994138.A R J M Lloyd (1998). Seakeeping: ship behaviour in rough weather. ISBN 10:0953263401, ISBN 13:9780953263400.ABS (2014). Guide for Dynamic Positioning Systems: American Bureau of Shipping.Thor I. Fossen (2011). Handbook of Marine Craft Hydrodynamics and Motion Control. John Wiley & Sons, Ltd. Print ISBN:9781119991496, Online ISBN:9781119994138, DOI:10.1002/9781119994138.A R J M Lloyd (1998). Seakeeping: ship behaviour in rough weather. ISBN 10:0953263401, ISBN 13:9780953263400.ABS (2014). Guide for Dynamic Positioning Systems: American Bureau of Shipping.</p> |
| Complementary | |

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