

Course guide

280596 - 280596 - Introduction to Naval Design

Last modified: 07/10/2024

Unit in charge: Barcelona School of Nautical Studies

Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering.

Degree: BACHELOR'S DEGREE IN NAVAL SYSTEMS AND TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2024

ECTS Credits: 6.0

Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: BENJAMIN PLEGUEZUELOS CASINO

Others:

Segon quadrimestre:

BENJAMIN PLEGUEZUELOS CASINO - Grup: GESTN

MARTÍ GIRÓ CORCOLL - Grup: GESTN

TEACHING METHODOLOGY

The methodology used in this subject will be that of constant discussion with the student in class, fostering a series of debates (appropriately directed), thus encouraging public comment and participation.

LEARNING OBJECTIVES OF THE SUBJECT

INTRODUCTION TO NAVAL DESIGN.

The subject is initially proposed, as its name indicates, to begin to acquire the conditions and tools that the future Naval Engineer must have to be able to face the different types of projects that may arise.

The blocks to be carried out will be the following, putting different emphasis on each one:

- I BLOCK. Sketches and learning "freehand" drawing.

Basically, the drawing will be influenced from a slipway in different positions and different boats, so that the generation of the shapes that define the final result of the boat can be understood. This block aims to increase the ability to observe, compare, note, measure, draw, manipulate and intuit the way in which it has been built. Promoting curiosity is essential in this block.

- II BLOCK (drawing with AutoCAD).

In this block, the student will learn to draw in two dimensions. Different tests of interior, exterior or, first forms of the general appearance, distributions can come out of this software in a very productive and agile way.

- III BLOCK (drawing with Rhino 3D).

This tool will help us draw the shapes we have thought of in three dimensions, learning what it means to incorporate the section as a work tool in space.

In addition, the constant use of the tools that Rhino 3D has to create dynamic sections will help us get into all the corners of the boat and thus be able to check to reach the most hidden places on the boat, which we did not know about.

- IV BLOCK (drawing with Solid Works).

With this block we can introduce movement. The ship, due to its conditions, has many moving parts (that is, they have more than one position). With this tool we can investigate the possibility and suitability of the different movements, both interior and exterior, with which we want to equip the boat.

At no time does the subject have to be understood as a short course on each of the software mentioned; It must be thought of as a method to carry out the design process with the correct tools, using each one for what it is useful and, globally, it serves us to end up generating "the whole" that is, the boat. It is a very common mistake to let the software (given its fast, but false credibility) dictate the final format, leaving little to the imagination of the engineer who is designing.

The subject has a face-to-face workshop format, allowing practically all work to be carried out in class, with theoretical sessions on the topics that will be discussed.

This workshop is structured in 4 blocks, of similar duration (approximately 3-4 weeks each). This structure will allow the student a set of brief exercises, gradually aimed at understanding the practice involved in the boat design process, as well as learning to reason the "why" of what is observed or thought.

The work will be done individually, doing the exercises in class based on the criteria that will be stipulated and specified in class, in order to complete them.

Subsequently, the last session after each of the four blocks will be used to perform an analogous exercise, taking as an example the knowledge acquired, which will be discussed in class by each student, individually, where the comments made will also be valued. by his companions

Each session will have a specific objective within the overall process being pursued. After each class, guidelines for possible improvement will be given to do outside of class hours. The monitoring of these projects will be carried out through the work done in class, taking into account the adequacy of the comments made.

With these blocks it is intended to gradually incorporate the experience of the previous ones. In this way, this ordered sequence that focuses on interdisciplinary learning, as is the profession of which it is a part. That is, it is not to influence the teaching of the use of these tools (guidelines will also be given to function with ease) but rather the process of incorporating the necessary complexity, knowledge, skills and abilities.

STUDY LOAD

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

Total learning time: 150 h



CONTENTS

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Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

GRADING SYSTEM

During the course, successive assignments will be carried out in class and a series of workshops will be proposed, with specific deliveries (intermediate) that will be graded.

EXAMINATION RULES.

EVALUATION SYSTEM

The final grade for the subject will be obtained from the grades of the module deliveries as continuous evaluation practices (60%) and the grade of the dossier delivery as a final exam (40%).

MODULE 01 DELIVERY_ RAISED HAND 15%

DELIVERY MODULE 02_ AUTOCAD 15%

DELIVERY MODULE 01_ RHINOCEROS 15%

DELIVERY MODULE 01_ SOLIDWORKS 15%

DOSSIER COMPILATION OF THE FOUR MODULES 10%

(A3 format with mandatory spiral binding)

DELIVERY OF COMPILATION IN DOSSIER WITH IMPROVEMENTS PER MODULE 30%

(A3 format with mandatory spiral binding)

SHOW OF HAND IMPROVEMENTS 7.5%

AUTOCAD IMPROVEMENTS 7.5%

RHINOCEROS IMPROVEMENTS 7.5%

SOLIDWORKS IMPROVEMENTS 7.5%



RESOURCES

Audiovisual material:

- Nom recurs. Resource