

Course size

Course **Specifications**

Valid as from the academic year 2025-2026

Marine Hydrostatics and Stability (E055020)

Course size	(nominal values; actual valu	ies may depend on progr	amme)		
Credits 6.0	Study time 180 h				
Course offerings in a	cademic year 2025-2026				
A (semester 1)	English	Gent			
B (semester 1)	Dutch	Gent			
Lecturers in academ	ic year 2025-2026				
Lataire, Evert TW15			TW15	lecturer-in-charge	
Delefortrie, Guillaume TW15			co-lecturer		
Offered in the following programmes in 2025-2026				crdts	offering
Bridging Programme Master of Science in Electromechanical Engineering(main subject				6	А
Maritime Engin	eering)			<i>.</i>	
Bridging Programme Master of Science in Engineering: Snips and Marine Technology				6	А
Master of Scien	ce in Electromechanical Engineeri	ng(main subject Control	Engineering ar	nd 6	В
Automation) Master of Science in Electromechanical Engineering(main subject Electrical Power				6	В
Engineering)				Ū	U
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)				6	В
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)				6	А
Master of Science in Electromechanical Engineering(main subject Mechanical				6	В
Construction)					
Master of Science in Electromechanical Engineering(main subject Mechanical Energy				6	В
Engineering) International Mactor of Science in Advanced Decign of Suctainable Shine and Offichers				c	٨
	Idstel of science in Auvaliceu Desi	yn of Sustaniante Ships a		D	А
Master of Science in Engineering: Ships and Marine Technology				6	В
Master of Science in Engineering: Ships and Marine Technology				6	А

Teaching languages

English, Dutch

Keywords

Ships, shipping, ship stability in normal and exceptional conditions

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).
- Hydrostatics of floating structures: damage calculations for ships.
- Hydrostatics of floating structures: contact with bottom.

Initial competences

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

Final competences

- 1 Describe the main players in the shipping world.
- 2 Get acquainted with professional terminology concerning external
- characteristics, structure and primary members of maritime constructions.
- 3 Mastering hydrostatics and stability of floating structures.
- 4 Analyse the stability of floating structures, including the effects of free fluid surfaces, hanging weights, movable cargo.
- 5 Assess ship stability with respect to international conventions.
- 6 Analyse specific problems concerning hydrostatics and stability of ships and other floating structures.
- 7 Execute hydrostatic calculations and stability calculations for a ship by means of specialised software.
- 8 Be able to analyse the physical background and the consequences of damage to a ship on hydrostatics and stability. Distinguish the regulatory principles on which the criteria for damaged ships are based.
- 9 Be able to analyse the effects of supporting contact of a floating structure on the bottom (grounding, docking) on hydrostatics and stability.

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.

Study material

Type: Syllabus

Name: syllabus of this course Indicative price: € 20 Optional: no Language : English Number of Pages : 300 Oldest Usable Edition : 2024 Available on Ufora : Yes Online Available : No Available in the Library : No Available through Student Association : No

Type: Slides

Name: slides Indicative price: Free or paid by faculty Optional: no Language : English Number of Slides : 1000 Oldest Usable Edition : 2024 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

- 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.
- 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

Skills test, Participation

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: 30% Project reports during semester: 20%

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.