Degree competences to which the subject contributes

Specific:
1. Capacity for spatial vision and knowledge of mapping techniques, both traditional methods of geometry and metric geometry, as by the ions app computer-aided design.

Teaching methodology

Foster and develop the sense of spatial reasoning, the sense of order when dealing with visual information, and the capacity of graphic communication
Recognize the standard graphical codes used in Technical Drawing and Design and in industry, particularly concerning the representation of pieces and mechanisms.
Be acquainted with the technical representation of vessels and with the cartographic projections used in charts and maps.
Train the aforementioned capacities by means of tools and strategies of drawing and design, including digital CAD software and other computer graphics techniques.
To understand and be able to synthesize the knowledge of these objectives by means of practical exercises performed in continuous evaluation.

Learning objectives of the subject

Students should get a professional level in their three-dimensional vision capabilities, in their analytical spatial knowledge, and in design, using techniques of representation and graphical information, both through conventional means or analog-traditional methods of descriptive geometry and through digital or automated means, devices and software for drawing and CAD.

The expected learning outcomes are:

- Solving graphics problems that arise in the field of engineering and mapping
- Applying knowledge of design problems in engineering
- Developing the capacity for abstraction and creativity in three-dimensional space
- Identifying objectives of representation and design, and being able to develop plans to achieve them
- Using resources and informational services to perform tasks of representation and design

Additionally, the aim of the course is to fully satisfy the requirement 2.2 of the STCW skills, specifically the correct "interpretation of technical drawings and operating machinery graphics"
## Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 24h</th>
<th>16.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>24h</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>8h</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>4h</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>90h</td>
</tr>
<tr>
<td>Course Title</td>
<td>Learning time</td>
<td>Practical classes</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Systems of graphic representation</td>
<td>1h</td>
<td>1h</td>
</tr>
<tr>
<td>Graphic representation of mechanical parts I</td>
<td>1h</td>
<td>1h</td>
</tr>
<tr>
<td>Graphic representation of mechanical parts III</td>
<td>1h</td>
<td>1h</td>
</tr>
<tr>
<td>Vessel plans. Ship design drawings</td>
<td>1h</td>
<td>1h</td>
</tr>
<tr>
<td>Charts and geometrical projections</td>
<td>1h</td>
<td>1h</td>
</tr>
<tr>
<td>Representació de peces i mecanismes II.</td>
<td>1h</td>
<td>1h</td>
</tr>
</tbody>
</table>

**Description:**
- Graphic representation of mechanical parts I: Symbols, standards and regulations. Scale.
- Graphic representation of mechanical parts III: Technical sketching, Measurements, Cuts and Sections.
- Vessel plans. Ship design drawings: Vessel plans. Ship design drawings.
- Charts and geometrical projections: Cartography, chart drawing and geometric projections.
- Representació de peces i mecanismes II: CAD concepts and strategies.
Qualification system

The final grade is obtained by means of the practical work made by the student in class (in continuous evaluation, 40%), plus a midterm exam (10%), plus a final exam (50%).

Bibliography

Basic:


Complementary:

