



# Course guide

## 280673 - 280673 - Quality Management, Safety, Environment and Sustainability

Last modified: 27/02/2024

<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 NAVAL SYSTEMS AND TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).	
<b>Academic year:</b> 2023	<b>ECTS Credits:</b> 4.5	<b>Languages:</b> Spanish

### LECTURER

---

<b>Coordinating lecturer:</b>	SANTIAGO ORDAS JIMENEZ
<b>Others:</b>	Segon quadrimestre: SANTIAGO ORDAS JIMENEZ - GESTN

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

---

#### Specific:

3. Knowledge of systems for quality assessment, and regulatory and safety-related resources and environmental protection.

#### Transversal:

1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

2. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

CT6. GENDER PERSPECTIVE: An awareness and understanding of sexual and gender inequalities in society in relation to the field of the degree, and the incorporation of different needs and preferences due to sex and gender when designing solutions and solving problems.

### TEACHING METHODOLOGY

---

- Receive, understand and synthesize knowledge.
- Set up and solve problems.
- Develop critical thinking and reasoning and defend it orally or in writing.
- Perform work and activities individually or in groups.
- Incorporate the gender perspective.

### LEARNING OBJECTIVES OF THE SUBJECT

---

At the end of the course the student can demonstrate that:

Knows systems quality assessment.

Knows the legal aspects of maritime safety and marine pollution.

Recognizes the ethical, social and environmental implications of the profession of naval engineer.

Study with books and articles in English and can write a report or technical work in English and participate in a workshop conducted in this language.

This course is included in the first UPC Gender and Teaching Project whose main aim is to incorporate the gender perspective in different degree courses.



## STUDY LOAD

Type	Hours	Percentage
Hours large group	25,0	22.22
Guided activities	5,0	4.44
Self study	67,5	60.00
Hours medium group	15,0	13.33

**Total learning time:** 112.5 h

## CONTENTS

### (ENG) Sistemes de qualitat i control de processos.

**Description:**

Technical standardization. Standard ISO 9001:2015. Audits. Certification. Quality management.

**Full-or-part-time:** 12h

Theory classes: 3h

Practical classes: 1h

Self study : 8h

### Safety and Health at shipbuilding sector

**Description:**

Safety and Health at work. Legal aspects. Risk Factors. Damage from work. General risks and prevention (health, safety, ergonomics, psychology applied to work). Specific Risks in the shipbuilding sector. Management risk prevention.

**Full-or-part-time:** 17h

Theory classes: 4h

Practical classes: 2h

Guided activities: 1h

Self study : 10h

### Maritime Safety

**Description:**

National and international maritime administration. Agents of maritime safety. Regulatory framework of maritime safety. Life-Saving Appliances. Fire safety systems. Safety management on board. Maritime security.

**Full-or-part-time:** 17h

Theory classes: 4h

Practical classes: 2h

Guided activities: 1h

Self study : 10h



### Environmental Management Systems.

**Description:**

ISO 14000. EMAS Regulation Standards. Certification and environmental verification process. Environmental management systems.

**Full-or-part-time:** 13h

Theory classes: 3h

Practical classes: 2h

Guided activities: 1h

Self study : 7h

### Prevention of Marine Pollution. Legal aspects.

**Description:**

MARPOL 73/78. Prevention of pollution by oil. Prevention of pollution by noxious liquid substances. Prevention of pollution by harmful substances in packaged form. Prevention of pollution by sewage from ships. Prevention of pollution by garbage from ships. Prevention of air pollution from ships. Prevention of pollution by ballast waters.

**Full-or-part-time:** 15h

Theory classes: 3h

Practical classes: 2h

Guided activities: 1h

Self study : 9h

### Environmental impact assessments

**Description:**

General concepts. Governing Law. Procedure applicable. Methodologies.

**Full-or-part-time:** 10h

Theory classes: 2h

Practical classes: 2h

Self study : 6h

### Environmental technologies and sustainability

**Description:**

Concept of sustainable development. Measuring sustainability. Cooperation and social commitment. Natural energy resources and sustainability. Renewable energy.

**Full-or-part-time:** 18h 30m

Theory classes: 4h

Practical classes: 2h

Guided activities: 1h

Self study : 11h 30m



### Pollution from land-locked activity and navigation.

**Description:**

Type of pollutants. Ways of entry. Impact of marine pollution. Spill response. Contingency Planning.

**Full-or-part-time:** 10h

Theory classes: 2h

Practical classes: 2h

Self study : 6h

## ACTIVITIES

### name english

**Related competencies :**

CT6. GENDER PERSPECTIVE: An awareness and understanding of sexual and gender inequalities in society in relation to the field of the degree, and the incorporation of different needs and preferences due to sex and gender when designing solutions and solving problems.

**Full-or-part-time:** 4h

Guided activities: 4h

## GRADING SYSTEM

The final score is the sum of the following partial grades:

$$N_{pf} N_{final} = 0.5 N_{pf} + 0.3 N_{act} + 0.2 N_{aca}$$

$N_{final}$ : final grade.

$N_{pf}$ : final test score.

$N_{act}$ : continuous assessment work.

$N_{aca}$ : continuous assessment activities rating.

The final test consists of a part with issues related concepts to the learning objectives of the subject in knowledge or understanding, and a set of application exercises. Continuous assessment consists of different activities summative and formative, both individual and group, made during the course (in the classroom and outside of it)

The reassessment of the course will consist of a final exam that will include all the contents of the subject.

## EXAMINATION RULES.

- If not any of the ongoing evaluation activities performed, shall be deemed not scored.
- Be deemed not submitted the student not present at the final test or have not submitted at least 50% of the work and activities.

## BIBLIOGRAPHY

---

### Basic:

- Asociación Española de Normalización y Certificación. UNE-EN ISO 9001:2015 : Sistemas de gestión de la calidad. Requisitos [on line]. Madrid: AENOR, 2008 [Consultation: 02/09/2022]. Available on: [https://portal-aenormas-aenor-com.recursos.biblioteca.upc.edu/aenor/Suscripciones/Personal/pagina\\_per\\_sus.asp#.YxG4d3bP29I](https://portal-aenormas-aenor-com.recursos.biblioteca.upc.edu/aenor/Suscripciones/Personal/pagina_per_sus.asp#.YxG4d3bP29I).
- Organització Internacional Marítima. SOLAS : edición refundida de 2020 : texto refundido del Convenio internacional para la seguridad de la vida humana en el mar, 1974, y su protocolo de 1988 : artículos, anexos y certificados. Londres: IMO, 2020. ISBN 9789280131253.
- Organización Marítima Internacional. Guide to maritime security and the ISPS code. Londres: Organización Marítima Internacional, 2012. ISBN 9789280115444.
- MARPOL 73/78 : Convenio Marpol : artículos, protocolos, anexos e interpretaciones unificadas del Convenio internacional para prevenir la contaminación por los buques, 1973, modificado por el Protocolo de 1978 y 1997. Ed. refundida. Londres: Organización Marítima Internacional, 2011. ISBN 9789280131031.
- Cortés Díaz, José María. Técnicas de prevención de riesgos laborales : seguridad e higiene en el trabajo. 10a ed. Madrid: Tébar, 2012. ISBN 9788473604796.
- UNE-EN ISO 14001:2015 : Sistemas de gestión ambiental : requisitos con orientación para su uso [on line]. Madrid: Aenor, 2015 [Consultation: 02/09/2022]. Available on: [https://portal-aenormas-aenor-com.recursos.biblioteca.upc.edu/aenor/Suscripciones/Personal/pagina\\_per\\_sus.asp#.YxG4d3bP29I](https://portal-aenormas-aenor-com.recursos.biblioteca.upc.edu/aenor/Suscripciones/Personal/pagina_per_sus.asp#.YxG4d3bP29I).
- Miller, G. Tyler. Introducción a la ciencia ambiental : desarrollo sostenible de la tierra. Madrid: International Thomson, 2002. ISBN 8497320530.
- Torres, Antonio L.; Capdevila i Peña, Ivan. Medi ambient i tecnologia: guia ambiental de la UPC [on line]. Barcelona: Edicions UPC, 1998 Available on: <http://hdl.handle.net/2099.3/36198>. ISBN 8483012782.
- Masters, Gilbert M.; Ela, Wendell P. Introducción a la ingeniería medioambiental [on line]. 3a ed. Madrid: Prentice-Hall, 2008 [Consultation: 01/09/2022]. Available on: [https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB\\_BooksVis?cod\\_primaria=1000187&codigo\\_libro=3884](https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=3884). ISBN 9788483224441.
- Xercavins, Josep et al. Desarrollo sostenible [on line]. Barcelona: Edicions UPC, 2005 Available on: <http://hdl.handle.net/2099.3/36752>. ISBN 8483018055.
- Anwar, Nadeem; Churcher, Linda. Ballast water management. 14th edition. Scotland, UK: Witherbys, 2023. ISBN 9781914993640.

### Complementary:

- Manual on oil pollution : Section II: Contingency Planning. 3th ed. London: International Maritime Organization, 1995. ISBN 9789280113303.
- Contingency planning for oil spills : TIP 16 [on line]. London: ITOPF, 2011 [Consultation: 30/05/2022]. Available on: [https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS\\_TAPS\\_new/TIP\\_16\\_Contingency\\_Planning\\_for\\_Marine\\_Oil\\_Spills.pdf](https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS_TAPS_new/TIP_16_Contingency_Planning_for_Marine_Oil_Spills.pdf).
- Abecassis, David W.; Jarashow, Richard L. Oil pollution from ships : international, United Kingdom and United States Law and Practice. 2a ed. London: Stevens & Sons, 1985. ISBN 042047000X.
- Manual sobre contaminación química, vol.1. Londres: Organización Marítima Internacional, 1997-2000. ISBN 9280135295.
- Organización Marítima Internacional. Directrices para la implantación del anexo V del Marpol. 3a ed. Londres: Organización Marítima Internacional, 2012. ISBN 9789280130942.
- Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens. Londres: Organización Marítima Internacional, 1998. ISBN 9280114549.
- Ayres, R. U.; Ayres, L. W.. Industrial ecology : towards closing the materials cycle. Cheltenham: Edward Elgar, 1996. ISBN 1858983975.
- Sadgrove, Kit. La ecología aplicada a la empresa. Madrid: Deusto, 1993. ISBN 8423412164.
- Handbook of industrial ecology, A. Northampton, MA: Ewards Elgar, 2001. ISBN 1840645067.
- Análisis del ciclo de vida: aspectos metodológicos y casos prácticos. Valencia: Universidad Politécnica de Valencia, 2005. ISBN 8497058526.