FSD3202 Vehicle Engineering, Literature Course 6.0 credits

Fordonsteknik, litteraturkurs

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

Establishment

Course syllabus for FSD3202 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

PhD student in the doctoral program Vehicle and Maritime Engineering.

Language of instruction

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

Intended learning outcomes

To acquire basic knowledge of ground vehicle components and their functions, including modelling, validation and analysis.
Students graduating from the course should be able to:

- describe the main components of ground vehicles and their function explain how the main components in the power train, suspension system and brake system interacts.
- perform calculations of vehicle performance such as the start, acceleration and retardation event of a vehicle and its climbing capabilities.
- perform calculations of the brake force distribution and construct and analyse a friction utilisation diagram.
- derive forces and aligning moment of a tire by using the brush model.
- perform calculations of the suspension characteristics for wheel suspension components.
- apply the gained knowledge regarding analysis of vehicle performance.
- have gained in-depth knowledge in a selected field of vehicle engineering.

Course contents

Tires and tire forces. Powertrain components. Brake systems. Wheel suspensions. Steering systems. Chassis and body.

Disposition

The course aims to deepen the student's knowledge of the road vehicle components and their function, including modelling, validation and analysis.
The course introduces the student to basic concepts, theories, overall ideas and relationships related to different components and their function. Thereafter, exercises are conducted to apply the acquired knowledge.
Computer labs are conducted where different simulation tools are used to gain insight into the area.
Assignments are defined where the acquired knowledge is applied to practical and realistic problems.
The student chooses a specific field of vehicle engineering and carries out a literature study in that field. The purpose is to summarise the latest research within the chosen area. This is reported through a written report and oral presentation.
Finally, a written exam will be given.

Course literature

Lecture notes and material handed out during lectures and assignments.

Equipment

No special equipment required.

Examination

- INL1 - Assignments, 2.0 credits, grading scale: G

• TEN1 - Exam, 4.0 credits, grading scale: G

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.

INL1 (2hp) och TEN1 (4hp)

Other requirements for final grade

- Hand in the calculated exercises
- Perform a literature study in the chosen field of vehicle engineering
- Perform the computer exercises
- Pass the exam

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.