



# HM1010 Functional Elements

## 7.5 credits

### Konstruktionselement

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 HM1010 valid from Spring 2009

### Grading scale

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

### Education cycle

First cycle

### Main field of study

Mechanical Engineering, Technology

### Specific prerequisites

Basic knowledge within strength of materials and mechanics, HM1001, Materials and Production, HM1001 and HM1003.

### Language of instruction

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

## Intended learning outcomes

After the course, the student shall

- know the principles for operation and the denominations of elementary and standard components in mechanical engineering, including simple functional analysis
- have basic proficiency in selecting machine elements
- be able to, in a methodic and structured way, evaluate functional elements in mechanical designs
- know how to employ ISO tolerances, including form and location tolerances, in order to employ machine elements in machinery
- be able to describe and in practice employ select machine elements
- know how to size and determine life expectancy of machine elements such as bearings and gear drives

## Course contents

Functions: Rolling bearings, seals, couplings, transmission elements, brakes and joints.

Tribology: Friction, wear, lubricants, sliding bearings.

Mechanisms: Screw joints, gears.

Engineering graphics, standard, tolerances, surface roughness.

## Course literature

Books in Swedish from the Department of Machine Design, KTH.

<http://www3.telge.kth.se/maskin/litteratur/>

## Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 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.

## Other requirements for final grade

Written exam

Approved project

## 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.