

Course guide

280809 - 280809 - Architectural Design of Yachts

Last modified: 27/05/2025

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering.

Degree: MASTER'S DEGREE IN NAVAL AND OCEAN ENGINEERING (Syllabus 2017). (Optional subject).

Academic year: 2025 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: BENJAMIN PLEGUEZUELOS CASINO

Segon quadrimestre:
BENJAMIN PLEGUEZUELOS CASINO - Grup: MUENO

Others: Segon quadrimestre:
BENJAMIN PLEGUEZUELOS CASINO - Grup: MUENO

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

ENO_CEE1-1. Knowledge of the existing regulations that regulate the project of pleasure and competition boats (specific competence of the specialty in Design of Yachts and Recreational Boats)

ENO_CEE1-2. Ability to design pleasure and competition boats (specific competence of the specialty in Yacht and Recreational Boat Design)

ENO_CEE1-5. Knowledge of the methods of architectural design of pleasure and competition boats (specific competence of the specialty in Design of Yachts and Pleasure Boats)

Transversal:

CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Know and understand the complexity of economic and social phenomena typical of the welfare society, being able to relate welfare to globalization and sustainability; acquire skills to use in a balanced manner compatible technology, technology, economics and sustainability.

CT3. TEAMWORK: Ability to work as a member of an interdisciplinary team, either as a member or performing management tasks, with the aim of contributing to projects pragmatically and sense of responsibility, assuming commitments considering the resources available.

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Manage the acquisition, structuring, analysis and visualization of data and information in the field of specialty, and critically evaluate the results of this management.

CT5. THIRD LANGUAGE Learning a third language, preferably English, with adequate oral and written and in line with the future needs of the graduates.

Basic:

CB6. Possess knowledge and understanding that provide a basis or opportunity be original in the development and / or application of ideas, often in a research context.

CB7. That the students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their study area.

CB8. Students should be able to integrate knowledge and handle the complexity of making judgments based on information that, being incomplete or limited, includes reflections on the responsibilities social and ethical linked to the application of their knowledge and judgments.

CB9. That students can communicate their conclusions and the knowledge and Latest rationale underpinning to specialists and non Specialty clearly and unambiguously.

CB10. Students must possess the learning skills that enable them continue studying in a way that will be largely self-directed or autonomous.

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

The subject will be presented as an introduction to the design methodology of the boat, developing throughout the course of it the following concepts:

- Both description and characteristics of the object design and its environment.
- The boat's shape and exterior appearance. Compositional analysis of the ship's different shapes.
- Measures and dimensions of human activities. Mobility as a design strategy. Minimum Spaces.
- Typological models of space distributions. Living conditions. Define building capacity in order to develop functional programs.
- Representation systems of the space, together with the boat's shapes. Computer tools. Fostering the capacity for project design, practice and development.
- Light as a tool in space definition. Treatment and handling thereof. Sky light, side light and hatches. Ability to resolve passive environmental conditions, including insulation and natural lighting.
- Process and development of design work. Exploration on new models and ways on how to inhabit the space in the boat, both exterior and interior?.
- The furniture on the boat. Versatility. Constructive details.
- Explain and make the idea of ??the project profitable. Project Description.
- Final delivery: will consist on the preparation of a DIN A3 dossier or file report, bound with all drawings elaborated and the project memories realised during the course of the year (the mentioned file will be returned to the student for its records during the following year).

In the short term, it would try to acquire the right tools to be able to work the space. Beginning with its conceptual design, going through the entire process of development, up to the final shape definition.

Preparation and development of the suitable and adequate plans for the accurate graphic explanation of the ship's project.

Acquire knowledge of the necessary computer tools for the study, analysis and representation of the projected spaces. Classwork.

Open debates during the Classes regarding mentioned projects, through the reasoning of their realization, by the whole work group. Classwork.

The Evaluation System will be carried out continuously, on daily work, and the periodic qualification of all the work carried out during the course.

STUDY LOAD

Type	Hours	Percentage
Hours large group	45,0	36.00
Self study	80,0	64.00

Total learning time: 125 h

CONTENTS

Unit 1: Description and characteristics of the design object and its environment.

Description:

Detailed description and identification (in the total environment) of the visible elements of a ship. Conceptual analysis of the reason for its shape.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 2: The shape and external appearance of the boat. Compositional analysis of different forms of ships. Influence of the interior on the exterior appearance and vice-versa.

Description:

The appearance of the boat as a result of a series of conditions both interior and exterior (Interaction of the interior space in the final result of the exterior of the boat). Different shapes and forms of unique ships throughout history will be listed and analyzed. The appearance of the presence of the structure and modulation.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 3: Measurement and dimensioning of human activities. Mobility as a project strategy. Minimum spaces.

Description:

The measure in the human environment.

What space do our activities need?

The movement and its dimensioning.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 4: Typological models of space distributions. Habitability conditions. Capacity building to develop functional programs.

Description:

The study of different types of boats is the result of a series of conditioning factors both in interior distributions and in the possible appearance of the exteriors.

How to undertake a program, what modifications are admissible?

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 5: Systems of representation of space and shapes of the boat. Computer tools. Fostering the capacity for the conception, practice and development of projects.

Description:

Drawing as a project tool.

Types of drawings. Decision of the type of drawing as a help tool.

Computer tools applicable to each drawing process. AutoCAD 3D, Rhino 3D and Catia.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 6: Light as a tool in the definition of spaces.

Description:

Light as a way of understanding and seeing space.

Project with light.

Light, shadow, gloom...

Treatment and manipulation of it. Louvers, portholes, hatches.

Ability to solve passive environmental conditioning, isolation.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 7: Process and development of design work.

Description:

Exploration of new apparent shapes on the ship (supported logically and conceptually) and their consequences on the final result.

Exploration of new models and ways of 'how to inhabit the space on the ship, both exterior and interior

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 8: Approach to furniture on the boat. Versatility. Constructive details.

Description:

General approach to the interior of the boat, adaptation to different uses.

Approach to deliveries between materials, construction details.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 9: Explain and make the project idea profitable. Descriptive Report of the Project.

Description:

How to explain a project. What is the purpose of a Report?

Encourage in the student the oral presentation of their ideas through the argumentation of their ideas, encourage the debate in class, to train the argumentation.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Unit 10: Final delivery

Description:

Final delivery: it will consist of the making of a DIN A3 dossier, bound with all the plans prepared and Memories of the project carried out during the course.

Care in presentation and representation. The preparation of an ordered dossier, responding to the precise summary of what a Work carried out during the course has meant. Presentation types. How to graphically explain an idea, and how to show it.

Full-or-part-time: 12h

Theory classes: 2h

Practical classes: 2h

Guided activities: 2h

Self study : 6h

Practice

Description:

Visit to a shipyard at some point during the course, to check "in situ" commented concepts.

Full-or-part-time: 5h

Practical classes: 5h

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.

The average of the results obtained in these works will represent 50% of the final grade for the course. (Nac)

The final delivery will represent 50% of the final grade. (Npf)

In this way, the final grade is the sum of the following partial grades:

$$N_{\text{final}} = 0.5 N_{\text{pf}} + 0.5 N_{\text{ac}}$$

EXAMINATION RULES.

It is a single piece of work throughout the course and the discussions in class and some exercises, related to the work being done at that time, which will be proposed, are also valued.

BIBLIOGRAPHY

Basic:

- Larsson, Lars; Eliasson, Rolf E; Orych, Michal. Principles of yacht design. 4th ed. Camden: International Maritime/McGraw-Hill Education, 2014. ISBN 9780071826402.
- Dawson, Philip S. Cruise ships : an evolution in design. London: Conway Maritime, [2000]. ISBN 9780851776606.
- Neufert, Ernst. Arte de proyectar en arquitectura : fundamentos, normas, prescripciones sobre recintos, edificios ... : manual para arquitectos, ingenieros, arquitectos técnicos, profesionales y estudiantes.... 15ª ed renovada. Barcelona: Gustavo Gili, 2006. ISBN 9788425220517.
- Presles, Dominique; Paulet, Dominique. Architecture navale : connaissance et pratique. Ed. rev. i augm. Paris: Villette, 2005. ISBN 2915456143.
- Steegman, Enrique ; Acebillo, Josep. Las Medidas en Arquitectura [on line]. 2a ed. rev. y act.. Barcelona: Gustavo Gili, 2008 [Consultation : 14/07/2020]. Available on : <https://web-s-ebshost-com.recursos.biblioteca.upc.edu/ehost/ebookviewer/ebook?sid=86e4785e-d1ae-46ae-ad13-ed6103c1d3aa%40redis&vid=0&format=EB>. ISBN 9788425222375.
- Torres Tur, Elías; Serra Florensa, Rafael. Luz cenital. Barcelona: COAC, 2005. ISBN 849618529X.
- Lorella, Anja (ed.). Yacht interiors. Köln: Daab, [2005]. ISBN 9783937718095.
- Bobrow, Jill ; Jinkins, Dana. Classic yacht interiors. Warren: Concepts Publishing, 1988. ISBN 0393032744.
- Naujok, Michael. Boat interior construction : a bestselling guide to DIY interior boatbuilding. 2nd ed. London: Adlard Coles Nautical, [2018]. ISBN 9780713663570.

RESOURCES

Other resources:

Autodesk [en línia]. 2019. [Consulta: 4 juliol 2019]. Disponible a: <<https://www.autodesk.es>>

Rhinoceros: design, model, present, analyze, realize... [en línia]. Barcelona : Robert McNeel & Associates, 2019. [Consulta: 4 juliol 2019]. Disponible a: <<https://www.rhino3d.com>>

3DS Dassault Systemes. [en línia]. Dassault Systemes, 2002-2019 [Consulta: 4 juliol 2019]. Disponible a: <<https://www.3ds.com>>

/>Catia / Solid Works