Linnæus University

Course syllabus

Faculty Board of Science and Engineering
School of Engineering

4BY064 Trä i byggsystem, 7,5 högskolepoäng
Timber Based Building Systems, 7.5 credits

Main field of study
Civil Engineering

Subject Group
Building Technology

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved by the Board of the School of Engineering 2010-06-28

The course syllabus is valid from spring semester 2011

Prerequisites
English B. Bachelor of Science in Civil Engineering or Archtectural Engineering including a minimum of 7,5 ECTS in Structural Mechanics or Mechanics of Materials and 15 hec Mathematics.

Expected learning outcomes

After this course students should be able to:
Understand the specific aspects of timber construction and have basic knowledge of wood-based products as a structural material
Have a good knowledge of structural design using timber and panel products
Understand the main points how to design a stabilizing system for multi-storey timber buildings
Design complex timber components and structural elements
Understand mechanical behaviour and ways to design different connections used in timber construction
Understand how different properties of floor components affect the dynamic behaviour of wood-based floors, which components and properties that influences this behaviour.
Understand the advantages and difficulties of timber construction and some specific problems related to timber design

Content

The course consist of four main areas and they include:
- Stabilizing timber structures
- Structural systems and production methods - houses
- Stabilizing systems for multi-storey timber buildings
- Bracing of timber structures with wood-based panels
- Theoretical models for shear walls, diaphragms and their design
- Wood, timber and EWP as a structural material
- Factors which influence strength, stiffness and shrinkage properties
- Service classes and modification factors
- Engineering wood products (EWP) - main differences
- Design of structural timber elements
- Tension, compression and loading at different angles to the grain
- Tapered, curved and pitched glulam beams
- Thin I-beams, box beams and stressed skin panels
- Vibration and springiness in floors
- Detailing and connections
- Dowel-type joints - theory
- Joints - mechanical and glued
- Notched beams, holes, splitting and cracking

Type of Instruction

The teaching consists of lectures, exercises, laboratory work, project work and study visits. Some elements are compulsory. The extent of the compulsory elements is announced by the examiner at the start of the course

Examination

The course is assessed with the grades U,3,4 or 5.
The assessment of student performances usually takes place during special examination periods and may be written and/or oral. The assessment may also be based on submitted reports of laboratory work and exercises.

Course Evaluation

When the course has finished, an evaluation is compiled. The results are reported to the students and then archived according to the rules of the school.

Required Reading and Additional Study Material

Required reading

Literature is provided by the department