



AF2901 Road- and Railway Track Engineering 7.5 credits

Väg- och banteknik

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

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

Establishment

Course syllabus for AF2901 valid from Autumn 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Built Environment

Specific prerequisites

At least 120 credits Academic studies in Engineering, Science, Economics or Planning including documented proficiency in English B or equivalent (TOEFL, IELTS e g).

AF1601-Soil Mechanics and Foundation Engineering besides AF2003- Structural Engineering Advanced Course.

Language of instruction

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

Intended learning outcomes

When the course is done, those students taking part shall be able to:

- Describe factors influencing the geometric design of modern roads and railways.
- Explain mechanisms and factors influencing the security of a modern railway track against buckling (heat distortion), for a straight track as well as in a curve.
- Design road and runway pavements and evaluate the most important assumptions in the procedure.
- Describe the emergence of forces on different components in a railway and make the necessary calculations. The student shall be able to design railway embankment components with regard to fatigue.
- Describe properties of materials used in building and maintenance of roads, streets and runways. Suggest suitable test methods and explain the connection to performance related properties.
- Assimilate current research and communicate with people working within this area.

Course contents

Highway Engineering

- Geometric road design
- Pavement design
- Materials for road construction
- Project task

Railway and Railway Engineering

- Railway geometry
- Railway components

Course literature

Huang, Y.H., Pavement Analysis and Design, 2nd Edition.

Additional literature will be made available.

Examination

- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F

- ÖVN1 - Exercises, 3.0 credits, grading scale: P, 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.

TEN1 Examination 4,5

ÖVN1 Exercises 3,0

The final grade in the class will be awarded based on a 100 point scale. A total of 20 points can be obtained from the Highway Geometry Exercise. A further 10 are awarded for the Homework Assignments. The exam will cover the remaining 70 points.

Grading scale: A 95 - 100

- B 85 - 94,5
- C 75-84,5
- D 70 - 74,5
- E 65 - 69,5
- F < 64.5

Other requirements for final grade

Passed written exam (4,5 cr)

Passed exercises (3 cr)

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.