

## Course guide

### 280646 - 280646 - Naval Construction

Last modified: 08/01/2025

<b>Unit in charge:</b>	Barcelona School of Nautical Studies	
<b>Teaching unit:</b>	742 - CEN - Department of Nautical Sciences and Engineering.	
<b>Degree:</b>	BACHELOR'S DEGREE IN MARINE TECHNOLOGIES (Syllabus 2010). (Compulsory subject). BACHELOR'S DEGREE IN NAVAL SYSTEMS AND TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).	
<b>Academic year:</b> 2024	<b>ECTS Credits:</b> 6.0	<b>Languages:</b> Spanish

#### LECTURER

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<b>Coordinating lecturer:</b>	FRANCISCO JAVIER DE BALLE DE DOU
<b>Others:</b>	Segon quadrimestre: FRANCISCO JAVIER DE BALLE DE DOU - GTM ANTONI IGNACI LLULL MARROIG - DT, GESTN

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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##### Specific:

GTM.CE16. Knowledge of major systems and auxiliary engines of the vessel and cooling facilities and air conditioning.  
GTM.CE15. Knowledge, use and application to ship the principles of shipbuilding.  
GESTN.CE16. Ability to perform the calculation and control of vibration and noise on board ships and artifacts.  
GESTN.CE15. Knowledge of the characteristics of naval propulsion systems.

##### General:

GTM.CG8. IDENTIFY I resolre Capacitat PER L'Ambit problemes IN MARINA DE L'ENGINYERIA.  
Capacitat per the plantejament i resolució of problemes de l'àmbit enginyeria assumint marina iniciatives, prenent decisions i aplicant solucions creatives in the marc d'a systematic methodology.

##### STCW:

ME.1. A-III/1-4. Function: Controlling the operation of the ship and care for persons on board at the operational level  
ME.2. A-III/1-4.2 Maintain seaworthiness of the ship  
ME.3. A-III/1-KUP 4.2.2 Ship construction: General knowledge of the principal estructural members of a ship and the proper names for the various parts

#### TEACHING METHODOLOGY

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- Receive, understand and synthesize knowledge.
- Pose and solve problems.
- Develop reasoning and critical thinking and defend it orally and in writing.
- Carry out group and individual work.

#### LEARNING OBJECTIVES OF THE SUBJECT

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The student who has finished the course will be able to demonstrate that:

- Know, use and apply the principles of shipbuilding.
- Recognizes the ethical, social and environmental implications of the professional activity of marine engineering.
- Identify, model and pose problems from open situations.
- Explore and apply the alternatives for its resolution. Manage approaches, commitments and priorities.

## STUDY LOAD

Type	Hours	Percentage
Hours large group	60,0	40.00
Self study	90,0	60.00

**Total learning time:** 150 h

## CONTENTS

### 1. General Description of the Vessel.

**Description:**

Dimensions. Associated Magnitudes. Parts. Components.

**Full-or-part-time:** 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

### 2. The shipyard

**Description:**

Distribution In Plant. Organization. Facilities.

**Full-or-part-time:** 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

### 3. Pre-assembly and Assembly

**Description:**

Previous, Sub Blocks and Blocks. Constructive Solutions. The Right Sequence. On-board mounting.

**Full-or-part-time:** 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

### 4. Interaction of the Agents Intervening in the Project

**Description:**

The Shipowner. The Shipyard. The Legal Departments. The Shipowner's Inspector. The Classification Society. The Maritime Authorities.

**Full-or-part-time:** 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

## 5. The Classification Societies

### Description:

Genesis. Functions. The IACS. Types of Acknowledgments.

### Full-or-part-time: 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

## 6. Types of Ships

### Description:

Merchants. of war. Fishing boats. Recreation.

### Full-or-part-time: 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

## 7. The Ship as Beam

### Description:

Basic Notions of Strength of Materials. Types of Efforts Supported by the Vessel. Most requested areas.

### Full-or-part-time: 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

## 8. Sailing Boats

### Description:

Diferents Tipus. Nomenclatura de la Arboradura. Nomenclatura de l'Velamen.

### Full-or-part-time: 16h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 10h

## 9. Welding in Shipbuilding

### Description:

Different Materials. Different Processes. Stresses and Strains: Distortions in Welded Joints. The Welding Sequence. Homologation of Welding Procedures and Welders.

### Full-or-part-time: 22h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 16h

## GRADING SYSTEM

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The final grade for the course will be calculated according to the following formula:

$$N_{\text{final}} = 50\% N_{\text{pf}} + 50\% N_{\text{ac}}$$

$N_{\text{final}}$ : final qualification

$N_{\text{pf}}$ : final prova qualification

$N_{\text{ac}}$ : continuous assessment, which includes: practices / problems, directed activities and the evaluation of guided and autonomous learning.

The final test ( $N_{\text{pf}}$ ) consists of a written exam where all the concepts and elements covered in the subject will be evaluated, both at a practical and theoretical level.

The continuous assessment mark ( $N_{\text{ac}}$ ) consists of the sum of individual and autonomous works, in addition to those carried out in groups. It is a necessary condition to pass the course to deliver all the practices, problems, directed activities, assignments and tasks.

$$N_{\text{ac}} = 1/3\% N_{\text{pp}} + 1/3\% N_{\text{ad}} + 1/3\% N_{\text{aga}}$$

$N_{\text{ac}}$ : Continuous evaluation note

$N_{\text{pp}}$ : Note practices and problems

$N_{\text{ad}}$ : Note directed activities

$N_{\text{aga}}$ : Guided and Autonomous Learning Note

## EXAMINATION RULES.

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For the formula application:

$$N_{\text{final}} = 50\% N_{\text{pf}} + 50\% N_{\text{ac}}$$

All work and continuous assessment tests delivered after the deadline or in due form will be considered "Not Submitted" and will not be graded.

## BIBLIOGRAPHY

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### Basic:

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- González de Lema Martínez, Francisco Javier. Tecnología de la construcción del buque. A Coruña: Universidade da Coruña, 2007. ISBN 9788497492737.
- Victoria Meizoso, Jesús Ramón. Principios de ingeniería naval. [s.l.]: Tórculo, 1997. ISBN 8489641390.
- González López, Primitivo B. Técnicas de construcción naval. A Coruña: Servicio de Publicaciones Universida de A Coruña, 2005. ISBN 849749167X.
- Verney, Michael. Guía completa del mantenimiento y conservación de barcos. Madrid: Tutor, 2008. ISBN 9788479022914.
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- Rules and regulations for the classification of ships. London: Lloyd's Register of Shipping, 2006.
- Reglamento para la construcción y la clasificación de buques de acero. Paris: Bureau Veritas, 1982.