280802 - Engineering for Ship and Ocean Systems

**Coordinating unit:** 280 - FNB - Barcelona School of Nautical Studies

**Teaching unit:**
742 - CEN - Department of Nautical Sciences and Engineering
709 - DEE - Department of Electrical Engineering

**Academic year:** 2020

**Degree:** MASTER'S DEGREE IN NAVAL AND OCEAN ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)

**ECTS credits:** 5

**Teaching languages:** Catalan, Spanish

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**Prior skills**

Specifics:
Capacity in: Systems Engineering and Naval Technology.
Apply multidisciplinary knowledge through study, experience and practice, with critical reasoning, to establish viable solutions to technical problems.

Generals:
Knowledge of the facilities and their environment on board.
Capacity of detailed project according to the applicable regulations

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**Teaching methodology**

Perform information searches, regulations, analyzes, plans, jobs.
Preparation of concrete projects

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**Learning objectives of the subject**

Goals:
Acquire skills in the management, interpretation and execution of engineering projects applied to platforms and ships.
Increase the skills of autonomous learning to maintain and improve the competencies of naval engineering

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**Study load**

<table>
<thead>
<tr>
<th>Total learning time: 45h</th>
<th>Hours large group:</th>
<th>45h</th>
<th>100.00%</th>
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</thead>
<tbody>
<tr>
<td>NAVAL AND OCEAN SYSTEMS ENGINEERING</td>
<td>Learning time: 3h</td>
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<td></td>
<td>Theory classes: 1h</td>
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<td>Guided activities: 1h</td>
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<td>Self study: 1h</td>
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Description:
CONTENTS

Topic 1:
Systems of government and maneuver of platforms and ships
Description:
Propulsion and government equipment.
Combined effect of the propeller and the rudder.
Servomotor.
Maneuvering of ships.
Offshore platforms
Transport and towing of offshore platforms.

Topic 2:
Dynamic positioning and stability systems
Description:
Dynamic positioning
Marine operations.
Vessels with DP and operations with DP
Dynamic positioning system.
Calculation of stability in platforms.

Topic 3:
Anchorage and mooring systems for platforms and ships
Description:
Anchoring equipment
Anchoring system.
Mooring elements

Topic 4:
Auxiliary systems
Description:
Air conditioning and thermal conditioning of spaces.
Types and management of fuels
Use of Liquefied Natural Gas (LNG) in maritime mobility. Concrete examples.

Topic 5:
Cargo management systems (liquid cargo and dry cargo)
Description:
Loading and unloading equipment.

Topic 6:
Essential and emergency systems
Description:
Essential and emergency lighting.
Contribution of LED lighting in maritime mobility. Examples of lighting design.

Topic 7:
Dredging and drilling systems
Description:
Drilling. Their teams.
Drilling units.
Dredging
Types of dredges.

Topic 8:  
Specific systems of naval artifacts  
Description:  
Auxiliary platform systems  
Systems on board passenger ships  
Systems on board combat ships.

Topic 9:  
Other specific systems  
Description:  
Underwater work. Examples  
Hyperbaric chamber

Qualification system

The final grade is the sum of the following partial grades:
\[ N_{\text{final}} = 0.25 \times N_{\text{pf}} + 0.50 \times N_{\text{pt}} + 0.25 \times N_{\text{ec}} \]

\begin{itemize}
  \item \( N_{\text{final}} \): Final qualification  
  \item \( N_{\text{pf}} \): Final test qualification  
  \item \( N_{\text{pt}} \): Job qualification (one)  
  \item \( N_{\text{ec}} \): Qualification of the exercises of the course (continuous evaluation)
\end{itemize}

Regulations for carrying out activities

It is mandatory to attend the evaluation activities and participate in the classes, activities and visits that take place during the course, will determine the continuous assessment note.
Bibliography

Basic:


Complementary:


