



Course syllabus

Faculty of Technology

Department of Building Technology

4BY112 KL-trä i bärande konstruktioner, 3 högskolepoäng

4BY112 CLT in Load Bearing Structures, 3 credits

Main field of study

Civil Engineering

Subject Group

Building Technology

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved by Faculty of Technology 2017-05-22

The course syllabus is valid from spring semester 2018

Prerequisites

General entry requirements. First level exam in a constructional engineering subject. Applicants who do not meet this requirement can, by demonstrating that they have equivalent knowledge through professional experience, be validated as duly qualified. For this case, two years of relevant professional experience correspond to one year of college or first level university studies.

Objectives

After this course, students should be able to:

- describe the manufacturing process and mechanical and physical properties of Cross Laminated Timber (CLT)
- design, analyze and dimension CLT as load bearing structural element in wooden buildings
- design, analyze and dimension mechanical joints in CLT constructions
- use the latest research results relating to CLT
- within their own professional field, apply, deepen and share the skills acquired.

Content

The course includes:

- manufacturing and properties of CLT
- design standards and guidelines developed for CLT
- modelling of CLT elements and CLT structures
- ultimate limit state design of CLT as wall, beam and floor elements
- stabilization of wooden constructions using CLT shear walls
- serviceability limit state design of CLT elements
- connection techniques and dimensioning of mechanical joints in CLT
- the latest research on CLT
- study visits

Type of Instruction

Teaching mainly consists of lectures, exercises and study visits. Teaching is done through physical meetings as well as through various web tools and through self-study.

Examination

The course is assessed with the grades Fail (U) or Pass (G).

The assessment of the students' performance is based on submitted written reports and oral presentation of home assignments. For the grade Approved, the expected course goals should be reached.

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.

Other

Costs for traveling, study visits and such have to be borne by the student.

Required Reading and Additional Study Material

Required reading

KL-trähandbok, 2017, Stockholm: Svenskt Trä, ca 100 pages

Brandner, Reinhard, Flatscher, G, Ringhofer, A, Schickhofer, G, Thiel, A (2016) Cross laminated timber (CLT): overview and development, European Journal of Wood and Wood Products 74:331–351, 21 pages.

Reference literature

EN 199511: Eurokod 5: Dimensionering av träkonstruktioner – Del 1-1. Allmänt –Gemensamma regler och regler för byggnader.

EN 16351:2015 Timber Structures – Cross Laminated Timber – Requirements

EOTA (2015) Solid wood slab elements to be used as a structural element in buildings. EAD 130005000304.