SD2307 Rail Vehicle Technology 7.5 credits

Spårfordonsteknik

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 SD2307 valid from Autumn 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

150 university credits (hp) In engineering and documented proficiency in English corresponding to English B/ English 6.

Language of instruction

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

Intended learning outcomes

The course gives a short introduction to railway systems and then focuses on rail vehicles.

The course aim is to give you the fundamentals of railway systems and, in particular, to describe the components and functions of rail vehicles as well as the various demands a rail vehicle must fulfil. The course should give you a good platform for work in the field of railway engineering.

After a completed course you should be able to:

- clarify the different parts in railway systems and their possibilities and limitations
- explain how bogies, carbody tilting, traction and brake systems work and can be improved
- calculate train performance like acceleration and braking capacity, average speed and energy consumption
- determine outer dimensions and interior design for a train at a given operational task
- discuss the trends and future potential for railway traffic

Course contents

Introduction to railway technology. Track technology. Rail vehicles - overview. The railway and the environment: energy consumption, air pollutions, external noise, external vibrations. Railway traffic development and future. Rail vehicles - technical basis. Aerodynamics and running resistance. Running gear, bogies and car body tilting. Traction technology: traction motors, transmission, traction mechanics and current collection. Braking technology. Car bodies. Passenger environment, interior design and auxiliary power. Internal noise, internal vibrations and climate resistance. Rail vehicle market and development.

Course literature

Compendium on Rail Vehicle Technology, Div. of Rail Vehicles, KTH.

Examination

- PRO1 - Project Task, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

The number of points achieved for TEN1 and PRO1 are summed. The final grade is based on this sum.Grading scale: A-F

Other requirements for final grade

Written Exam (TEN1; 4,5 hp; P/F), compulsory.

Project Task (PRO1; 3 hp; P/F), compulsory.

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.