FSD3307 Rail Vehicle Technology 7.5 credits

Spårfordonsteknik

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

Establishment

Course syllabus for FSD3307 valid from Autumn 2018

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Masters degree in mechanical engineering, vehicle engineering, engineering physics or equivalent. Documented knowledge of 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 overall course aim is 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 rail vehicle engineering, and a deeper knowledge in the area of the chosen extra task.

After a completed course you should, among other things, be able to:

- explain how bogies, carbodies, traction and brake systems work and can be improved
- calculate train performance like acceleration and braking capacity, average speed and energy usage
- determine outer dimensions and interior design for a train at a given operational task
- discuss the trends and future potential for rail vehicles
- carry out detailed analysis of the area within rail vehicle technology

Course contents

Introduction to rail vehicles. Rail vehicles - technical basis. Running resistance and aerodynamics phenomena. Running gear, bogies and carbody tilting. Vehicle traction: mechanics, motors, transmission and current collection. Vehicle braking: braking systems and control. Carbodies: mechanics, interior design, comfort systems and passenger environment. Internal noise and vibrations; climate resistance. Rail vehicle market and vehicle development.

Disposition

The course consists of lectures, linking to a written exam, and a project task to be carried out and reported in a group of 2-3 persons. An individual extra task, on a selected subtopic of the course, is also to be done and reported.

Course literature

Andersson E, Berg M, Stichel S and Casanueva C: "Rail Systems and Rail Vehicles, Part 2: Rail Vehicles", 350 pages, Div of Rail Vehicles, KTH.

In addition to the textbook above, you get access to the presentation material from the lectures.

Equipment

None

Examination

- TEN1 - Written exam, 2.5 credits, grading scale: P, F
- PRO1 - Project task 1, 2.5 credits, grading scale: P, F
- PRO2 - Project task 2, 2.5 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.

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

Other requirements for final grade

Written Exam (P), Project Task (P), Extra Task (P)

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.