



# SD2721 Ship Design 9.0 credits

## Fartygsdesign

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

BSc in Vehicle Engineering, Engineering Physics, Mechanical Engineering or similar.

English B / English 6

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

This course gives an introduction to naval architecture, i.e. the engineering design of ships and other marine technology systems, and basic ship theory such as hydrostatics, stability, resistance and propulsion. The objective is that students after finishing the course shall be able to:

1. demonstrate knowledge and understanding of the scientific basis and proven experience of ship design and insight into current research and development work;
2. demonstrate methodological knowledge and understanding in ship hydrostatics, stability, resistance and propulsion;
3. demonstrate ability to model, simulate, predict and evaluate ships' hydrostatics, stability, resistance, and energy and resource efficiency, even on the basis of limited information;
4. demonstrate ability to critically, independently and creatively make the initial design of a ship for a certain transport scenario, taking into account relevant scientific, social, ethical, economic and environmental aspects, and international regulatory frameworks;
5. give an account of the international shipping markets and the corresponding stakeholders, goods flow paths, and ship types;
6. discuss the opportunities for seaborne transportation in a sustainable society and describe the shipping-related environmental problems and measures for tackling them;
7. demonstrate ability to plan and carry out advanced engineering tasks within given frames using appropriate methods and to evaluate this work;
8. demonstrate ability to clearly present and discuss engineering conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts.

## Course contents

Lectures and seminars introducing basic ship theory, the ship design process, and systems engineering concepts. Hands on development of a computer code for ship hydrostatics analysis. Hands on experiments on ship stability and resistance. Visits and exercises on board ships. Individual ship design project and related workshops.

## Examination

- ÖVN1 - Assignments, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN2 - Assignments, 4.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

## Other requirements for final grade

ÖVN1 - 4,5 ECTS

ÖVN2 - 4,5 ECTS

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.