Course Specifications
From the academic year 2016-2017 up to and including the
Ship Behaviour in Shallow and Confined Water (E055320)

Course size (nominal values; actual values may depend on programme)
Credits 3.0 Study time 90 h Contact hrs 30.0 h

Course offerings and teaching methods in academic year 2018-2019
A (semester 2) English lecture 15.0 h
tw15 excursion 15.0 h

Lecturers in academic year 2018-2019
Delefortrie, Guillaume TW15 lecturer-in-charge
Lataire, Evert TW15 co-lecturer

Offered in the following programmes in 2018-2019

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<tr>
<th>Programme</th>
<th>crdts</th>
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<tbody>
<tr>
<td>Master of Science in Electromechanical Engineering (main subject Control Engineering and Automation)</td>
<td>3</td>
<td>A</td>
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<tr>
<td>Master of Science in Electromechanical Engineering (main subject Electrical Power Engineering)</td>
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<tr>
<td>Master of Science in Electromechanical Engineering (main subject Maritime Engineering)</td>
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<td>Master of Science in Electromechanical Engineering (main subject Mechanical Construction)</td>
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<td>Master of Science in Electromechanical Engineering (main subject Mechanical Energy Engineering)</td>
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<tr>
<td>Master of Science in Civil Engineering</td>
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Teaching languages
English

Keywords
Shipping traffic, ship hydrodynamics, shallow water, confined waters, ports, access channels

Position of the course
Acquire theoretical insight into the behaviour of ships in shallow and confined waters such as access channels, canals and harbours, and introduction to common methods for treating related problems.

Contents
- Introduction: Importance of safety and efficiency of shipping traffic in access channels and harbours
- Effect of water depth and blockage on ship resistance and propulsion
- Vertical motions of ships in channels and canals: Squat, Response to waves
- Steering and manoeuvring in ports and access channels: Effect of water depth and under keel clearance on manoeuvring and steering behaviour, Effect of mud layers on ship behaviour, Ship-bank interaction, Lock manoeuvres, Ship-ship interaction, Tug assistance, Manoeuvring simulation
- Moored ships: Mooring lines, fenders, Forces on moored ships, Motions of moored ships
- Channels and fairways: design and access policy: Concept versus detailed design, Deterministic versus probabilistic design, Tidal windows, Nautical bottom approach

Initial competences
Mathematics and physics courses from the bachelor's (required); Elements of the course "Introduction to maritime technology" (recommended; eventually by self-teaching).
Final competences
1. Acquire thorough understanding of phenomena dominating a ship's behaviour in shallow and confined waters (e.g. access channels, canals, harbours) and of common methods appropriate to assess these effects.
2. Perform a concept design for the vertical and horizontal dimensions of a navigation channel by means of common design 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
Excursion, lecture

Learning materials and price
Syllabus

References

Course content-related study coaching
Lecturers and assistant available before/after lessons and on request.

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Open book examination, oral examination

Examination methods in case of periodic evaluation during the second examination period
Open book examination, oral examination

Examination methods in case of permanent evaluation
Report
Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible in modified form

Extra information on the examination methods
During examination period: oral open-book exam, written preparation. During semester: graded project reports.

Calculation of the examination mark
Oral open book exam:
15% questions partim Eloot, 30% project partim Eloot, 15% questions partim Vantorre,
30% project partim Vantorre
Excursion: 10% report DFDS trip

(Approved)