Course guides
280649 - 280649 - Marine Pollution Prevention and Sustainability

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering.
Degree: BACHELOR’S DEGREE IN MARINE TECHNOLOGIES (Syllabus 2010). (Compulsory subject).
Academic year: 2021  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER
Coordinating lecturer: SANTIAGO ORDAS JIMENEZ
Others: Primer quadrimestre: SANTIAGO ORDAS JIMENEZ - DT, GTM, MGOIE

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

Transversal:
SCS N1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world’s situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

STCW:
ME.1. A-III/1-4. Function: Controlling the operation of the ship and care for persons on board at the operational level
ME.2. A-III/1-4.1 Ensure compliance with pollution prevention requirements
ME.3. A-III/1-KUP 4.1.1 Prevention of pollution of the marine environment: Knowledge of the precautions to be taken to prevent pollution of the marine environment
ME.4. A-III/1-KUP 4.1.2 Prevention of pollution of the marine environment: Anti-pollution Procedures and all associated equipment
ME.5. A-III/11-KUP 4.1.3 Prevention of pollution of the marine environment: Importance of proactive measures to protect the marine environment
ME.6. A-III/1-4.6 Monitor compliance with legislative requirements
ME.7. A-III/1-KUP 4.6.1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment
ETO.1. A-III/6-CCS 2.5.3 Practical knowledge: Detection of machinery malfunction, location of faults and action to prevent damage
ETO.2. A-III/6-3. Function: Controlling the operation of the ship and care for persons on board at operational level
ETO.3. A-III/6-3.1 Ensure compliance with pollution prevention requirements
ETO.4. A-III/6-CCS 3.1.1 Prevention of pollution of the marine environment: Knowledge of the precautions to be taken to prevent pollution of the marine environment
ETO.5. A-III/6-CCS 3.1.2 Prevention of pollution of the marine environment: Antipollution procedures and all associated equipment

TEACHING METHODOLOGY

- Receive, understand and synthesize knowledge.
- Set up and solve problems.
- Develop critical thinking and reasoning and defend it orally or in writing.
- Perform work and activities individually or in groups.
LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course the student can demonstrate that:

- Learn about environmental technologies applicable to the ship.
- Meet sustainability principles applicable to the ship.
- Has extensive knowledge of marine environmental legislation.
- Master all aspects of the prevention of marine pollution.
- Apply sustainability criteria and ethical codes of the profession in the solution design and technology solutions.
- Identifies the need for legislation, regulations and standards.

On the other hand, one of the objectives of this subject is provide the knowledge, understanding and proficiency of the competencies:

Ensure compliance with the requirements for pollution prevention:
  - Prevention of pollution of the marine environment.
  - Knowledge of precautions will be taken to avoid pollution of the marine environment.
  - Procedures and antipollution equipment.

Monitoring compliance with legal requirements:
  - Basic working knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the marine environment.

Competences required and defined in Section A-III/1 Mandatory minimum requirements for certification of officers in charge of an engineering watch in a manned engine-room or designated duty engineer in a periodically unmanned engine-room (propulsion power of 750 kW or more) of the Seafarers Training, Certification and Watchkeeping (STCW) International Code

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Guided activities</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>15,0</td>
<td>10.00</td>
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</tbody>
</table>

Total learning time: 150 h

CONTENTS

1. Legal aspects of marine pollution

Description:

Specific objectives:
This knowledge is necessary in accordance with STCW Code A-III/1 and it’s developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

15.1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment

Full-or-part-time: 11h
  - Theory classes: 3h
  - Laboratory classes: 1h
  - Guided activities: 1h
  - Self study: 6h
2. Pollution from land-locked activity and navigation

**Description:**
Type of pollutants. Ways of entry. Impact of marine pollution.

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 9h
- Theory classes: 2h
- Laboratory classes: 1h
- Guided activities: 1h
- Self study: 5h

3. Prevention of pollution by oil

**Description:**

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 17h
- Theory classes: 3h
- Laboratory classes: 2h
- Guided activities: 2h
- Self study: 10h
4. Prevention of pollution by noxius liquid substances

**Description:**

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 13h

- Theory classes: 3h
- Laboratory classes: 1h
- Guided activities: 1h
- Self study: 8h

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5. Prevention of pollution by sewage from ships.

**Description:**
Black and grey waters. Permitted discharges. Seawage plants and treatments.

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 12h

- Theory classes: 2h
- Laboratory classes: 1h
- Guided activities: 1h
- Self study: 8h
6. Prevention of pollution by garbage

**Description:**

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 12h
- Theory classes: 2h
- Laboratory classes: 1h
- Guided activities: 1h
- Self study: 8h

7. Prevention of air pollution from ships

**Description:**
Typology of pollutants. Certificates. Permitted Emissions

**Specific objectives:**
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

**Full-or-part-time:** 15h
- Theory classes: 3h
- Laboratory classes: 2h
- Guided activities: 2h
- Self study: 8h
8. Prevention of pollution by ballast waters

Description:

Specific objectives:
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

Full-or-part-time: 9h
Theory classes: 1h
Laboratory classes: 1h
Guided activities: 1h
Self study: 6h

9. Port reception facilities

Description:
Legal aspects in the UE. Spanish regulations. Facilities.

Specific objectives:
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

Full-or-part-time: 7h
Theory classes: 1h
Laboratory classes: 1h
Guided activities: 1h
Self study: 4h
10. Spill response

Description:

Specific objectives:
This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF AN ENGINEERING WATCH (Model course 7.04) (2014 Edition)

10.1 Prevention of pollution of the marine environment
10.2 Knowledge of the precautions to be taken to prevent pollution of the marine environment
10.3 Anti-pollution procedures and all associated equipment
10.4 Importance of proactive measures to protect the marine environment

Full-or-part-time: 13h
Theory classes: 3h
Laboratory classes: 1h
Guided activities: 1h
Self study: 8h

11. Environment Management Systems

Description:

Full-or-part-time: 10h
Theory classes: 2h
Laboratory classes: 1h
Guided activities: 1h
Self study: 6h

12. Environment Technologies and Sustainability

Description:

Full-or-part-time: 23h
Theory classes: 5h
Laboratory classes: 2h
Guided activities: 2h
Self study: 14h
GRADING SYSTEM

The final score is the sum of the following partial grades:

\[ N_{\text{final}} = 0.5 \times N_{\text{pf}} + 0.3 \times N_{\text{act}} + 0.2 \times N_{\text{aca}} \]

- \( N_{\text{final}} \): final grade.
- \( N_{\text{pf}} \): final test score.
- \( N_{\text{act}} \): continuous assessment work.
- \( N_{\text{aca}} \): continuous assessment activities rating.

The assessment will be done in accordance with the provisions of the STCW Convention and Code.

The final test consists of a part with issues related to the learning objectives of the course in terms of knowledge or understanding concepts, and a set of application exercises. Continuous assessment consists of different activities, both individual and group, summative and formative, made during the course (in the classroom and outside of it).

The reassessment of the course will consist of a final exam that will include all the contents of the subject.

EXAMINATION RULES.

- If not any of the ongoing evaluation activities performed, shall be deemed not scored.
- Be deemed not submitted the student / a not present at the final test or have not submitted at least 50% of the work and activities.

BIBLIOGRAPHY

Basic:

Complementary:

**RESOURCES**

**Other resources:**
https://vp.imo.org/Login.aspx

Access to the IMO VEGA database, where you can consult all the updated IMO regulations.

To access, you have to ask for the access codes at the library of the Barcelona School of Nautical Studies.