

## SUBJECT TEACHING GUIDE

### G1049 - Navigation I

#### Degree in Nautical Engineering and Maritime Transport

Academic year 2023-2024

| 1. IDENTIFYING DATA              |   |                  |                    |                  |                    |
|----------------------------------|---|------------------|--------------------|------------------|--------------------|
| Degree                           | Degree in Nautical Engineering and Maritime Transport |                  |                    | Type and Year    | Compulsory. Year 2 |
| Faculty                          | School of Maritime Engineering                        |                  |                    |                  |                    |
| Discipline                       | Subject Area: Navegation                              |                  |                    |                  |                    |
| Course unit title and code       | G1049 - Navigation I                                  |                  |                    |                  |                    |
| Number of ECTS credits allocated | 6   | Term             | Semester based (1) |                  |                    |
| Web                              |   |                  |                    |                  |                    |
| Language of instruction          | Spanish   | English Friendly | No                 | Mode of delivery | Face-to-face       |

|                  |   |  |  |  |  |
|------------------|---|--|--|--|--|
| Department       | DPTO. CIENCIAS Y TECNICAS DE LA NAVEGACION Y DE LA CONSTRUCCION NAVAL |  |  |  |  |
| Name of lecturer | JOSE IVAN MARTINEZ GARCIA   |  |  |  |  |
| E-mail           | ivan.martinez@gestion.unican.es                                       |  |  |  |  |
| Office           | E.T.S. de Náutica. Planta: + 2. DESPACHO PROFESOR (209)               |  |  |  |  |
| Other lecturers  |   |  |  |  |  |

| 3.1 LEARNING OUTCOMES  |
|--|
| - Astronomical navigation: Ability to determine the ship position using the celestial bodies.  |
| - Terrestrial and coastal navigation: Ability to determine the vessel position using terrestrial markings. Ability to determine the vessel position using navigation aids, including lighthouses, beacons and buoys. Ability to determine the vessel position using estimated navigation, taking into account the winds, tides, currents and the estimated speed. Thorough knowledge of nautical charts and publications such as courses, tide tables, warnings to navigators, navigational warnings and information on the organization of maritime traffic, and the ability to use it all. |
| - Magnetic and gyroscopic compasses: Knowledge of the principles of magnetic compass and gyrocompass. Ability to determine errors of the magnetic and gyroscopic compasses using astronomical and terrestrial means, and to compensate for such errors.  |

#### 4. OBJECTIVES

|   |
|---|
| Complete knowledge of coastal navigation.<br>Knowledge of nautical charts and publications.<br>Knowledge of magnetic compasses and how to determine their errors.                                   |
| Thorough knowledge of and ability to use nautical charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information |
| Knowledge of the principles of magnetic compass. Ability to determine its errors  |

#### 6. COURSE ORGANIZATION

| CONTENTS |   |
|----------|---|
| 1        | Introduction to navigation. Introduction to the terrestrial magnetism. The magnetic compass.- Hours: types of time used in navigation. The Mercator chart: its use. Navigation at view of the Coast.- Currents and winds.- Position lines used in coastal navigation.- Navigational lights and signals. |
| 2        | Tides.  |
| 3        | Rhumb line. Dead reckoning navigation.  |
| 4        | Navigation with fog: Generalities. Aids to navigation in foggy weather. Precautions Warnings about the sound signals in the navigation with fog.  |

#### 7. ASSESSMENT METHODS AND CRITERIA

| Description  | Type         | Final Eval. | Reassessn | %      |
|--|--------------|-------------|-----------|--------|
| Exam of navigation theory.   | Written exam | No          | Yes       | 33,34  |
| Examination of exercises of rhumb navigation, dead reckoning and tides.  | Written exam | No          | Yes       | 33,33  |
| Coastal navigation exam  | Written exam | No          | Yes       | 33,33  |
| TOTAL  |              |             |           | 100,00 |
| Observations   |              |             |           |        |
| The evaluation criteria of the competition are in line with those of the 2010 STCW Convention.<br>All the exams have minimum grade to be passed and the grade on the theoretical one must be greater than five points.<br>A remote assessment scenario may be presented, which would only be used if the competent health and educational authorities so indicate. |              |             |           |        |
| Observations for part-time students  |              |             |           |        |
| Part-time students will agree with the teacher when to take the partial exams based on their availability.   |              |             |           |        |

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

- Moreu Curbera / Martínez Jiménez: *Astronomía y Navegación*, Tomos I y II Librería San José, Vigo.
- Almanaque Náutico, Armada Española, Servicio de Publicaciones.
- Bowditch: *American Practical Navigator*, Defense Mapping Agency Hydrographic Center, Washington D.C., U.S.
- Anuario de Mareas. Instituto Hidrográfico de la Marina. Armada Española, Servicio de Publicaciones.
- Tablas de Navegación de Martínez Jiménez
- Ibañez Fernández, Itsaso; *Navegación de Estima, Navegación Costera: compendio y cálculos*.
- Fisura Lanza, Ramón; *Ejercicios de Navegación Costera*.
- Vaquero Rico, Jaime; *Ejercicios de Navegación Costera*.
- Bernardos de la Cruz / Correa Ruiz; *Navegación Costera*.