GHENT UNIVERSITY

Course Specifications

From the academic year 2024-2025 up to and including the academic year

Design of Maritime Structures (E054670)

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

Credits 3.0 **Study time 90 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	Dutch	Gent	
B (semester 1)	English	Gent	lecture

Lecturers in academic year 2024-2025

Lataire, Evert	TW15	lecturer-in-charge
Rigo, Philippe	TW15	co-lecturer

Offered in the following programmes in 2024-2025	crdts	offering
Bridging Programme Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	3	B
Master of Science in Electromechanical Engineering(main subject Control Engineering and Automation)	3	A
Master of Science in Electromechanical Engineering(main subject Electrical Power Engineering)	3	A
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	3	A
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	3	B
Master of Science in Electromechanical Engineering(main subject Mechanical Construction)	3	A
Master of Science in Electromechanical Engineering(main subject Mechanical Energy Engineering)	3	A

Teaching languages

English, Dutch

Keywords

Ship structures, offshore structures, structural design, capita selecta

Position of the course

For marine structures with design parameters outside the scope of existing rules, the classification societies demand structural design calculations starting from basic principles of physics. The present course provides an introduction to such advanced design procedures. A selection of specific topics within naval architecture are explained.

Contents

- Phenomena leading to failure of marine structures: corrosion; permanent deformations, fatigue, brittle fracture, buckling of pillars, stiffeners and plates
- Vibrations of primary structure: an outline
- Introduction to reliability analysis
- Still water loads and wave loads: load spectra and long term distributions
- The capability of ships and offshore structures
- Selection of specific naval architecture

Initial competences

General arrangement, structural arrangements and construction of marine structures, Mechanics of materials, Mechanics of structures, Mechanical vibrations.

Final competences

1 Concepts: Reliability of constructions; Safety assessment of systems
2 Insights: Physical insight into the failure mechanisms for large steel structures;

The probabilistic character of loads and capability.
3 Skills: Structural design of maritime structures according to probabilistic methods

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 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: cursus van dit vak
Indicative price: € 20
Optional: no
Language : English
Number of Pages : 300
Oldest Usable Edition : 2023
Available on Ufora : Yes
Online Available : No
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 : regularly
Usability and Lifetime within the Study Programme : regularly
Usability and Lifetime after the Study Programme : regularly

References

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 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

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

During examination period: oral closed-book exam

Calculation of the examination mark