AF2903 Road Construction and Maintenance 7.5 credits

Vägdimensionering, byggande och underhåll

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

Establishment

Course syllabus for AF2903 valid from Spring 2011

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

For students not registered on a KTH programme:

150 university credits (hp) including the course AF2901 Road- and Railway Track Engineering or equivalent and documented proficiency in English corresponding to English B.

For students registered on a KTH programme:

AF2901 Road- and Railway Track Engineering

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 will be able to:

- Understand the behavior of Binders, Aggregates and Asphalt
- Understand Asphalt Mix design, and Testing
- Understand the construction of Roadways
- Understand Pavement Damage Mechanisms, what they looks like, and how they are Quantified
- Be able to suggest Remedial Repairs to Pavements
- Understand Pavement Management Systems
- Understand contracts and bidding
- Understand Winter Maintenance Requirements for Highways
- Do basic programming in MATLAB

Course contents

- Introduction to Binders,
- Aggregates and Frictional Roadway Materials
- Asphalt Manufacture, Uses and Performance
- Bonding of Aggregates and Binder
- Introduction to Asphalt Rheology
- Aging of Asphalt
- Water Damage to Asphalt Pavements
- Asphalt Mix Design
- Construction of Roadways and Asphalt Pavements
- Failure Modes in Roads
- Quantitative Measurement Techniques in Roadways
- Remediation and Repair of Roads
- Nondestructive Testing of Roadways
- Pavement Management Systems
- Contracts and Specifications
- Winter Maintenance
- MTLAB and Laboratory Exercises

Course literature

Will be announced at the beginning of the course.

Examination

- ÖVN1 - Exercises, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

TEN1 Written exam (4,5 cr)

ÖVN1 Exercises (3 cr)

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 MATLAB Exercise. A further 15 points can be obtained from the Laboratory Exercises, and additional 5 points are awarded for the Homework Assignments. The exam will cover the remaining 60 points.

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.