



Teaching Guide

| Identifying Data | | | | | 2020/21 |
|---------------------|--|--------|-----------------------|---------|---------|
| Subject (*) | Ship Manoeuvring II | Code | 631G01309 | | |
| Study programme | Grao en Náutica e Transporte Marítimo | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Graduate | 1st four-month period | Third | Optional | 6 | |
| Language | Spanish | | | | |
| Teaching method | Hybrid | | | | |
| Prerequisites | | | | | |
| Department | Ciencias da Navegación e Enxeñaría Mariña | | | | |
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| Lecturers | Pacheco Martínez, Eliseo Antonio | E-mail | eliseo.pacheco@udc.es | | |
| Web | | | | | |
| General description | <p>The subjects related to the Ship Handling make up a block of essential and exclusive knowledge in the training of a Professional Sailor. It can be said that a trained and experienced Marine is the only person able to predict all the inputs and outputs in the design and development of the Maneuver of a ship.</p> <p>On the other hand, the consequences of a bad decision when executing a Maneuver can be serious and even catastrophic: strandings, collisions, sinking allisions, fires and explosions. An error will involve at least damage to the ship and its economic consequences: costs, P&I, delays, arrests, etc.</p> <p>In all of the above lies the importance of their training.</p> <p>Integrated in the Degree, this subject "Ship Handling II" is the deepening of the basic knowledge acquired in the subject of 2nd year "Ship Handling I", and aims to give the student a solid foundation for the subjects "Nautical Simulation" (4th year) and "Advanced Ship Handling ?(Master).</p> <p>In the development of the subject will take into account:</p> <ul style="list-style-type: none">STCW 1978, and the 2010 Manila AmendmentsIMO Model course 1.22 Ship Simulator and Bridge Teamwork.IMO Model course 7.01 Master and Chief Mate | | | | |



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| Contingency plan | <p>1. Modifications to the contents No changes will be made.</p> <p>2. Methodologies *Teaching methodologies that are maintained Introductory activities Guest lecture / keynote speech Case study Supervised projects Practical test Mixed objective/subjective test *Teaching methodologies that are modified No changes will be made.</p> <p>3. Mechanisms for personalized attention to students Teams. Synchronous tutoring is open at any time, with the limit of the teacher's availability. An attempt will be made to coordinate the tutoring time with the student. E-mail. The teacher agrees to respond as soon as possible to all questions sent asynchronously.</p> <p>4. Modifications in the evaluation No changes will be made. *Evaluation observations:</p> <p>5. Modifications to the bibliography or webgraphy No changes will be made.</p> |
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| Study programme competences / results | |
|---------------------------------------|--|
| Code | Study programme competences / results |
| A10 | Redactar e interpretar documentación técnica e publicacións náuticas. |
| A14 | Planificar e dirixir unha travesía, determinar a situación por calquera medio de navegación, e dirixir a navegación. |
| A15 | Realizar unha garda de navegación segura. |
| A17 | Adoptar as medidas axeitadas en casos de emerxencias. |
| A19 | Utilizar as frases normalizadas da OMI para as comunicacións marítimas, e emprego do inglés falado e escrito. |
| A21 | Manobrar e gobernar o buque en todas as condicións. |
| A30 | Utilizar os telemandos das instalacións de propulsión e dos sistemas e servizos de maquinaria. |
| A35 | Organizar e dirixir a tripulación. |
| A37 | Usar correctamente os diferentes aparatos de navegación e radiocomunicacións. |
| B1 | Aprender a aprender. |
| B2 | Resolver problemas de xeito efectivo. |
| B3 | Aplicar un pensamento crítico, lóxico e creativo. |
| B4 | Comunicarse de xeito efectivo nun ámbito de traballo. |
| B5 | Traballar de forma autónoma con iniciativa. |
| B6 | Traballar de forma colaboradora. |
| B9 | Capacidade para interpretar, seleccionar e valorar conceptos adquiridos noutras disciplinas do ámbito marítimo, mediante fundamentos físico-matemáticos. |
| B11 | Capacidade de adaptación a novas situacións. |
| B14 | Capacidade de análise e síntese. |
| B15 | Capacidade para adquirir e aplicar coñecementos. |



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| B16 | Organizar, planificar e resolver problemas. |
| B22 | Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben afrontarse. |
| C6 | Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben afrontarse. |
| C8 | Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade. |
| C9 | Posuír e comprender coñecementos que aporten unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, a miúdo nun contexto de investigación |
| C10 | Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en contornas novas ou pouco coñecidas dentro de contextos máis amplas (ou multidisciplinares) relacionados coa súa área de estudo |

| Learning outcomes | | | |
|---|--|---|-----------------|
| Learning outcomes | Study programme competences / results | | |
| Capacitar para realizar o estudo da manobrabilidade dun barco baseado en diferentes probas para a súa determinación e saber construír os gráficos correspondentes para o seu uso. | A10 A14 A15 A17 A21 A30 A35 A37 | B1 B2 B3 B4 B5 B6 B11 B14 B15 B16 B22 | C6 C9 C10 |
| Coñecemento do estado da arte en termos de sistemas de propulsión do buque e temóns de alta eficiencia de última xeración, e o control deles polo manobrista. | A10 A14 A15 A17 A21 A30 A35 A37 | B1 B2 B3 B4 B5 B6 B11 B14 B15 B16 B22 | C6 C9 C10 |
| Analizar as forzas presentes para saber facer un uso óptimo dos medios de manobra do buque e ter a capacidade de poder afrontar situacións imprevisibles que poidan xurdir no desenvolvemento da manobra. | A10 A14 A15 A17 A21 A30 A35 A37 | B1 B2 B3 B4 B5 B6 B9 B11 B14 B15 B16 B22 | C6 C9 C10 |



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| Coñecer os efectos derivados da navegación en augas restrinxidas polo seu calado e / ou pola súa anchura e, en particular, a interacción do buque con outro buque, coa beira e co fondo. | A10 | B1 | C6 |
| | A14 | B2 | C8 |
| | A15 | B3 | C10 |
| | A17 | B4 | |
| | A21 | B5 | |
| | A30 | B6 | |
| | A35 | B11 | |
| | A37 | B14 | |
| | | B15 | |
| | B16 | | |
| | B22 | | |
| Adestrar para o estudo, planificación, desenvolvemento e execución das manobras de recalada, fondeo, entrada, descarga e saída de diferentes portos e terminais con distintos tipos de buques. | A10 | B1 | C6 |
| | A14 | B2 | C9 |
| | A15 | B3 | C10 |
| | A17 | B4 | |
| | A19 | B5 | |
| | A21 | B6 | |
| | A30 | B11 | |
| | A35 | B14 | |
| | A37 | B15 | |
| | | B16 | |
| | | B22 | |

| Contents | |
|--------------------------------------|---|
| Topic | Sub-topic |
| 1. Introduction. | Objetctives. Teaching Guide. STCW 1978/2010. Model Course 7.01. |
| 2. Ship's Manoeuvrability Standards. | Definitions. SOLAS. IMO Circulars. Trials. Turning Circle characteristics Pivot Point. |
| 3. Ship Handling Equipment. | Propeller. Rudder. Steering Gear. Automatics Pilot. Rudder/ ROT Indicators. |
| 4. Bridge Team Management. | STCW. BTM. Planning. Briefings. Manning. Training. Organization. Standing Orders. Pilot. Fatigue. Communications. Single Point of Failure |
| 5. Shallow Water Effects. | Hydrodynamics.. Squat. Bank Effect. Ship's Interaction. Turning circle. Currents |
| 6. Basics of Ship Handling. | Rudder-Propeller Effect. Wind Effect. Current Effect |
| 7. Berthing Operations. | Berthing. Unberthing. Approaching the berth. Safety margins. Use of ropes. Use of anchors. Typical Manoeuvres. |
| 8. Mooring. | Ropes. Winches. Forces. Mooring Configurations. Deck teams. Secuencias. Accident prevention. |
| 9. Anchoring. | Windlass. Deck team. Secuencias. Dragging. Accident prevention. |
| 10. Pilot Station. | Approach. Rigging Pilot Ladder Master Pilot Exchange. |
| 11. Tugs. | Port. Scort. Accident prevention. |
| 12. Open Sea. | 6 DOF. Waves. COLREG. IS Code 2008. Emergency Maneouvs: Towing. MOB, IAMSAR. Bad weather. |
| 13. Maritime Accidents Analysis. | Cases Analysis. |
| 14. Voyage Planning. | SOLAS V. IMO Circulars. BTM. Exercises. |

| Planning | | | | |
|-------------------------|------------------------|--------------------------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies / Results | Teaching hours (in-person & virtual) | Student's personal work hours | Total hours |
| Introductory activities | C10 | 1 | 0 | 1 |



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|---------------------------------|--|----|----|----|
| Guest lecture / keynote speech | A10 A14 A15 A17 A19 A21 A30 A35 A37 B2 B1 B3 B4 B5 B6 B9 B11 B14 B15 B16 B22 C6 C8 C9 C10 | 22 | 44 | 66 |
| Case study | A10 A17 A19 A21 A30 A35 A37 B3 B5 B14 B15 B16 C8 | 9 | 18 | 27 |
| Supervised projects | A10 A14 A15 A17 A21 A30 A35 A37 B1 B2 B3 B4 B5 B6 B11 B14 B15 B16 | 0 | 20 | 20 |
| Practical test: | B1 B2 B5 B9 B14 B15 B16 | 9 | 9 | 18 |
| Mixed objective/subjective test | A10 A14 A15 A17 A19 A21 A30 A35 A37 B1 B2 B3 B4 B5 B6 B9 B11 B14 B15 B16 B22 C6 C9 C10 | 4 | 0 | 4 |
| Personalized attention | | 14 | 0 | 14 |

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

| Methodologies | |
|---------------------------------|--|
| Methodologies | Description |
| Introductory activities | The first class of the subject will be devoted to presenting the subject: objectives, methodologies and standards. An attempt will be made to find out the motivations and training bases of the students with the subject. |
| Guest lecture / keynote speech | Oral presentation of the topics that make up the subject, also seeking the active participation of all students. Some content can be developed in English. As a support it can be used. ppt, technical software (CAD, Maxsurf, etc) and videos. Role Playing techniques can be interleaved to simulate real actions during the maneuvers (stand, bow, stern, etc.). A minimum attendance of 80% will be necessary to qualify the continuous evaluation. Lack of punctuality may be a reason for not being accepted in the classroom. |
| Case study | Analysis of maritime accidents related to the topic. |
| Supervised projects | An example of Supervised Project can be the elaboration of a practical case of a Voyage Plan, taking into account topics related to that matter. |
| Practical test: | Calculations to take into account in a Voyage Plan (squat, wheel-over point, etc). Numerical calculations of other subject contents. Simulation of real situations related to matter. |
| Mixed objective/subjective test | To have the right to continuous evaluation, at least 80% of class attendance will be justified. The final exam of the subject in the opportunities of January and July will generally consist of a series of conceptual questions, others about theoretical maneuvers and some problem (squat, etc). |

| Personalized attention | |
|------------------------|-------------|
| Methodologies | Description |
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| Introductory activities | Face-to-face. |
| Guest lecture / keynote speech | Mentoring during tutoring hours. |
| Case study | E-mail. |
| Practical test: | The teacher agrees to answer all the questions as soon as possible. |
| | As for the "Student with recognition of part-time dedication and academic waiver of attendance exemption" the teacher will make available the bibliography of the subject and the possibility of online tutoring. |
| | Teacher and student will coordinate this assistance. |

| Assessment | | | |
|---------------------------------|--|---|---------------|
| Methodologies | Competencies / Results | Description | Qualification |
| Mixed objective/subjective test | A10 A14 A15 A17 A19 A21 A30 A35 A37 B1 B2 B3 B4 B5 B6 B9 B11 B14 B15 B16 B22 C6 C9 C10 | To have the right to continuous evaluation, at least 80% of class attendance will be justified. The final exam of the subject in the opportunities of January and July will generally consist of a series of conceptual questions, others about theoretical maneuvers and some problem (squat, etc.). Ignorance of some basic concepts can be eliminatory. During the course they will be quoting what they are. | 60 |
| Supervised projects | A10 A14 A15 A17 A21 A30 A35 A37 B1 B2 B3 B4 B5 B6 B11 B14 B15 B16 | In relation to supervised works, the following will be valued: - The methodological adaptation with the requirements of the work. - The accuracy of the calculations used. - The depth of the content. - Mastery of the concepts used. - The correct use of the subject's own terminology. - The use of complementary and current documentary sources. - The presentation and clarity of the exhibition. An example of Supervised Project can be the elaboration of a practical case of a Voyage Plan, taking into account topics related to that matter. | 40 |

| Assessment comments |
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| 2010 STCW: The evaluation criteria contemplated in Table A-II / 1 of the STCW Code, and included in the Quality Assurance System, will be taken into account when designing and carrying out the evaluation. |

| Sources of information | |
|------------------------|--|
| Basic | <ul style="list-style-type: none"> - ROWE, R.W. (2000). The Shiphandler's Guide.. The Nautical Institute, London. - MURDOCH, E., DAND, I. W., CLARKE, C. (2012). A Master?s Guide To Berthing. 2nd ed.. The Standard Club. London. - BAUDU, H. (2018). Ship Handling. 2nd ed. . Dokmar. Vlissingen. - HOOYER, H. H. (1994). Behaviour and Handling of Ships. . Cornell Maritime Press, Maryland. - HENSEN, H. (2003). Tug Use in Port. A practical guide.. The Nautical Institute, London. - SWIFT, A.J. (2004). Bridge Team Management. 2nd ed . The Nautical Institute. London |



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| Complementary | <ul style="list-style-type: none">- INOUE K. (2014). Theory and Practice of Shipping Handling. . ITU Vakfi. Istanbul.- BARRASS, C.B. (2009). Ship Squat and Interaction. . Witherby, Edinburgh.- CLARK, I.C. (2005). Ship Dynamics for Mariners. . The Nautical Institute, London.- CLARK, I.C. (2009). Mooring and Anchoring Vol 1. Principles and Practice. . The Nautical Institute, London.- VERVLOESEM, W. (2009). Mooring and Anchoring Vol 2. Inspection and Maintenance. . The Nautical Institute, London.- GILARDONI, E. O, RETES, M. (2012). Maniobra de buques: teoría y práctica.. Mesa editorial. Buenos Aires- NASH, N. (2018). Shiphandling - Passenger Ships Without Tugs. . Witherby Publishing Group. Livingston |
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Recommendations

Subjects that it is recommended to have taken before

Naval Construction/631G01105

Ship's Energy and auxiliary systems/631G01204

Ship Manoeuvring I/631G01207

Ship's Theory I/631G01208

Navigation and Ship Management/631G01212

Subjects that are recommended to be taken simultaneously

Navigation II/631G01306

Collision Rules, Signals, Bouyage Systems and ISM Code/631G01303

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.