GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Ship and Marine Structures (E055070)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0 **Study time 180 h**

Course offerings in academic year 2026-2027

A (semester 2)	English	Gent
B (semester 2)	Dutch	Gent

Lecturers in academic year 2026-2027

Couwenberg, Mark	TW15	lecturer-in-charge
Lataire, Evert	TW15	co-lecturer

Offered in the following programmes in 2026-2027	**crdts**	**offering**
Bridging Programme Master of Science in Engineering: Ships and Marine Technology	6	A
Master of Science in Electromechanical Engineering(main subject Control Engineering and Automation)	6	B
Master of Science in Electromechanical Engineering(main subject Electrical Power Engineering)	6	B
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	6	B
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	6	A
Master of Science in Electromechanical Engineering(main subject Mechanical Construction)	6	B
Master of Science in Electromechanical Engineering(main subject Mechanical Energy Engineering)	6	B
International Master of Science in Advanced Design of Sustainable Ships and Offshore Structures	6	A
Master of Science in Engineering: Ships and Marine Technology	6	B
Master of Science in Engineering: Ships and Marine Technology	6	A

Teaching languages

English, Dutch

Keywords

Ships, offshore structures, shipbuilding, freeboard assessment, tonnage measurement, midship section, scantling

Position of the course

Increasing the basic technical know-how concerning marine structures, required for engineering staff in maritime organisations such as ship owners, harbour services, dredging companies and classification societies.

Contents

- Scantlings according to the rules of the classification societies: structural details for thin-walled structures subject to fatigue loads, longitudinal strength; influence of superstructures on longitudinal strength, midship section design according to the rules of the classification societies
- Shipyard practice: an outline
- Ship equipment: an outline
- Freeboard assessment and tonnage measurement
- A methodology for general design
- Special features of the general and structural design of specialized vessels: Tankers, bulk carriers, container ships, dredgers, tugs, fishing vessels,...

Initial competences

Introduction to marine technology, Mechanics of materials, Mechanics of structures, Turbo machinery, Piston machinery

Final competences

1 Master the terminology in relation to maritime constructions, structure and exploitation.
2 Description and naming of the relevant parts of maritime constructions.
3 To be able to explain the relationship between the load, the response and the strength of maritime constructions.
4 Gaining insights in the different failure mechanisms as a result of the load on a maritime construction.
5 Understand the calculation methodology for the design of basic parts and elements of maritime constructions.
6 To be able to explain the mathematical and scientifical basis in relation to used formulae in the design of a maritime construction.
7 Possess basic knowledge, required for the design, construction, control or exploitation of maritime constructions.
8 Assessment and estimation of the strength of parts and elements of a maritime construction.
9 Apply direct calculation, based on material strength, and the use of class rules for the design of maritime constructions.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, Independent work

Extra information on the teaching methods

Lectures and guided project about the specific topics of the courses content, with the possibility of asking questions.
If possible, the lectures are supplemented with visits to relevant research institutions and companies.

Study material

Type: Syllabus

Name: syllabus of this course
Indicative price: € 30
Optional: no
Language : English
Number of Pages : 300
Oldest Usable Edition : 2024
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No

Type: Laptop

Name: laptop
Indicative price: € 1,000
Optional: no
Available through Student Association : No
Usability and Lifetime within the Course Unit : not applicable

References

- Scheepskennis (K. van Dokkum, Dokmar, Delfzijl 2001)
- Principles of Naval Architecture (SNAME, Jersey City, laatste editie)
- Mansour, A. E., Liu, D., Paulling, J. R., & Society of Naval Architects and Marine Engineers (U.S.). (2008). Strength of ships and ocean structures. Jersey City, N. J: Society of Naval Architects and Marine Engineers.

Course content-related study coaching

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment

Examination methods in case of periodic assessment during the second examination period

Oral assessment

Examination methods in case of permanent assessment

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

During examination period: oral closed-book exam. During semester: graded project reports.

Calculation of the examination mark

Specific conditions: Non periodical evaluation: 33%
If for one of the abovementioned items a mark of less than 5 on 20 is obtained, the student cannot pass for the entire course. The final mark is in that case the minimum of 9/20 and the abovementioned weighted result.