280621 - Marine Pollution Prevention and Sustainability

Coordinating unit: 280 - FNB - Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering
Academic year: 2019
Degree: BACHELOR'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: SANTIAGO ORDAS JIMENEZ
Others: Primer quadrimestre: SANTIAGO ORDAS JIMENEZ - 1

Opening hours
Timetable: Monday 10:00 - 13:00
Tuesday 10:00 - 13:00

Degree competences to which the subject contributes

Specific:
1. Knowledge of environmental technologies and sustainability in the marine environment.

Transversal:
2. 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.

Teaching methodology
Teaching will be conducted through lectures and presentations with the support of audiovisual material. Once a topic is started, it may raise group activities that motivate the students to participate actively, providing news and documents; previously will be prepared as a group, the topics addressed in the course.

Critical and analytical mind would be an advantage; which must be applied in different case studies and events that occur in class.

Learning objectives of the subject
This course will evaluate the following STCW competences (STCW A-II/1):

- Ensure compliance with pollution-prevention requirements
- Monitor compliance with legislative requirements
- 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.
On the other hand, one of the objectives of this subject is provide the knowledge, understanding and proficiency of the competencies:

- Prevention of pollution of the marine environment and response procedures.
- Knowledge of the precautions taken to avoid contamination of the marine environment.
- Response procedures and all related equipment.

competencies required and defined in Section A-II/2 (Mandatory minimum requirements for certification of masters and chief mates on ships of 500 gross tonnage or more) of the Seafarers Training, Certification and Watchkeeping (STCW) International Code.

**Study load**

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 43h</th>
<th>28.67%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group: 11h</td>
<td>7.33%</td>
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<tr>
<td>Hours small group: 0h</td>
<td>0.00%</td>
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<tr>
<td>Guided activities: 6h</td>
<td>4.00%</td>
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<tr>
<td>Self study: 90h</td>
<td>60.00%</td>
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</tbody>
</table>
# 280621 - Marine Pollution Prevention and Sustainability

<table>
<thead>
<tr>
<th>Content</th>
<th>Learning time: 20h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTRODUCTION TO MARINE POLLUTION. OIL PROPERTIES</strong></td>
<td>Theory classes: 8h</td>
</tr>
<tr>
<td></td>
<td>Self study : 12h</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
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<tr>
<td>Students are introduced to the basic topics of pollution and properties</td>
<td></td>
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<tr>
<td>of oil and pollutant gases.</td>
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</table>

<table>
<thead>
<tr>
<th>Content</th>
<th>Learning time: 12h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEGAL CONTEXT IN PREVENTION POLLUTION FIELD. MARPOL CONVENTION.</strong></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study : 7h 30m</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td>MARPOL convention explained in general terms of its articles.</td>
<td></td>
</tr>
<tr>
<td><strong>Specific objectives:</strong></td>
<td></td>
</tr>
<tr>
<td>This knowledge is necessary in accordance with STCW Code A-III/1 and</td>
<td></td>
</tr>
<tr>
<td>it's developed according to OFFICER IN CHARGE OF A NAVIGATIONAL WATCH</td>
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<tr>
<td>(Model course 7.03) (2014 Edition)</td>
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<tr>
<td>Basic working knowledge of the relevant IMO conventions concerning</td>
<td></td>
</tr>
<tr>
<td>safety of life at sea, security and protection of the marine</td>
<td></td>
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<tr>
<td>environment</td>
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<table>
<thead>
<tr>
<th>Content</th>
<th>Learning time: 25h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANNEX I. PREVENTION OF POLLUTION BY OIL.</strong></td>
<td>Theory classes: 8h</td>
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<tr>
<td></td>
<td>Practical classes:</td>
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<tr>
<td></td>
<td>2h</td>
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<tr>
<td></td>
<td>Self study : 15h</td>
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<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td>Annex I of MARPOL is explained, about the prevention of oil pollution</td>
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</tr>
<tr>
<td><strong>Specific objectives:</strong></td>
<td></td>
</tr>
<tr>
<td>This knowledge is necessary in accordance with STCW Code A-II/1 and</td>
<td></td>
</tr>
<tr>
<td>it's developed according to OFFICER IN CHARGE OF A NAVIGATIONAL WATCH</td>
<td></td>
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<tr>
<td>(Model course 7.03) (2014 Edition)</td>
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</tr>
<tr>
<td>Prevention of pollution of the marine environment</td>
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<tr>
<td>Knowledge of the precautions to be taken to prevent pollution of the</td>
<td></td>
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<tr>
<td>marine environment</td>
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<tr>
<td>Anti-pollution procedures and all associated equipment</td>
<td></td>
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<tr>
<td>Importance of proactive measures to protect the marine environment</td>
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</tbody>
</table>
# ANNEX II Prevention of pollution by noxious liquid substances

**Description:**
Annex II of MARPOL on the prevention of pollution by toxic substances is explained.

**Specific objectives:**
- Prevention of pollution of the marine environment
- Knowledge of the precautions to be taken to prevent pollution of the marine environment
- Anti-pollution procedures and all associated equipment
- Importance of proactive measures to protect the marine environment

## Learning time:
- Theory classes: 3h 30m
- Practical classes: 1h 30m
- Self study: 7h 30m

# Prevention of pollution by harmful substances in packaged form

**Description:**
Prevention of pollution by harmful substances in packaged form is explained.

**Specific objectives:**
- Prevention of pollution of the marine environment
- Knowledge of the precautions to be taken to prevent pollution of the marine environment
- Anti-pollution procedures and all associated equipment
- Importance of proactive measures to protect the marine environment

## Learning time:
- Theory classes: 3h
- Self study: 4h 30m
# Prevention of pollution by sewage from ships

**Description:**
Prevention of pollution by sewage from ships is explained.

**Specific objectives:**
- Knowledge of the precautions to be taken to prevent pollution of the marine environment
- Anti-pollution procedures and all associated equipment
- Importance of proactive measures to protect the marine environment

**Learning time:** 10h
- Theory classes: 4h
- Self study: 6h

## Prevention of pollution by garbage from ships

**Description:**
Prevention of pollution by garbage from ships is explained. Garbage Management Plans.

**Specific objectives:**
- Knowledge of the precautions to be taken to prevent pollution of the marine environment
- Anti-pollution procedures and all associated equipment
- Importance of proactive measures to protect the marine environment

**Learning time:** 10h
- Theory classes: 4h
- Self study: 6h
### Prevention of air pollution from ships

**Learning time:** 15h  
- Theory classes: 4h  
- Practical classes: 2h  
- Self study: 9h

**Description:**
Prevention of air pollution from ships is explained. Reduction technologies. Fate of air emissions. EEDI, EODI, SEEMP.

**Specific objectives:**
- This knowledge is necessary in accordance with STCW Code A-II/1 and it's developed according to OFFICER IN CHARGE OF A NAVIGATIONAL WATCH (Model course 7.03) (2014 Edition)
- Prevention of pollution of the marine environment  
- Knowledge of the precautions to be taken to prevent pollution of the marine environment  
- Anti-pollution procedures and all associated equipment  
- Importance of proactive measures to protect the marine environment

### OTHER CONVENTIONS INVOLVED IN THE MARINE POLLUTION

**Learning time:** 10h  
- Theory classes: 4h  
- Self study: 6h

**Description:**
Different legal instruments internationally engaged in the fight against marine pollution are detailed.

**Specific objectives:**
- This knowledge is necessary in accordance with STCW Code A-III/1 and it's developed according to OFFICER IN CHARGE OF A NAVIGATIONAL WATCH (Model course 7.03) (2014 Edition)
- Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment
### Spill Response. Contingency Planning and Advice

**Learning time:** 10h  
Theory classes: 3h  
Practical classes: 1h  
Self study: 6h  

**Description:**  
Different systems and elements are described, for pollution control and initiative of ports of refuge within the second legislative package Erika.

**Specific objectives:**  
- Prevention of pollution of the marine environment  
- Knowledge of the precautions to be taken to prevent pollution of the marine environment  
- Anti-pollution procedures and all associated equipment  
- Importance of proactive measures to protect the marine environment

### Ballast Water Management. BWM Convention

**Learning time:** 10h  
Theory classes: 4h  
Self study: 6h  

**Description:**  
BWM Convention is explained. Treatment Technologies.

**Specific objectives:**  
- Prevention of pollution of the marine environment  
- Knowledge of the precautions to be taken to prevent pollution of the marine environment  
- Anti-pollution procedures and all associated equipment  
- Importance of proactive measures to protect the marine environment
The final score is the sum of the following partial grades:

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

- **Npf**: final test score.
- **Nact**: continuous assessment work.
- **Naca**: continuous assessment activities rating.

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.

**Qualification system**

**Ship Recycling. Hong Kong Convention**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 7h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong Convention is explained. Fate of ship recycling.</td>
<td>Theory classes: 3h</td>
</tr>
<tr>
<td>Specific objectives:</td>
<td>Self study: 4h 30m</td>
</tr>
<tr>
<td>This knowledge is necessary in accordance with STCW Code A-II/1 and it's developed according to OFFICER IN CHARGE OF A NAVIGATIONAL WATCH (Model course 7.03) (2014 Edition)</td>
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</tbody>
</table>

**Regulations for carrying out activities**

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:


Civil liability for oil pollution damage. Londres: Organización Marítima Internacional, 1996.