



## Course syllabus

Faculty of Technology

Department of Building Technology

1BY072 Stål- och träkonstruktioner, 7,5 högskolepoäng

Steel and Timber Structural Engineering, 7.5 credits

**Main field of study**

Civil Engineering

**Subject Group**

Building Technology

**Level of classification**

First Level

**Progression**

G1F

**Date of Ratification**

Approved 2009-12-15

Revised 2018-01-18 by Faculty of Technology. Review of prerequisites.

The course syllabus is valid from autumn semester 2018

**Prerequisites**

15.0 credits in Mathematics from within the programme (equivalent to Basic Mathematics for engineers, 1MA131, 7,5 credits, or Linear algebra for engineers, 1MA133, 7,5 credits, or Calculus for engineers, 1MA132, 7,5 credits) as well as Building Technology 1 (1BY008, 7,5 credits), Structural Mechanics (1BY012, 7.5 credits) and Concrete Structural Engineering (1BY052, 7.5 credits).

### Objectives

After completing the course the student is expected to:

- be able to dimension steel and wood structures loaded by moment, shear and/or normal forces
- be able to check the function in the serviceability limit state
- be able to make drawings for steel and wood structures
- be able to apply acquired knowledge within projects with given conditions

## Content

The course comprises the following elements:

Steel structures:

- Current regulations
- Steel properties
- Cross section classes
- Bending and shearing
- Axially loaded bar
- Compression and simultaneous bending
- Checking steel structures in the ultimate limit state
- Bolted and welded joints
- Orientation on dimensioning against fire and fatigue
- Engineering design

Wood constructions:

- Current regulations
- Wood materials
- Bending and shearing in simple construction elements
- Axially loaded bar
- Compression and simultaneous bending
- Checking wood structures in the ultimate limit state
- Joints in timber structures
- Orientation on composite construction elements
- Timber construction systems

## Type of Instruction

The teaching consists of lectures, exercises and project work.

## Examination

The course is assessed with the grades U, 3, 4 or 5.

The project is giving 2,5 credits and is graded with U/G. The written exam is graded with grades U, 3, 4 or 5 which is also the final grade for the course.

## Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

## Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: BYA917

## Required Reading and Additional Study Material

### Required reading

Al Emrani Mohammad, Johansson Peter, Stålbyggnad, Utdrag ur Al-Emrani M., Engström B., Johansson Marie, Johansson P (2008), *Bärande konstruktioner, Del 1 och Bärande konstruktioner del 2*, Institutionen för Bygg och miljöteknik, Avdelningen för konstruktionsteknik, Chalmers Tekniska Högskola. Linnéuniversitetet 2016.

Bergkvist, Per (Red.), *Dimensionering av träkonstruktioner, del 1-3*, Svenskt Trä 2016.

Johansson, Marie, *Exempelsamling*, Linnéuniversitetet 2016.

Johansson, Marie, *Utdrag ur Eurokod 0 och 1*, Linnéuniversitetet, 2016.