



# COURSE SYLLABUS

## Dimensioneringsmetodik

### Applied Solid Mechanics

7,5 ECTS credit points (7,5 högskolepoäng)

**Course code:** MT1470  
**Educational level:** Basic level  
**Course level:** G2F  
**Field of education:** Technology  
**Subject group:** Mechanical Engineering

**Subject area:** Mechanical Engineering  
**Version:** 8  
**Applies from:** 2014-08-26  
**Approved:** 2014-08-26

#### 1 Course title and credit points

The course is titled Applied Solid Mechanics/Dimensioneringsmetodik and awards 7,5 ECTS credits. One credit point (högskolepoäng) corresponds to one credit point in the European Credit Transfer System (ECTS).

#### 2 Decision and approval

This course is established by Department of Mechanical Engineering 2013-11-20. The course syllabus was revised by Head of Department of Mechanical Engineering and applies from 2014-08-26.  
Reg.nr:BTH-4.1.1-0481-2014 Replaces MT1213.

#### 3 Objectives

The aim of the course is to give extended knowledge and train the ability for dimensioning of mechanical components or structures with regard to solidity.

#### 4 Content

Dimension criterion:  
Exhaustion, Welds, dimensioning of butt weld, filled weld and fatigue loaded welds, Identification and damage risk assessment, Dimensioning philosophies.

Experimental methods:

Strain gauge and its applications verifying calculated quantity.

Short introduction of fracture mechanics. Tension in different fracture mode, stress intensity factor, fracture toughness.

#### 5 Aims and learning outcomes

On completion of the course the student will be able to:

- know of different risks of damage in materials and constructions as well as apply these in practical context.
- independently dimension materials and constructions with various methods within

mechanics of materials (e.g. hand calculation, FEM, tables, manuals).

#### 6 Learning and teaching

Teaching is conducted through lectures and exercises, laboration (strain saturation) and a major applied dimensioning assignment. Lectures introduce theory and examples regarding problem solving in various construction context. Independently performed exercises and problem solving gives the opportunity to apply the theory. Searching for articles gives an overview of relevant technical journals and other resources and allow competence in information within own professional field. A web-based course platform can be used for retrieve information, submit assignments and write a log book. Lectures are held in Swedish. The teaching language is Swedish. However, the teaching could be carried out in English.

#### 7 Assessment and grading

##### Examination of the course

Code	Module	Credit	Grade
	Written examination	3 ECTS	A-F
	Assignment	4.5 ECTS	G-U

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Insufficient, supplementation required, F Fail.If grade FX or UX are given, the student may after consultation with the course coordinator / examiner get an opportunity to within 6 weeks complement to grade E or G for the specific course element.

#### 8 Course evaluation

The course coordinator is responsible for systematically gathering feedback from the students in course evaluations and making sure that the results of these feed back into the development of the course.

### **9 Prerequisites**

Courses Mechanics basic course and Solid Mechanics Basic Course are completed and passed before the student can be registered on the course (or equivalent).

### **10 Field of education and subject area**

The course is part of the field of education and is included in the subject area Mechanical Engineering.

### **11 Restrictions regarding degree**

The course cannot form part of a degree with another course, the content of which completely or partly corresponds with the contents of this course.

### **12 Course literature and other teaching material**

Teknisk hållfasthetslära. Tore Dahlberg.  
Bengt Sundström etc. "Handbok och formelsamling i hållfasthetslära." Publikation 104, Inst. för Hållfasthetslära, KTH.  
Material from the department

