

Course guide

280600 - 280600 - Fundamentals of Mathematics I

Last modified: 27/05/2024

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 749 - MAT - Department of Mathematics.

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

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: FRANCESC TÍÑENA SALVAÑA - JOAN CARLES LARIO LOYO

Others: Primer quadrimestre:
JOAN CARLES LARIO LOYO - GNTM

Segon quadrimestre:
FRANCESC TÍÑENA SALVAÑA - GNTM

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

3. Ability to solve math problems that may arise in engineering. Ability to apply knowledge about: linear algebra, geometry, differential geometry to, differential and integral calculus, differential equations and partial differential, numerical methods, algorithmic numerical and statistical optimization.

Transversal:

1. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

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) Nombres reals i nombres complexos.

(ENG) Vectors: l'espai vectorial $\mathbb{R}^n$.

(ENG) Matrius, determinants i sistemes d'equacions lineals.

(ENG) Transformacions lineals.

(ENG) Trigonometria plana i esfèrica.

(ENG) Probabilitat.

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Larson, R. Introducción al álgebra lineal. México: Limusa, 1994. ISBN 9681848861.
- Vila, A.. Elementos de trigonometria esférica. 2a ed. Barcelona: UPC, 1994. ISBN 8476534205.
- Colomer, M.A. Curs d'estadística. Lleida: Universitat de Lleida, 1997. ISBN 8489727503.
- Van Brummelen, Glen. Heavenly mathematics : the forgotten art of spherical trigonometry. Princeton: Princeton University Press, 2017. ISBN 9780691175997.

Complementary:

- Anton, H. Introducción al álgebra lineal. 3a ed. Mexico: Limusa, 2003. ISBN 9681863173.
- Peña, D. Estadística: modelos y métodos, Vol 1. 2a ed. Madrid: Alianza Universidad, 1986-1991. ISBN 842068109.
- Van Brummelen, Glen. The Doctrine of triangles : a history of modern trigonometry . Princeton: Princeton University Press, 2021. ISBN 9780691179414.
- Todhunter, I. Problems and solutions in plane trigonometry. [s.l.]: CreateSpace Independent Publishing Platform, 2016. ISBN 9781533437433.
- Whittlesey, Marshall A. Spherical geometry and its applications [on line]. 1st ed. Boca Raton, FL: CRC Press, Taylor & Francis Group, [2020] [Consultation : 17/01/2025]. Available on : <https://www-taylorfrancis-com.recursos.biblioteca.upc.edu/books/mono/10.1201/9780429328800/spherical-geometry-applications-marshall-whittlesey>. ISBN 9780429328800.