HS1007 Fluid Mechanics 7.5 credits

Strömningslära

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

Course syllabus for HS1007 valid from Autumn 2012

Grading scale

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

Education cycle

First cycle

Main field of study

Built Environment,Technology

Specific prerequisites

Students in year 2 of the Bachelor of Science in Engineering programmes Constructional Engineering and Design or Engineering and Economics specialising in Constructional Engineering and Design.

A minimum of 20 credits from the following courses:
HF1903 Mathematics 1
HF1004 Mathematics and Statistics

HS1003 Structural Mechanics 1
HS1004 Structural Mechanics 2
or equivalent courses

Language of instruction

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

Intended learning outcomes

Upon completion of the course, the student shall be able to:

- Calculate static pressure and forces on plane and curved surfaces
- Design pipe networks and open channels using balancing equations such as the Bernouilli equation and the Manning equation
- Use calculation aids (Excel)
- Estimate pump and fan requirements and apply design principles for these
- Demonstrate basic principles of energy and power consumption dimensioning and flow measurement

Course contents

This is a basic course in hydrostatics and general fluid mechanics with applications from construction and process engineering. The project element includes design of piping systems using modern calculation tools.
The course covers:

- Static pressure and forces
- Continuity considerations for circulating service pipes
- Forces caused by flow
- Continuity equation and energy equation with balance considerations
- Pipe flow, channel flow, and fluid machinery
- Pumps and fans with applications
- Flow measurement
- Elements from hydrology

Examination

- PRO1 - Project, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 6.0 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.

A student who is 0.5 points, 1 point or 1.5 points away from a passing grade (30 points) on the exam will be entitled to take a supplementary exam. A request to take a supplementary exam should be submitted to the examiner promptly after the exam result has been communicated.

Other requirements for final grade

To receive a final grade for this course, a passing grade on the project as well as grade E or higher on the written examination are required.

Overall course grade is based on grade scale A-F.

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.