GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2023-2024

Introduction to Maritime Technology (E055045)

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

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2023-2024

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

Lecturers in academic year 2023-2024

Lataire, Evert	TW15	lecturer-in-charge

Offered in the following programmes in 2023-2024	crdts	offering
Bridging Programme Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	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
Master of Science in Industrial Design Engineering Technology	6	A

Teaching languages

English, Dutch

Keywords

Ships, shipping, ship stability, ship propulsion, ship motions, seakeeping, ship manoeuvring

Position of the course

Introduction to the maritime world, providing basic information on characteristics, construction, stability, propulsion and motions of ships. Thorough knowledge concerning hydrostatics and stability of floating structures and ships.

Contents

- Shipping as part of the logistics chain.: The role of shipowners, shipyards and classification societies.
- General description of the ship as a means of transport or as an implement.: Function and short description of some ship types: cargo ships, dredgers, tugs,...
- Ship structures: materials and construction systems.
- Hydrostatics and stability of floating structures: background; influence of free liquid surfaces and of hanging loads, applications (e.g. sheer-legs pontoon); IMO regulation (load line, tonnage, stability).
- Propulsion of ships (introduction): ship resistance; propulsion methods; propulsion machinery.
- Ship maneuvering by means of rudders and thrusters (introduction): fundamentals; standard maneuvers; maneuvering simulation; maneuvering in restricted waters.
- Motions of ships in waves (introduction): linear wave theory; fundamentals;

motions in navigation channels; forces on and motions of moored ships.

Initial competences

Specific elements of the mathematics and physics courses from the bachelor's.

Final competences

1 Mastering hydrostatics and stability of floating structures.
2 Get acquainted with professional terminology concerning external characteristics, structure and primary members of maritime constructions.
3 Analyse the stability of floating structures, including the effects of free fluid surfaces, hanging weights, movable cargo.
4 Assess ship stability with respect to international conventions.
5 Distinguish the most important physical causes of a ship's resistance. Reason out the most important parameters on which a ship's resistance depends. Define and recognise the most usual technologies used for a ship's propulsion.
6 Reason out the manoeuvring behaviour of a ship. Distinguish the most important characterstics of a ship's steering equipment (rudder). Define the main techniques used to determine and evaluate a ship' s manoeuvring behaviour.
7 Get acquinted with the specific hydrodynamic behaviour of a ship in shallow and confined navigation areas.
8 Give an explanation for the dynamic behaviour of a floating structure in waves. Be able to use professional terminology with respect to the behaviour of floating structures in waves.
9 Describe the main players in the shipping world.
10 Analyse specific problems concerning hydrostatics and stability of ships and other floating structures.
11 Execute hydrostatic calculations and stability calculations for a ship by means of specialised software.

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

Seminar, Lecture, Independent work

Extra information on the teaching methods

Lectures, excercises and 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.

Learning materials and price

Syllabus in English, price 30 EUR.

References

- Lewis, E. V., & Society of Naval Architects and Marine Engineers (U.S.). (1988). Principles of naval architecture. Jersey City: Society of Naval Architects and Marine Engineers.
- 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.
- Scheepskennis (K. van Dokkum, Dokmar, Delfzijl 2001)

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, Written assessment open-book

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

Oral assessment, Written assessment open-book

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, written preparation; written open-book exam. During semester: graded project reports.

Calculation of the examination mark

Oral closed-book exam during examination period: 50%
Written open-book exam during examination period: 25%
Project reports during semester: 25%
The student can only pass for the entire course if:

- for each of the above mentioned items a mark of at least 5 on 20 is obtained
- for two of the above mentioned items a mark of at least 10 on 20 is obtained

If the above conditions are not met the final mark is the minimum of 9/20 and the above mentioned weighted result.