

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

Credits	5.0	Study time	150 h	Contact hrs	45.0 h
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Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	English	lecture	45.0 h
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Lecturers in academic year 2018-2019

De Baets, Patrick	TW08	lecturer-in-charge
Troch, Peter	TW15	co-lecturer

Offered in the following programmes in 2018-2019

<a href="#">Master of Science in Maritime Science</a>	crdts	offering
	5	A

Teaching languages

English

Keywords

port, mechanical energy conversion, mobile transport, infrastructure, transport material, civil constructions, hydraulic engineering structures

Position of the course

It is intended to provide to the students knowledge and understanding of the main mechanical equipment used in the port to transport or to store goods, and also on the construction of the port as a building project. Students learn to critically reflect on the construction, functioning and operation of the main port infrastructure. Technical thinking is taught.

Contents

**Mechanical equipment**

- Machinery for energy conversion: pumps compressors, motors
- Machines for mobile transport: trucks, rail vehicles, cranes, quayside vehicles

**Structural infrastructure**

- Hydrodynamic loads of waves and tides in a port
- Hydraulic engineering structures: waterways (rivers and canals), locks, dikes and breakwaters as coastal defense, quay walls, ...
- Planning of the port
- General design of terminals

Initial competences

The course builds on the secondary school education and essentially makes use of concepts from physics and elementary mathematics. A technical training is not expected.

Final competences

- 1 Being able to use mechanical and architectural technical vocabulary in passive and active way.
- 2 Having knowledge of the main mechanical and structural equipment of a port.
- 3 Understanding the functionality and basic principles of mechanical energy conversion machinery, transport vehicles and hydraulic structures.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

## Teaching methods

Lecture

## Extra information on the teaching methods

Lectures about the specific topics of the courses content, with the possibility of asking questions

## Learning materials and price

Mechanical equipment:

- Syllabus: translation of parts 5 and 6 of book "Machines aan het werk", P. De Baets, Acco (2014), ISBN10 9033485184, made available through Minerva
- Electronic presentations made available through Minerva
- List of relevant Youtube movie fragments associated with the different topics of the course

Civil infrastructure:

- Syllabus: made available through Minerva
- Electronic presentations made available through Minerva
- List of relevant Youtube movie fragments associated with the different topics of the course

## References

Agerschou Hans et al, Planning and design of ports and marine terminals, John Willey and Sons

## Course content-related study coaching

Opportunity to consult with the teachers after the lectures or by appointment

## Evaluation methods

end-of-term evaluation

## Examination methods in case of periodic evaluation during the first examination period

Oral examination

## Examination methods in case of periodic evaluation during the second examination period

Oral examination

## Examination methods in case of permanent evaluation

## Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

## Extra information on the examination methods

The material to be studied for the exam will be announced via Minerva.

The exam allows the student to demonstrate his / her basic knowledge and understanding of the course matter

The exam itself is organized as follows:

About each part (mechanical / civil) 2 to 3 open questions will be given, that the students can prepare in written way. The total time available for the written preparation is 30 to 45 minutes. The written preparation should be structured, complete but concise (no sentences!) and properly elaborated. Particular attention should be paid to figures and graphs. The written preparation will also be reviewed and should form a readable document.

Then the students should briefly explain their written preparation to the examiners.

Subsequently a number of questions will be posed that gauge understanding of the matter (of the written preparation), the detailed knowledge of the matter (of the written preparation) and the knowledge of the other parts of the course. The oral part takes up to 30 minutes.

## Calculation of the examination mark

Both parts of the course (mechanical / civil) have an equal weight.

The total score is calculated as the average of the scores for the two parts. If on one of the various parts (mechanical / civil) 6 or less 20 is achieved, the points for this part will be applied for the course as a whole.