280719 - Steam Power Plants and Systems

Coordinating unit: 280 - FNB - Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering
Academic year: 2019
Degree: MASTER'S DEGREE IN THE MANAGEMENT AND OPERATION OF MARINE ENERGY FACILITIES (Syllabus 2016). (Teaching unit Compulsory)
ECTS credits: 5
Teaching languages: Spanish

Coordinator: IGNACIO ECHEVARRIETA SAZATORNIL

Opening hours

Timetable: Published each semester in "http://www.fnb.upc.edu"

Teaching methodology

Mixed: On-line and master class with active participation of students. Themes or presentations proposed to be realised working in group or individually. Short presentations made by the students of prepared themes and further discussion by all the participants. If possible, visits to ships or facilities.

Learning objectives of the subject

Detailed study of steam and condensate systems with its auxiliary elements in order to understand and analyse the most complex marine steam systems.
Detailed study of marine thermal oil installations, its components, operation and management.

This course will evaluate the following STCW competences:
- Manage the operation of propulsion plant machinery
- Plan and schedule operations
- Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery
- Manage fuel, lubrication and ballast operations

Study load

<p>| Total learning time: 45h | Hours large group: | 45h | 100.00% |</p>
<table>
<thead>
<tr>
<th>Content</th>
<th>Learning time:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steam plants.</strong></td>
<td>9h</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td>Detailed study of steam plants.</td>
<td></td>
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<tr>
<td><strong>Steam piping.</strong></td>
<td>9h 20m</td>
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<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Auxiliary elements.</strong></td>
<td>9h 20m</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Marine steam plants.</strong></td>
<td>9h</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
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<tr>
<td>Steam and condensate systems. Detailed study of real current marine steam plants.</td>
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</table>
## Thermal oil plants.

**Learning time:** 2h 20m  
Theory classes: 1h 20m  
Guided activities: 0h 20m  
Self study: 0h 40m

**Description:** Different thermal oils used. Thermal oil heaters. Typical marine thermal oil plants.

**Specific objectives:** Knowledge of marine thermal oil plants and its elements. Study of real current marine thermal oil plants and its management.

## Electrical energy generation by recovering of residual energies.

**Learning time:** 9h  
Theory classes: 5h  
Guided activities: 1h  
Self study: 3h

**Description:** Residual energy recovery in order to supply all the electrical and thermal energy needed by the ship.

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### Qualification system

During the teaching period one or more exams, presentations, reports, in group or alone, may be made with a total value of the 40% of the final qualification and the final exam with the 60% of the total qualification.

### Regulations for carrying out activities

Plagiarism in the works results in its annulment. In written exams applies the UPC normative and there are forbidden all telephonic, electronic or informatic devices out the authorised ones. Fraud in the exams will make its annulment.

### Bibliography

#### Basic:


#### Complementary: