

# MASTER OF SCIENCE IN ENGINEERING: SHIPS AND MARINE TECHNOLOGY

120 ECTS CREDITS - LANGUAGE: ENGLISH

## WHAT

The Master of Science in Engineering: Ships and Marine Technology offers an advanced educational programme focused on all floating systems or systems related to those. The goal is not to become a niche engineer but rather a broadly analytically educated (mechanical) engineer with additional specialised knowledge in ships and marine technology.

Similar programmes worldwide are sometimes described as naval architecture, which strongly suggests the idea of being a designer of ships which is only a part of this programme. The term ocean engineering is also used for everything related to offshore systems, but it does not fully cover the scope either. This master's programme clearly covers ships (both seagoing and inland vessels), but equally important are other floating systems (offshore aquaculture, floating solar panels, floating wind turbines, etc.), hence the inclusion of "and Marine Technology". Topics such as the construction, manoeuvring, and seakeeping behaviour of ships and other floating structures are covered, but so are more general subjects such as construction techniques, composites, Computational fluid dynamics (CFD), mechanical vibrations, engines, and other (turbo) machinery, which are integral parts of the programme.

## STRUCTURE

This two-year master's programme consists of 120 credits (60 per year, 30 per semester) and follows the principles of a so called T-shaped professional. This means that there is both specialisation and broadening of the knowledge.

On the one hand, there is deepening within the expertise (the vertical part of the T), which can be divided into the structure and construction of ships and other marine objects (18 credits). This includes traditional shipbuilding as well as (floating) offshore constructions (such as wind turbines and aquaculture), alongside materials science and construction techniques. The second in-depth part covers floating systems and their behaviour (25 credits). This explores how a floating object or ship behaves in waves, the resistance and propulsion of a ship, the manoeuvring behaviour of an (autonomous) ship, and so on.

The close link between the programme and the (local) industry is further reinforced by technical specialists from the industry who provide guest

lectures within their areas of expertise and niche. This approach also aims to bring greater awareness to Belgium's large (both in terms of turnover and employment) but often invisible marine and maritime industry.

The broadening (or horizontal part of the T) can be found in more general relevant engineering subjects (33 credits) as well as in the opportunity to take 15 credits of elective courses, including at least 6 credits in non-technical subjects or in assessments within courses that focus on presentations, reporting, and successfully executing projects.

Finally, the programme concludes in the traditional manner with a master's thesis (24+6 credits), where all acquired skills (both in-depth and broadening) come together in a self-chosen topic, proposed by the research group, possibly in collaboration with industry, or suggested by the student.

## LABOUR MARKET

Engineers with a Master of science degree are highly sought after in the job market and there is a high demand for such profiles across all major industries. Contrary to what many might expect, the (economic) importance of the maritime and marine sector in Belgium is very significant. For example, the ports alone account for a considerable percentage of the gross domestic product and several Belgian shipping companies are global players in their type of cargo. As a result, graduates can find opportunities with seaports, shipowners, and even with government agencies responsible for ports, ships (Belgium has a relatively large fleet as a flag state) or with specialised engineering companies.

Since the programme builds on a broad foundation and further deepens and broadens it, graduated students obviously find their place in the marine and maritime job market but they are also highly sought after in other sectors.

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## TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

### 1 Rechtstreeks:

- Bachelor in de ingenieurswetenschappen, afstudeerrichting: werktuigkunde
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: werktuigkunde-elekrotechniek
- Bachelor in de ingenieurswetenschappen: werktuigkunde-elekrotechniek

### 2 Rechtstreeks, na check door de inrichtende faculteit van formele toelatingsvereisten:

- Een diploma van een opleiding 'Bachelor of Science in de ingenieurswetenschappen' (met inbegrip van 'architectuur'), alle hoofdrichtingen met nevenrichting werktuigkunde

### 3 Na het met succes voltooien van een voorbereidingsprogramma:

MIN 30 SP - MAX 90 SP

#### a opleidingen nieuwe structuur:

- Bachelor in de bio-ingenieurswetenschappen
- Bachelor in de fysica
- Bachelor in de industriële wetenschappen, afstudeerrichting: elektromechanica
- Bachelor in de industriële wetenschappen: elektromechanica
- Bachelor in de industriële wetenschappen (KMS)
- Bachelor in de nautische wetenschappen
- Bachelor in de wiskunde
- Bachelor of Engineering Technology, afstudeerrichting: Electromechanical Engineering
- Een diploma van een opleiding 'Bachelor of Science in de ingenieurswetenschappen' (met inbegrip van 'architectuur')
- Master in de nautische wetenschappen

#### b opleidingen oude structuur:

- Licentiaat in de natuurkunde
- Licentiaat in de nautische wetenschappen
- Licentiaat in de wiskunde

#### aantal studiepunten te bepalen door de faculteit

- Bachelor in de fysica en de sterrenkunde

### 4 Rechtstreekse toelating voor het volgen van

## een brugprogramma (horizontale instroom):

### a opleidingen nieuwe structuur:

- Master in de industriële wetenschappen: elektromechanica
- Master in de industriële wetenschappen: elekrotechniek
- Master in de industriële wetenschappen: energie
- Master in de industriële wetenschappen: industrieel ontwerpen
- Master in de industriële wetenschappen: machine- en productieautomatisering
- Master of Electromechanical Engineering Technology

### b opleidingen oude structuur:

- Industrieel ingenieur in elektromechanica

## LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements  
English: CEFR level B2

The language requirements for this study programme can be found on: [www.ugent.be/languagerequirements](http://www.ugent.be/languagerequirements)

## PRACTICAL INFORMATION

### Study programme

[studiekiezer.ugent.be/master-of-science-in-engineering-ships-and-marine-technology-en/programma](http://studiekiezer.ugent.be/master-of-science-in-engineering-ships-and-marine-technology-en/programma)

### Information sessions

### Graduation Fair

[afstudeerbeurs.ugent.be/en/students/further-studies](http://afstudeerbeurs.ugent.be/en/students/further-studies)

### Enrolling institution

Information on enrolment at Ghent University.

### Tuition fee

More information is to be found on: [www.ugent.be/tuitionfee](http://www.ugent.be/tuitionfee)

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## Contact

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