Course guide
280602 - 280602 - Graphic Expression

Last modified: 27/05/2024

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

Degree: BACHELOR'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT (Syllabus 2010). (Compulsory subject).

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: JOSE MANUEL DE LA PUENTE MARTORELL

Others: Primer quadrimestre:
JOSE MANUEL DE LA PUENTE MARTORELL - GNTM

Segon quadrimestre:
JOSE MANUEL DE LA PUENTE MARTORELL - GNTM

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 concenrning 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 drawind and design, including digital CAD software and other computer graphics techniques
To understand and be able to synthetize 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

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

Total learning time: 150 h

CONTENTS

(ENG) Systems of graphic representation

Description:
Foundations of graphic information. Technical drawing and representation in engineering. Methodology

Full-or-part-time: 1h
Practical classes: 1h

(ENG) Graphic representation of mechanical parts I

Description:
Symbols, standards and regulations. Scale.

Full-or-part-time: 1h
Practical classes: 1h

(ENG) Graphic representation of mechanical parts III

Description:
Technical sketching, Measurements, Cuts and Sections.

Full-or-part-time: 1h
Practical classes: 1h

(ENG) Vessel plans. Ship design drawings

Description:
Vessel plans. Ship design drawings

Full-or-part-time: 1h
Practical classes: 1h

(ENG) Charts and geometrical projections

Description:
Cartography, chart drawing and geometric projections

Full-or-part-time: 1h
Practical classes: 1h

(ENG) Representació de peces i mecanismes II.

Description:
CAD concepts and strategies

Full-or-part-time: 1h
Practical classes: 1h

GRADING SYSTEM

The final grade is obtained by means of the practical work made by the student in class (in continuous avaluation, 40%), plus a middle-term exam (10%), plus a final exam (50%)

BIBLIOGRAPHY

Basic:
- Codina Muñoz, Xavier. Geometría descriptiva para dibujo técnico : sistema diédrico directo, sistema axonométrico y poliedros. Barcelona: Media, 1995. ISBN 8489288003.
- Asociación Española de Normalización y Certificación. Dibujo técnico : normas básicas. 2a ed. Madrid: AENOR, 2001. ISBN 8481432717.
- Chevalier, A. Dibujo industrial. Mexico: Limusa, 1992. ISBN 968183948X.
- Larburu Arrizabalaga, Nicolás. Técnica del dibujo, vol. 1. 5a ed. Madrid: Paraninfo, 1988. ISBN 8428313253.
- Antonio Sánchez Gallego,Juan; Villanueva Bartrina, Lluís. Dibuix tècnic. Barcelona: Edicions UPC, 2000. ISBN 9788483013861.
- Company, Pedro P. [et al.]. Dibujo normalizado. València: Universidad Politécnica de Valencia, 1997. ISBN 8477214689.
- Gomis Martí, José María. Expresión gráfica : sistemas de representación. València: Universidad Politécnica de Valencia, 1994. ISBN 8477211175 (V.1); 8477212473 (V.2).
- Ramos Barbero, Basilio; García Maté, Esteban. Dibujo técnico [on line]. 3a edición. Madrid: AENOR, [2016] [Consultation: 01/09/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=8888. ISBN 9788417891237.

Complementary:
- Giesecke, Frederick. Modern graphics communication. Upper Saddle River, NJ: Prentice Hall, 2010. ISBN 9780135151037.
- Tupper, E. C. Introduction to naval architecture. Jersey: Sname, 1996. ISBN 093977321X.
- Gomis Martí, José María. Curvas y superficies en diseño de ingeniería. València: Universidad Politécnica de Valencia, 1996. ISBN 8477213682.