Course guide
280697 - 280697 - Inspection, Maintenance and Repair of Marine Systems

Last modified: 27/05/2025

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

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

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: ADRIÀ CORTÉS I DEL PINO

Others: Segon quadrimestre:
ADRIÀ CORTÉS I DEL PINO - DT, GESTN, GTM

PRIOR SKILLS

It is advisable to have passed the subjects on internal combustion engines, steam generators, steam turbines, mheat exchangers because this subjects reads on survei, repair and maintenance of these installations.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Knowledge of marine diesel engines, gas turbines and steam plants.

TEACHING METHODOLOGY

Class work using graphic material from marine engines and equipments builders. Personal work with the material in ATENEA.

LEARNING OBJECTIVES OF THE SUBJECT

Achievement of knowledge and skills for diagnosos of failure causes. Knowledge of the repair methods of marine equipments. Failure detection methods.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

Breakdown and failure diagnosis in plain and roller bearings.

Description:
Breakdown and failure diagnosis in plain and roller bearings.

Full-or-part-time: 10h
Theory classes: 10h

Internal combustion engines survey

Description:
Internal combustion engines survey

Full-or-part-time: 10h
Theory classes: 10h

Breakdown and failure diagnosis in steam generators.

Description:
Breakdown and failure diagnosis in steam generators.

Full-or-part-time: 10h
Theory classes: 10h

Breakdown and failure diagnosis in heat exchangers

Description:
Breakdown and failure diagnosis in heat exchangers

Full-or-part-time: 10h
Theory classes: 10h

Repairs of elements of internal combustion engines.

Description:
Repairs of elements of internal combustion engines.

Full-or-part-time: 10h
Theory classes: 10h

Repair methods of marine engines elements

Description:
Repair methods of marine engines elements

Full-or-part-time: 10h
Theory classes: 10h

Diagnosis by vibration analysis.

Description:
Diagnosis by vibration analysis.

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

GRADING SYSTEM

Final exam with a 70% of the total qualification. Activities like control exams, individual or group work and its presentation with a total value of the 30% of the total qualification.
Reevaluation is a single exam with all the content of the subject.

EXAMINATION RULES.

The usual ones in written exams.

BIBLIOGRAPHY

Basic:
- Grum-Schwensen, Ch. Coagency between journal, bearing and their support. Copenhagen: Burmeister & Wain Diesel, 1984.
- Grum-Schwensen, Chr. Coagency between piston rings, piston and cylincer liner. Copenhagen: Burmeister & Wain, 1984.
- Greuter, Erns; Zima, Stefan. Engine failure analysis : Internal combustion engine failures and their causes. Warrendale, PA: Society of Automotive Engineers, 2012. ISBN 9780768008852.
- Port, Robert D.; Herro, Harvey M. The Nalco guide to boiler failure analysis. New York: Mc Graw Hill, Inc., 1991. ISBN 0070458731.
- The Nalco guide to cooling water systems failure analysis. 2a ed. New York: McGraw-Hill Professional, 2015. ISBN 9780071803472.
- Port, Robert D; Herro, Harvey M. Guía Nalco para el análisis de fallas en calderas. México [etc.]: McGraw-Hill, cop. 1997. ISBN 970101345X.

Complementary:
- Norton, Robert L; Rios Sánchez, Miguel Àngel. Diseño de maquinaria : síntesis y análisis de máquinas y mecanismos [on line]. 5a ed. México [etc.]: McGraw-Hill, cop. 2013 [Consultation: 22/06/2023]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=5701. ISBN 9786071509352.