Degree competences to which the subject contributes

Specific:
1. Knowledge, use and application of automation and control methods applicable to the ship and offshore installations.

Teaching methodology

- Receive, understand and synthesize knowledge
- Consider and solve problems
- Analyze results
- Perform work in a team and individually

Learning objectives of the subject

Introduction to the basic concepts and tools of system analysis. Design of controllers to improve the performance specifications of the systems. Presentation of control systems within the naval field. The student must be able to perform the analysis and modification of the naval machinery systems.

On the other hand, one of the objectives of this subject is provide the knowledge, understanding and proficiency of the following competencies: "OPERATE ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS", "MONITOR THE OPERATION OF ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS" and "OPERATE COMPUTERS AND COMPUTER NETWORKS ON SHIPS". These competencies are 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>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>20h</th>
<th>13.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>20h</td>
<td>13.33%</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>15h</td>
<td>10.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>5h</td>
<td>3.33%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>90h</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
280650 - Automatic Regulation and Control

Content

(ENG) Introducció a l'automatització.

Degree competences to which the content contributes:

(ENG) Modelització dels sistemes.

Degree competences to which the content contributes:

(ENG) Resposta temporal.

Degree competences to which the content contributes:

(ENG) Estabilitat de sistemes.

Degree competences to which the content contributes:

(ENG) Disseny de controladors.

Degree competences to which the content contributes:

(ENG) Resposta freqüencial.

Degree competences to which the content contributes:

(ENG) Estabilitat en el domini freqüencial.

Degree competences to which the content contributes:

Root locus technique

Learning time: 4h
    Theory classes: 4h

Description:
Controller design from the root locus technique
280650 - Automatic Regulation and Control

### Qualification system

The final mark is the partial sum of the following qualifications:

\[ N_{\text{final}} = 0.45 \times N_{\text{pf}} + 0.4 \times N_{\text{ac}} + 0.15 \times N_{\text{el}} \]

- \( N_{\text{final}} \): Final result
- \( N_{\text{pf}} \): Final exam qualification
- \( N_{\text{ac}} \): Continuous evaluation
- \( N_{\text{el}} \): Laboratory qualification

The final exam consists of questions on concepts associated with the learning objectives of the course, and a set of practice exercises. Continuous evaluation is the result of a partial test (with a weight of 20% of the final mark) and activities conducted during the year.

Reexamination: According to the rules of the FNB, a reexamination test consisting of a comprehensive review of the subject will be performed. This test reassessment is aimed to students with a final mark ranging between 3.0 and 4.9.

### Regulations for carrying out activities

- Students who do not submit the final test, or have not done any of the labs, or have not submitted any test of the continuous evaluation will be denoted as "NOT TAKEN".

### Bibliography

**Basic:**


**Complementary:**


**Others resources:**