

Course syllabus

Samverkan fordon/bana- spårfordonsteknik Interaction between Track and Vehicle-trackvehicle Technique

VVBF15, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED V

Date of Decision: 2023-03-21

General Information

Compulsory for: IBYI2

Language of instruction: The course will be given in Swedish

Aim

The course aims to give students fundamental knowledge of the rail vehicle's construction, function and dynamics, and the interaction between vehicle and railway line.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Be able to give an account of the dynamic interaction between vehicle and railway line, which comprises vehicle motion, rail force, risk of derailment, wear and tear of the rails and wheels and comfort of the traveller
- Understand the importance of the above for railway traffic safety, quality of goods and passenger transport and economy

Competences and skills

For a passing grade the student must

- Be able to calculate the forces that are brought to bear on the rails and rolling stock, taking into consideration the prevailing norms and regulations

- Be able to give an account of solutions for various calculation tasks in brief reports

Contents

The course is divided into two parts, each of which ends with a written exam.

The first, interaction between vehicle/rail, contains the following elements:

- Fundamental concepts
- lurch, trailer tilting,
- Wheel profiles and conicity
- wheelset track steering
- Rail forces, security against derailment
- Wear and tear of wheels and rails
- Motion-related comfort

The second, rail vehicle, contains the following phases:

- Fundamental concepts
- Waggon and löpverk
- Train propulsion
- Brakes
- The vehicle's outlines

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Two satisfactory exams consisting of vehicle-track and railway vehicle. Calculations are included in both exams.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0111. **Name:** Part 1.

Credits: 4. **Grading scale:** TH. **Assessment:** Satisfactory written exam.

Code: 0211. **Name:** Part 2.

Credits: 3,5. **Grading scale:** TH. **Assessment:** Satisfactory written exam.

Admission

Admission requirements:

- VTVA45 Road and Railway Engineering or VTVA46 Road and Railway Engineering

Assumed prior knowledge: VTVA35.

The number of participants is limited to: No

The course overlaps following course/s: VVB671

Reading list

Contact and other information

Course coordinator: Mats Berg, mabe@kth.se

Examinator: Andreas Persson, andreas.persson@tft.lth.se

Course homepage: <http://www.hbg.lth.se>