



SD2726 Modelling ship's propulsion and manoeuvring 6.0 credits

Modellering av fartygs framdrivning och manövrering

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

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

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

Completed degree project on Bachelor level with major in technology.

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 a hands on introduction to a first principle approach for mechanical modelling in the applied context of ship's propulsion and manoeuvring. The objective is that students after finishing the course shall be able to:

- demonstrate methodological knowledge and understanding in ship hydromechanics, propulsion and manoeuvring;
- model ship's propelled motion in calm water based on first principles mechanics and simulating the ship's manoeuvring characteristics;
- evaluate ship's manoeuvrability numerically as well as experimentally with respect to international safety standards;
- present and discuss engineering conclusions, the theoretical knowledge and arguments behind them, orally and in writing;
- describe performance, safety environmental and economical aspects in the context of propulsion and manoeuvrability;
- reflect on the topic, the course content and the course design in relation to societal norms and equality.

Course contents

Lectures and seminars introducing basic ship hydromechanics, linear theory on ship manoeuvrability, blade element theory, strategies and methods for combining first principles mechanics and mathematical models into a numerical simulation structure. Hands on development of a ship motion simulation code including coding sub-models for propulsion and steering. Experimental validation and hands on experiments and evaluation on ship manoeuvrability with respect to international standards.

Examination

- TEN1 - Oral exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises, 4.0 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.

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.