



# AF2903 Road Construction and Maintenance 7.5 credits

Vägdimensionering, byggande och underhåll

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 AF2903 valid from Spring 2024

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Built Environment

## Specific prerequisites

Documented knowledge in Structural Engineering of at least 7.5 credits corresponding to the content in the course AF2003 and and at least 3 credits in Road- and Railway Track Engineering corresponding to the content in AF2901.

Eng B/6 according to the Swedish upper secondary school system.

## Language of instruction

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

## Intended learning outcomes

Upon completion of this course the student is expected to:

- Understand failure modes/mechanisms in pavements;
- Learn principles of construction, maintenance, and rehabilitation of flexible pavements;
- Know about characterization and mechanical properties of asphalt binder, aggregates and asphalt mixtures;
- Explain volumetric composition of asphalt concrete;
- Describe pavement evaluation and safety;
- Learn Mechanistic-Empirical pavement design basics;
- Understand Life Cycle Assessment and Life Cycle Cost of pavements;
- Describe Pavement Management Systems;
- Explain Quality Control and Quality Assurance of pavements;
- Acquire knowledge about contracts and bidding for pavements.

## Course contents

In this course, students will learn about characterization and mechanical properties of road materials. Similarly, the students will understand pavement failure mechanisms, causes and reparation techniques. Furthermore students will acquire knowledge about mechanistic design, construction, maintenance, and rehabilitation of flexible pavements. The course also focuses on pavement evaluation, management systems, cost analysis, quality control and contracts. The course combines lectures, with on-line course material and hands-on exercises.

## 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.

In order to pass the course all exercises should be handed in and considered passed by the instructor.

The paper reviewing and presentation assignment shall be done in groups of no more than 3 people. Each student is expected to do his share, including the presentation and discussion section. This will be strictly enforced by the Instructor.

75% overall attendance is required.

## **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.