Course guide
280826 - 280826 - Design of Spaces in the Boat and Naval Devices

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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: 2024 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: BENJAMIN PLEGUEZUELOS CASINO

Others: Segon quadrimestre:
BENJAMIN PLEGUEZUELOS CASINO - MUENO
MARTÍ GIRÓ CORCOLL

Giró Corcoll, Martí

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
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 of every project 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 a single exercise to the design methodology of the ship or naval artifacts is discussed, developing the following concepts throughout the course:
- Description and main characteristics of the space to study, which will be the object of the design. Influences of the environment.
- From the general shape and exterior appearance of the ship or naval artifacts, to the particular aspect of each space.
- Measures and dimensions. The movement. Minimum and plurifunctional spaces.
- Living and hygienic standard conditions.
- Ship space representation systems and naval artifacts. IT tools Promoting the capacity for the conception, practice and development of projects.
- Light as a tool in the inhabited space definition. Treatment and handling thereof. Sky light, side light and hatches. Ability to solve passive environmental conditioning, including both thermal and acoustic insulation and natural lighting.
- Process and development on new models and ways of: 'how to inhabit and conceive space in the ship and naval artifacts ?.
- The furniture in the boat and naval artifacts. Versatility. Great emphasis on construction details and their optimal process.
- Explain and make the project idea profitable. Descriptive and Constructive Memory of the Project.
- Status of measurements and budget of the project carried out to be able to build it.
- 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 summary, 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 and naval artefacts project's.
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.
Classes or small conferences of people specialized in some specific themes of naval artifacts are planned.
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
Self study	80,0	64.00
Hours large group	45,0	36.00

Total learning time: 125 h

CONTENTS

Topic 1: Description and analysis of the characteristics of the object in general as a way of approaching its particular design.

Description:
How to approach project practice? Elements to value. How to weigh and value the variables of the program? Peripheral vision to be able to get closer bit by bit.

Full-or-part-time: 14h
Theory classes: 4h
Guided activities: 4h
Self study : 6h

Topic 2: The form of the space, boundary conditions and succession of spaces. Constructive details.

Description:
Study of the form of a space through the cross sections. Concept of the boundary of a space, study of the contact between the different materials involved.

Full-or-part-time: 13h
Theory classes: 4h
Guided activities: 4h
Self study : 5h

Topic 3: Measurement of interior and exterior spaces. Constructive details.

Description:
Learn to size. Ergonomics. The canons of measurements. The dimension in detail.

Full-or-part-time: 13h
Theory classes: 4h
Guided activities: 4h
Self study : 5h

Topic 4: Types of spaces, aggregation systems and optimization of functional programs. Comfort conditions. Constructive details.

Description:
Different types of spaces and their way of relating to others: modulation, aggregation, segregation. The program, a differential part of the projects. Relationships between practicality and comfort. The detail in the succession of spaces.

Full-or-part-time: 13h
Theory classes: 4h
Guided activities: 4h
Self study : 5h

title english

Description:
How to draw and represent the ship ?. Computer programs for each state of its representation: AutoCAD (2 dimensions), Rhino 3D (3 dimensions) and Catia / Solid Works (3 dimensions). Rendering programs.

Full-or-part-time: 14h
Theory classes: 5h
Guided activities: 4h
Self study : 5h

Topic 6: Light as a tool in the definition and incidence of space. Protections and captures of light and sun. Constructive details.

Description:
The importance of light in spatial definition. Sun, light, shadow, gloom and darkness. How to control the light ?. How to control the Sun ?. Construction details of the elements that modify the light.

Full-or-part-time: 11h
Theory classes: 4h
Guided activities: 2h
Self study : 5h

Topic 7: Research on new models and ways of inhabiting space on the ship and naval artifacts. Design process and development.

Description:
I propose new forms of space, based on the revision of the "usual" ones. Different way of life and what spatial needs do they suppose? Spatial needs of the different way of lifes.

Full-or-part-time: 11h
Theory classes: 4h
Guided activities: 2h
Self study : 5h

Unit 8: Furniture on the ship and naval artifacts. Constructive details.

Description:
The furniture on the boat. Multi-tasking ability of the furniture on the ship. Ergonomics and dimensioning. Details and joints between the same material or different materials.

Full-or-part-time: 12h
Theory classes: 4h
Guided activities: 6h
Self study : 2h

Topic 9: Explain and make the project idea profitable. Constructive Report of the Project.

Description:
Learn to explain and defend a project. Descriptive Memory and Constructive Memory. Learn to debate in class with other classmates about the validity of our project.
Status of measurements and budget of the project carried out to be able to build it.

Full-or-part-time: 12h
Theory classes: 6h
Guided activities: 2h
Self study : 4h

Item 10 Final delivery: it will consist on making a DIN A3 dossier, bound with all the plans made and Memories of the project carried out during the course (this dossier will be returned to th

Description:
The final delivery consists of the realization of a DIN A3 dossier, duly bound, showing the route taken during the course. It will contain a Descriptive Report and a Constructive Report at the beginning. All the plans necessary to explain the boat and the area to be worked on (the specific space that is detailed) will also carry out studies of different construction details of the detailed area.

Full-or-part-time: 12h
Theory classes: 6h
Guided activities: 2h
Self study : 4h

GRADING SYSTEM

Throughout 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:
Nfinal = 0.5 Npf + 0.5 Nac

EXAMINATION RULES.

It is a single assignment during the entire course and class discussions are also valuated. There will be some specific exercises, related to the work that is being carried out at that time, which will have value within the note of punctual deliveries.

BIBLIOGRAPHY

Basic:
- Llorella Oriol, Anja. Yacht interiors. First edition. Köln: Daab, [2005]. ISBN 9783937718095.
- Bobrow, Jill; Jinkins, Dana. Classic yacht interiors. 4th printing. Warren: Concepts Publishing, 1988. ISBN 0393032744.
- Neufert, Ernst. Arte de proyectar en arquitectura : fundamentos, normas, prescripciones sobre recintos, edificios ... : manual para arquitectos, ingenieros, arquitectos técnicos, profesionales y estudiantes.... 15a ed. Barcelona: Gustavo Gili, 2006. ISBN 9788425220517.
- Presles, Dominique; Paulet, Dominique. Architecture navale : connaissance et pratique. Ed. rev. i augm. Paris: Villette, 2005. ISBN 2915456143.
- Steegmann, Enrique; Acebillo, Josep. Las Medidas en arquitectura [on line]. 2a ed. Barcelona: Gustavo Gili, 2008 [Consultation: 01/09/2022]. Available on: https://web-s-ebscohost-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.
- Naujok, Michael. Boat interior construction : a bestselling guide to DIY interior boatbuilding. 2nd ed. London: Adlard Coles Nautical, [2018]. ISBN 9780713663570.
- González de Lema Martínez, Francisco Javier. Habilitación del buque. 2a ed. A Coruña: Universidade da Coruña. Servizo de Publicacións, 2007. ISBN 9788497492287.
- Ashby, M.; Johnson, K. Materials and design [on line]. 2nd ed. London: Butterworth-Heinemann, 2010 [Consultation: 01/09/2022]. Available on: https://www-sciencedirect-com.recursos.biblioteca.upc.edu/book/9781856174978/materials-and-design. ISBN 9781856174978.

RESOURCES

Other resources:

Autodesk [in line]. 2019. [Consultation: 22 abril 2020]. Available at:
Rhinoceros: design, model, present, analyze, realize... [en línia]. Barcelona : Robert McNeel & Associates, 2019. [Consultation: 22 abril 2020]. Available at:
3DS Dassault Systemes. [in line]. Dassault Systemes, 2002-2019 [Consultation: 22 abril 2020]. Available at:
Catia / Solid Works
Software to be able to make measurements and budgets.