280665 - Ship Power Plant

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

**Teaching unit:** 709 - EE - Department of Electrical Engineering

**Academic year:** 2017

**Degree:** BACHELOR'S DEGREE IN NAVAL SYSTEMS AND TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN MARINE TECHNOLOGIES/BACHELOR'S DEGREE IN NAVAL SYSTEMS AND TECHNOLOGY ENGINEERING (Syllabus 2016). (Teaching unit Compulsory)

**ECTS credits:** 4,5

**Teaching languages:** Catalan, Spanish

### Teaching staff

**Coordinator:** PABLO CASALS TORRENS

### Requirements

Subjet 280641

### Degree competences to which the subject contributes

**Basic:**
- 2. Knowledge of electrical machines and marine electrical systems.

**Transversal:**
- 1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

### Teaching methodology

Real applications analysis.
Application of theoretical knowledge to the laboratory practices.
Attitude and skills development for power plants operation.
Case studies and articles on the subject.
Perform work individually.

### Learning objectives of the subject

- Understanding the basics of electrical machines.
- Understand the schemes and connections of different types of machines and applications.
- Understand the regulatory systems of V, f, P, Q in synchronous generators in island and parallel.
- Having the ability to do calculations and solve problems of electrical machines, using the corresponding equivalent circuits.
- Perform calculations for electrical installations of the ship.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 112h 30m</th>
<th>Hours large group:</th>
<th>30h</th>
<th>26.67%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>10h</td>
<td>8.89%</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>5h</td>
<td>4.44%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>67h 30m</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
# Content

## Synchronous machine

**Degree competences to which the content contributes:**

## Energy balance

**Degree competences to which the content contributes:**

## Asynchronous machine

**Degree competences to which the content contributes:**

## Start systems

**Degree competences to which the content contributes:**

## Static converters

**Degree competences to which the content contributes:**

## Harmonic and transient

**Degree competences to which the content contributes:**

## Protections

**Degree competences to which the content contributes:**

## Industrial automation

**Degree competences to which the content contributes:**
280665 - Ship Power Plant

Qualification system

During the course there will be evaluations, according to the following percentages:
Continuous evaluations 30% (Exams Lab., Practices Lab., Expositions, Tasks)
Partial Exams 40%
Final Exam 30%

Reevaluation: Test that includes the concepts and objectives set for the final test.

Regulations for carrying out activities

Attendance and completion of the hands-on labs, is a compulsory requirement.

Bibliography

Basic:

Complementary:

Others resources:

Computer material
Apunts, Articles tècnics i Models de simulació aportats pels professor en ATENEA.