Course guide
280625 - 280625 - Manoeuvring and Regulations

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering.
Degree: BACHELOR'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT (Syllabus 2010). (Compulsory subject).
Academic year: 2022 ECTS Credits: 9.0 Languages: Spanish

LECTURER
Coordinating lecturer: JORGE MONCUNILL MARIMON
Others:
  Segon quadrant:
  IMAD EL BALI EL BALI - Grup: GNTM1, Grup: GNTM2, Grup: GNTM3, Grup: GNTM4, Grup: GNTM5, Grup: GNTM6, Grup: GNTM7, Grup: GNTM8

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES
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
MD2. Participating expositive class
MD5. Learning based on problems/projects
LEARNING OBJECTIVES OF THE SUBJECT

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/dismark 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

<table>
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<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tr>
<td>Hours medium group</td>
<td>10.0</td>
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<tr>
<td>Hours small group</td>
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<td>Hours large group</td>
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<tr>
<td>Self study</td>
<td>135.0</td>
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**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 maneuvre 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. Maneuvers 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:
Note = PM·10% + TM·40% + PR·25% + FR·12,5% + CP·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).
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

Basic:

Complementary:

RESOURCES

Other resources:
Simulator of navigation and maneuver.