

SYLLABUS

Conceptual design of buildings 5 credits S7011B

Konceptuell utformning av byggnader

Course syllabus admitted: Autumn 2014 Sp 1 - Autumn 2015 Sp 2

**DECISION DATE
2014-02-10**

Conceptual design of buildings 5 credits S7011B

Konceptuell utformning av byggnader

Second cycle, S7011B

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	U G#	Stålbyggnad	Building Technology

Main field of study

Civil Engineering

Entry requirements

S7004B Steel Structures or courses necessary for admission at SUSCOS program

Selection

The selection is based on 30-285 credits

Examiner

Milan Veljkovic

Course Aim

The students should, after the successful accomplishment of the course, be able to conceptually design a building through the selection, in a wide range of structural solutions. They will be able to choose the most appropriate solution based on the comprehensive analysis of various possibilities. To achieve these skills, students will not only rely on their knowledge of technical solutions, but also on their acquired ability to integrate various conceptual aspects such as the feasibility and the economy of the project.

Contents

The course consists of two main parts: structural elements and systems, and the critical appraisal of construction techniques.

In the first part the structural elements and design situations of the basis are analysed, such as a member in tension, compression members and arches, trusses (plane and spatial), members in bending, connections, bracing systems, frames, conceptual aspects of buildings.

In the second part the critical appraisal of construction techniques is considered by analysing: beam or column elements made of steel, concrete, composite (steel-concrete elements), timber, rolled, builtup, with or without openings. In addition, connections: rigid, semirigid are considered in different structural elements made of steel or composite, timber. Construction of building elements such as floors made of concrete, composite, precast, slim floors. In addition, roofs, claddings are considered in multistorey and industrial application.

Students have to achieve the conceptual design of a particular building on the basis of assumed realistic design requirements provided by the lecturers within the 1st project. A feasibility study will also be carried out. In the 2nd project assignment students are asked to observe existing buildings, to select one of these and to analyse it.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures, project assignments and consultations.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Approved project assignments are required to pass the course.
Grading: Passed or not passed.

Literature. Valid from Autumn 2014 Sp 1

Silva L.S., Simoes R., Gervásio, H.: Design of steel structures. ECCS Eurocode Design Manuals, Ernst & Sohn, 2010, 438 p.

Trahair N.S., Bradford M.A., Nethercot D.A., Gardner L.: The behaviour and design of steel structures to EC3. Taylor & Francis, 2008, 490 p.

Balio G., Mazzolani F.M.: Design of steel structures, FNSpon, London, 1999

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Items/credits

No items/credits available

Syllabus established

by Eva Gunneriusson 2014-02-10