



# MF2067 Hydraulics I 6.0 credits

## Hydraulik I

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 MF2067 valid from Autumn 2013

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

A Bachelor in Mechanical Engineering, or registered as CMAST3/CDEPR3/CFATE3.

## Language of instruction

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

## Intended learning outcomes

A student that has completed the course shall:

- be able to describe different classes of actuators in mechanical systems;
- be able describe the primary components of a hydraulic system, their properties and behavior;
- be able to model the physical behavior of a hydraulic system with Matlab and Ansys;.
- be able to model a mechanical system with a controlled hydraulic actuation system with Simulink;
- be able to design a simple hydraulic system with commercially available components.

## Course contents

The course presents the theory of hydraulic actuation, the primary components of a hydraulic system, such as pumps, motors, and cylinders, and system control components such as valves, as well as the properties of various pressure mediums, and provides training on fundamental system design and simulation.

## Disposition

- Lectures (10 x 2 hours): Lectures on actutators, components of a hydraulic system, control engineering, and simulation of hydraulic systems.
- Physical laboratory work (2x2 hours): Physical rig laborations,
- Computer laboratory work (4x2 hours): Computer laborations
- Group assignments (scheduled supervision)
- Self-study exercises (non-scheduled).
- Individual assignments work (non-scheduled).

## Course literature

1 - E-bok via KTHB

2 - Material utdelat under kursen.

## Examination

- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Assignments, 3.0 credits, grading scale: P, 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.

The final grade is equal to the written exam

## **Other requirements for final grade**

Mandatory laboratory work and assignments, 3 credits, grade scale P/F

Written exam, 3 credits, 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.