

## Course guide

### 280625 - 280625 - Manoeuvring and Regulations

**Last modified:** 03/07/2023

<b>Unit in charge:</b>	Barcelona School of Nautical Studies	
<b>Teaching unit:</b>	742 - CEN - Department of Nautical Sciences and Engineering.	
<b>Degree:</b>	BACHELOR'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT (Syllabus 2010). (Compulsory subject).	
<b>Academic year:</b> 2023	<b>ECTS Credits:</b> 9.0	<b>Languages:</b> Spanish

#### LECTURER

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<b>Coordinating lecturer:</b>	JORGE MONCUNILL MARIMÓN
<b>Others:</b>	Segon quadrimestre: IMAD EL BALI EL BALI - GNTM1, GNTM2, GNTM3, GNTM5, GNTM6, GNTM7, GNTM8 JORGE MONCUNILL MARIMÓN - GNTM1, GNTM2, GNTM3, GNTM5, GNTM6, GNTM7, GNTM8

#### REQUIREMENTS

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Having passed the subject 280610 Coastal navigation

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

CE5MENTM. Carry out a watch on the bridge (in navigation, anchor and in port.

CE8MENTM. Develop plans and manage maneuver (docking / undocking, anchoring, navigation channels and narrow steps, entrance to dock, etc.) in all ship types.

**Transversal:**

05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.

#### TEACHING METHODOLOGY

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MD2. Participating expositive class

MD5. Learning based on problems/projects

## LEARNING OBJECTIVES OF THE SUBJECT

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### MANEUVER:

- Knowledge of the equipments used in maneuvers (rudder, propeller, bow and aft thrusters, anchor, ropes, mooring elements, tugs, azipods, waterjets), their design and operation, and the effect that they produce on the vessel.
- Knowledge of the basic concepts and skills to be taken into account in a maneuver (maintain a course, turning circles, rate of turn, stopping distances, control of speed, minimum steering speed, approach to a dock).
- Knowledge of the effect of the following factors on the vessel: wind, current, squat in shallow waters and proximity to another moving vessel.
- Knowledge of the phases of a maneuver, from the approach to the berthed/anchored position, and vice versa, from that position to the start of the sea voyage, including communication with the Pilots Stations and traffic control of the port, embark/disembark of Pilot, and the exchange of information between Master and Pilot.
- Knowledge of the basic concepts of the main kinds of maneuvers of berthing, unberthing, anchoring and taking tugs in port, according to the type of ship (conventional, with maneuvering thrusters, with two propellers and/or with azipots/waterjets) and the meteorological conditions.
- Knowledge of the basic concepts of man overboard maneuvers, ship to ship and towing at high seas.

### REGULATIONS:

- Thorough knowledge of the International Regulations for Preventing Collisions at Sea, 1972, as amended (Rules of the Road or COLREGS).
- Comprehension of the situations that involve a risk of collision; knowledge of the effective and ineffective maneuvers to avoid the risk, and awareness of the importance of the look-out and early identification of risks, in order to make decisions in sufficient time to avoid situations of excessive approximation, in which, all maneuvers to avoid the collision are ineffective.
- Capacitation to analyze and interpret COLREGS in any situation, as well as to analyze cases of collision, detecting the breaches of the Regulations that have been made.
- A thorough knowledge of the IALA maritime beacon system.
- Use of the International Code of Signals, and knowledge of their flags.
- Knowledge of the letters and numbers of Morse code, in order to transcribe short messages from Morse to clear and vice versa, in writing and by light signals.

This subject provides the knowledge, understanding and proficiency of the following competences required and defined in the Seafarers' Training, Certification and Watchkeeping (STCW) Code, as amended, Part A, Table A-II/1 (Specification of minimum standard of competence for officers in charge of a navigational watch on ships of 500 GT or more):

-Competence: MAINTAIN A SAFE NAVIGATIONAL WATCH (partial competence):

-knowledge, understanding and proficiency of the above competence: Watchkeeping:

1. Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended.

2. Thorough knowledge of the Principles to be observed in keeping a navigational watch.

-Competence: TRANSMIT AND RECEIVE INFORMATION BY VISUAL SIGNALLING (complete competence):

-knowledge, understanding and proficiency of the above competence: Visual signalling:

1. Ability to use the International Code of Signals.

2. Ability to transmit and receive, by Morse light, distress signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1972, as amended, and Appendix 1 of the International Code of Signals, and visual signalling of single-letter signals as also specified in the International Code of Signals.

-Competence: MANOEUVRE THE SHIP (complete competence):

-knowledge, understanding and proficiency of the above competence: Ship manoeuvring and handling:

Knowledge of:

1. The effects of deadweight, draught, trim, speed and under keel clearance on turning circles and stopping distances.

2. The effects of wind and current on ship handling.

3. Manoeuvres and procedures for the rescue of person overboard.

4. Squat, shallow water and similar effects.

5. Proper procedures for anchoring and mooring.

## STUDY LOAD

Type	Hours	Percentage
Self study	135,0	60.00
Hours small group	10,0	4.44
Hours large group	70,0	31.11
Hours medium group	10,0	4.44

**Total learning time:** 225 h

## CONTENTS

### MANEUVER

#### Description:

- Knowledge of the equipments used in maneuvers (rudder, propeller, bow and aft thrusters, anchor, ropes, mooring elements, tugs, azipods, waterjets), their design and operation, and the effect that they produce on the vessel.
- Knowledge of the basic concepts and skills to be taken into account in a maneuver (maintain a course, turning circles, rate of turn, stopping distances, control of speed, minimum steering speed, approach to a dock).
- Knowledge of the effect of the following factors on the vessel (in order to take them into account in her handling): wind, current, squat in shallow waters and proximity to another moving vessel.
- Knowledge of the phases of a maneuver, from the approach to the berthed/anchored position, and vice versa, from that position to the start of the sea voyage, including communication with the Pilot Stations and Traffic Control of the Port, embark/disembark of Pilot, and the exchange of information between Master and Pilot.
- Knowledge of the main kinds of maneuvers of berthing, unberthing, anchoring and taking tugs in port, according to the type of ship (conventional, with maneuvering thrusters, with two propellers and/or with azipods/waterjets) and the meteorological conditions.
- Knowledge of the basic concepts of man overboard maneuvers, ship to ship and towing at high seas.

#### Specific objectives:

Competence of the STCW Code, Table A-II/1-Manoeuvre the ship (complete competence):

-Ship manoeuvre and handling: Knowledge of:

1. The effects of deadweight, draught, trim, speed and under keel clearance on turning circles and stopping distances.
2. The effects of wind and current on ship handling.
3. Manoeuvres and procedures for the rescue of person overboard.
4. Squat, shallow water and similar effects.
5. Proper procedures for anchoring and mooring.

#### Related activities:

Practices in the simulator.

#### Related competencies :

CE8MENTM. Develop plans and manage maneuver (docking / undocking, anchoring, navigation channels and narrow steps, entrance to dock, etc.) in all ship types.

#### Full-or-part-time: 24h

Theory classes: 24h

## COLREGS

### Description:

- Thorough knowledge of the International Regulations for Preventing Collisions at Sea, 1972, as amended (Rules of the Road or COLREGS).
- Comprehension of the situations that involve a risk of collision; knowledge of the effective and ineffective maneuvers to avoid the risk, and awareness of the importance of the look-out and early identification of risks, in order to make decisions in sufficient time to avoid situations of excessive approximation, in which, all maneuvers to avoid the collision are ineffective.
- Capacitation to analyze and interpret COLREGS in any situation, as well as to analyze cases of collision, detecting the breaches of the Regulations that have been made.

### Specific objectives:

Competence of the STCW Code, Table A-II/1-Maintain a safe navigational watch (partial competence):

-Watchkeeping:

- 1.Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended.
- 2.Thorough knowledge of the principles to be observed in keeping a navigational watch.

### Related activities:

Practices in the simulator (part of the Practices 4, 5 and 6).

### Related competencies :

CE5MENTM. Carry out a watch on the bridge (in navigation, anchor and in port.

**Full-or-part-time:** 29h

Theory classes: 29h

## IALA MARITIME BOUYAGE SYSTEM

### Description:

- A thorough knowledge of the IALA maritime buoyage system

### Related activities:

Practices in the simulator (part of the Practices 4 and 6).

### Related competencies :

CE5MENTM. Carry out a watch on the bridge (in navigation, anchor and in port.

**Full-or-part-time:** 4h

Theory classes: 4h

## INTERNATIONAL CODE OF SIGNALS AND MORSE CODE

### Description:

- Use of the International Code of Signals, and knowledge of their flags.
- Knowledge of the letters and numbers of Morse code, in order to transcribe short messages from Morse to clear and vice versa, in writing and by luminous signals.

### Specific objectives:

Competence of the STCW Code, Table A-II/1-Transmit and receive information by visual signalling (complete competence):

-Visual signalling:

1. Ability to use the International Code of Signals.
2. Ability to transmit and receive, by Morse light, distress signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1972, as amended, and Appendix 1 of the International Code of Signals, and visual signalling of single-letter signals as also specified in the International Code of Signals.

### Related activities:

Practice in receiving light signals in Morse (in class) and transmitting light signals in Morse and visual signals of one flag (in the simulator: part of the Practice 5).

### Related competencies :

CE5MENTM. Carry out a watch on the bridge (in navigation, anchor and in port).

### Full-or-part-time: 3h

Theory classes: 3h

## GRADING SYSTEM

The final note of the subject is:

$\text{Note} = \text{PM} \cdot 10\% + \text{TM} \cdot 40\% + \text{PR} \cdot 25\% + \text{FR} \cdot 12,5\% + \text{CP} \cdot 12,5\%$

Being:

PM: note of the evaluation of the practices of Maneuver in simulator.

TM: note of the exam of Maneuver theory (test and development of questions).

PR: note of the partial exam of Regulations: Rules 3-34 of COLREGS, and Morse/clear transcript and vice versa in writing (test).

FR: note of the final exam of Regulations, part i): rest of COLREGS; beaconing; flags and use of the International Code of Signals, and Morse transmitted by light signals (test).

CP: note of the final exam of Regulations, part ii): practical cases of collision (analysis of real cases of collision).

## EXAMINATION RULES.

It must be ensured that students have attained the minimum knowledge required by the Seafarers, Training, Certification and watchkeeping (STCW) Code, Part A, Table A-II/1, regarding the competences attributed to this subject. Therefore, to pass the subject, the student must have:

- i) completed all practices, and
- ii) passed all four exams (TM, PR, FR, CP).

## BIBLIOGRAPHY

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### Basic:

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- Officer in charge of a navigational watch : IMO model course ; 7.03. Rev. ed. London: International Maritime Organization, 1999. ISBN 9280161059.
- IALA/AISM. Sistema de balizamiento marítimo y otras ayudas a la navegación [on line]. 2a ed. Madrid: Puertos del Estado, 2010 [Consultation: 06/07/2017]. Available on: [http://www.puertos.es/Documents/balizamiento\\_maritimo\\_0.pdf](http://www.puertos.es/Documents/balizamiento_maritimo_0.pdf).
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- Instituto Hidrográfico de la Marina. Reglamento Internacional para prevenir los abordajes en la mar : |b 1972 : |b con las enmiendas aprobadas en las resoluciones A.736(18), A.910(22) y A.1085(28) de la OMI. Cádiz: Instituto Hidrográfico de la Marina, 2016. ISBN 9788490912232.
- Código internacional de señales. 4ª ed. Madrid: Ministerio de Defensa, Secretaría General Técnica, 2009. ISBN 9788497815185.

### Complementary:

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- Marí Sagarra, Ricard. Prevención de los abordajes en la mar: análisis e interpretación del reglamento internacional. Barcelona: Edicions UPC, 1994. ISBN 8483010801.
- Simón Quintan, José de. Reglamento internacional para prevenir los abordajes en la mar. 11ª ed. San Fernando (Cádiz): L'autor, 2008. ISBN 8492096241.
- Swift, A. J. Bridge team management : a practical guide. 2nd ed. London: Nautical Institute, 2004. ISBN 1870077660.
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- Lee, Gilbert W. U.; Parker, Julian. Managing collision avoidance at sea. London: Nautical Institute, 2007. ISBN 1870077814.
- Rowe, R.W. The shiphandler's guide for masters and navigating officers, pilots and tug masters. 2nd ed. London: Nautical Institute, 2000. ISBN 9781870077354.
- Oil Companies International Marine Forum. Mooring equipment guidelines. 3th ed. London: Witherby, 2008. ISBN 9781905331321.
- Gaston, M.J. The tug book. 2nd ed. Somerset: Haynes, 2009. ISBN 9781844255276.
- Admiralty manual of seamanship : BR 67 : a practical guide to the essential seamanship and sea survival skills from the world's leading practitioner. London: Nautical Institute, 2009. ISBN 9781906915018.
- Ritchie, Gary. Offshore support vessels : a practical guide. London: Nautical Institute, 2008. ISBN 9781870077880.
- Costa, Juan B; Costa Fàh, Joan. Tratado de maniobra y tecnología naval. 3a ed corregida y aumentada. Formentera: Estudios náuticos Costa, 2009. ISBN 9788493349295.
- Salinas, Carlos F; Perez, Gonzalo. Los Abordajes en la mar. Barcelona: ICG Marge, 2004. ISBN 8486684250.

## RESOURCES

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### Other resources:

Simulator of navigation and maneuver.