AF2203 Advanced Bridge Design 7.5 credits

Brokonstruktion fortsättningskurs

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for AF2203 valid from Autumn 2011

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The aim of this course is to give advanced knowledge on analysis and design of bridges. After this course, the student will be able to:

— Understand the concept and application of FEM for bridge analyses

— Use a commercial FE program to model bridges in 3D

— Consider fatigue in design according to the Eurocode (EC3)

— Analyse typical bridge foundations

— Describe methods for bridge repair

— Calculate life-cycle-costs of bridges

Course contents

— The finite element method for bridge analyses

— FEM modelling

— Fatigue analysis

— Bridge foundations

— Life-cycle-cost analyses

— Repair and maintenance of bridges

— Bridge construction methods

Design and analysis of a typical bridge is included in the course as a project task.

Course literature

— Textbooks and handouts from the course AF2201 Bridge Design and the course AF2024 FEM

— Handouts: Fatigue and LCC

Examination

- ÖVN1 - Exercises, 1.5 credits, grading scale: P, F
- PRO1 - Project, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

PRO1 - Approved project task (6 ECTS credits)

ÖVN1 - Passed exercises (1,5 ECTS credits)

Grading is based on the quality and amount of work and time spent on the project task including the written report and the oral presentation. In addition, the student compliance with the deadlines and also the results from the lecture quizzes are considered.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.