

# Master's degree in Nautical Science and Maritime Transport Management

The **master's degree in Nautical Science and Maritime Transport Management** provides high-level skills in the knowledge areas linked to nautical engineering and maritime transport: the structure and behaviour of ships at sea, maritime transport logistics and environmental management.

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## GENERAL DETAILS

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### Duration and start date

1.5 academic years, 90 ECTS credits. Starting September

### Timetable and delivery

Afternoons. Blended learning

### Fees and grants

Approximate fees for the master's degree, excluding other costs, €2,593 (€3,890 for non-EU residents).

[More information about fees and payment options](#)

[More information about grants and loans](#)

### Language of instruction

Subjects will be taught in Catalan, Spanish and English.

### Location

[Barcelona School of Nautical Studies \(FNB\)](#)

### Official degree

[Recorded in the Ministry of Education's degree register](#)

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## ADMISSION

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### General requirements

[Academic requirements for admission to master's degrees](#)

### Places

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### Pre-enrolment

Pre-enrolment closed (consult the new pre-enrolment periods in the [academic calendar](#)).

[How to pre-enrol](#)

### Enrolment

[How to enrol](#)

### Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

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## PROFESSIONAL OPPORTUNITIES

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### Professional opportunities

Future society will require new and enhanced modes of maritime transport and more effective control systems. To

support these improvements, sector-specific economic and administrative structures will be needed, which must promote the development of advanced technology solutions to ensure optimum loading and efficient control of ports and coastal areas. Nautical engineering is therefore a promising growth area that will require considerable material and human resources in the coming years, internationally, in Europe, and particularly in Spain. Merchant seamen are an integral part of these human resources and require solid basic training and a range of multidisciplinary skills. The master's degree in Nautical Engineering and Maritime Transport Management is designed to provide both the basic academic and technological training and the specialised knowledge that professionals in the sector will need, as well as offering the degree of learning flexibility that today's society demands. Students will receive training as engineers and seafarers, acquiring skills profiles that satisfy the demands of the national and international maritime transport markets.

These needs also reflect the growing importance of maritime transport and trade in an increasingly globalised world. This is an emerging sector with excellent employment prospects, which are expected to improve further in the short-to-medium term. The master's degree in Nautical Engineering and Maritime Transport therefore aims to train competent professionals in these areas, capable of excelling in their efforts to address current and future challenges and of driving the sector forward by establishing new professional profiles, creating new companies and generating employment.

A wide range of career paths is open to graduates. The main areas in which they will find employment are as follows:

### **Nautical engineering**

- Merchant navy (graduates will have the qualifications for the rank of captain)
- Commercial shipping
- Inspection and classification
- Port terminals
- Insurance and maritime assessment

**Transport, freight management and logistics** (although graduates will be specialised in maritime activities, the skills and competencies acquired during the course are also applicable to onshore roles in this sector)

- Consignees and forwarding agents
- Transport companies
- Freight management and logistics
- Financial services
- Business management

### **Administration**

- Maritime administration (public works offices, maritime authorities, maritime inspection offices, etc.)
- Maritime services (surveillance, search and rescue, customs and excise)
- Teaching and research
- Engineering projects
- Environmental protection and management projects
- Resource and maritime routing optimisation projects

## **Competencies**

### **Generic competencies**

Generic competencies are the skills that graduates acquire regardless of the specific course or field of study. The generic competencies established by the UPC are capacity for innovation and entrepreneurship, sustainability and social commitment, knowledge of a foreign language (preferably English), teamwork and proper use of information resources.

### **Specific competences**

On completing this master's degree, the students will

- Have developed the expertise required for navigation planning and management, taking into account factors such as safety, environmental protection, meteorological data and ocean conditions.
- Have the theoretical knowledge to coordinate search-and-rescue operations and salvage operations.
- Have the expertise to design and oversee the correct implementation of security plans and pollution

prevention plans.

- Have acquired the knowledge to perform risk appraisals, damage assessments and accident analyses.
- Have learnt to design and implement security management systems.
- Have learnt the importance of emergency safety strategies and a general culture of on-board safety in emergency situations, including the activation of suitable response mechanisms.
- Have acquired the knowledge required to design maritime security policies for private companies and government agencies.
- Have acquired the expertise to design voyage plans, including course plotting and the accurate use of nautical charts and publications, identifying changes to existing information and informing the relevant authorities.
- Have learnt to perform a bridge watch (during navigation, while mooring and in port).
- Be able to write and use ship and cargo documentation in English.
- Have acquired expertise in environmental management and protection applicable to new marine developments in coastal areas.
- Have learnt to design and implement manoeuvring plans (for berthing, unberthing, mooring, canal and passage navigation, dry docking, etc.) for different types of ships.
- Have acquired the skills to handle and oversee the operation of auxiliary machinery falling within the remit of qualified nautical engineers.
- Be able to apply basic knowledge of marine motors and marine propulsion and carry out general performance and consumption calculations.
- Have learnt to calculate a ship's dynamic responses in different load conditions and different scenarios influenced by external factors and to implement the appropriate measures in each case.
- Have the knowledge to apply the International Maritime Dangerous Goods (IMDG) code in all possible on-board circumstances and to plan and implement calculations for the stowage of specific cargos.
- Have the expertise required to apply the IMDG code on different types of ships.
- Have acquired the knowledge to design contingency plans to ensure safe operation in the event of on-board malfunctions.
- Be capable of leading and managing projects and human teams in maritime activities, including on-board crew and maritime trade teams.
- Be able to organise and administer medical care at the level required for the advanced healthcare training qualification for qualified seamen awarded by the Spanish government.
- Be able to design and oversee the implementation of marketing plans for the maritime industries.
- Have acquired the skills required to work as inspection managers in the maritime administration and in classification societies.
- Have acquired the expertise to submit proposals for competitive public and private projects, knowledge of the main tools for financing and implementing projects, and the awareness to identify ideas that push the boundaries of current knowledge.

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## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

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### UPC school

[Barcelona School of Nautical Studies \(FNB\)](#)

### Academic coordinator

[Marcel·la Castells Sanabra](#)

### Academic calendar

[General academic calendar for bachelor's, master's and doctoral degrees courses](#)

### Academic regulations

[Academic regulations for master's degree courses at the UPC](#)

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## CURRICULUM

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### Subjects

**ECTS  
credits**

**Type**

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### FIRST SEMESTER

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Leadership and Management of Maritime Industries	5	Compulsory
Management of Integrated Systems. Safety, Environment and Quality	5	Compulsory
Management of Maritime Safety and Pollution Prevention	5	Compulsory
Maritime Economy and Shipping Business	5	Compulsory
Project Management	5	Compulsory
Standars for Ship Inspection and Documentation	5	Compulsory
<b>SECOND SEMESTER</b>		
Bridge Procedures	5	Compulsory
Imdg and Stowage	5	Compulsory
Logistics and Management of Maritime and Intermodal Transport	5	Compulsory
Management of Port Terminals	5	Compulsory
Propulsion and Auxiliary Systems	5	Compulsory
Technical Maritime Documentary English	5	Compulsory
<b>THIRD SEMESTER</b>		
Advnced Ship's Manoeuvring	5	Compulsory
Navigation Safety Management and Planning	5	Compulsory
Ship Dynamics	5	Compulsory
Master's Thesis	15	Project