

SYLLABUS

Bridge design 7.5 credits

K7005B

Broprojektering

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2021-02-17

Bridge design 7.5 credits K7005B

Broprojektering

Second cycle, K7005B

| Education level | Grade scale | Subject | Subject group (SCB) |
|-----------------|-------------|------------------------|---------------------|
| Second cycle | G U 3 4 5 | Väg- och vattenbyggnad | Civil Engineering |

Entry requirements

Good knowledge of basic structural engineering and materials of structures.

Selection

The selection is based on 30-285 credits

Course Aim

After completing the course, participants should be able to make a basic design of common types of bridges.

Knowledge and understanding

- Describe the development of bridge building
- Describe and understand the principles for the function of different bridge types and bridge elements as beams, slabs, arches and suspended elements
- Understand the influence of deterioration processes

Competence and skills.

- Design bridge elements as beams and slabs for bending, shear, torsion and stability
- Calculate deformations and fatigue

Judgement and approach

- Make an overall estimate of costs for design, production, maintenance, repair, dismantlement/reuse/waste disposal

Contents

This course covers. bridge types, aesthetics, planning, loads, safety, design with analytical and numerical methods (e.g. finite element methods, FEM), maintenance, repair and life cycle analysis.

Realization

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

This course includes teaching and learning activities such as projects to design one or two types of bridges. The projects are introduced by lectures; Every student will present his/her projects during a final seminar. The projects are carried out individually or in groups of two students. There will be a study trip during one day with visits to different bridge types.

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. The course is assessed by the project works that has been carried out. The grading scale is G, U, 3,4,5. Attendance during seminars and study trips are compulsory

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term “unauthorized aids” refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Modules

| Code | Description | Grade scale | Cr | Status | From period | Title |
|------|-----------------|-------------|-----|-----------|-------------|-------|
| 0001 | Bridgeproject 1 | U G# | 4.5 | Mandatory | A10 | |
| 0002 | Bridgeproject 2 | U G# | 3 | Mandatory | A10 | |

Last revised

by Assistant Director of Undergraduate Studies Eva Gunneriusson, Department of Civil, Environmental and Natural Resources Engineering 2021-02-17

Syllabus established

by Lars Bernspång 2010-03-01