



LUNDS UNIVERSITET  
Lunds Tekniska Högskola

*Course syllabus*

# Väg- och järnvägsteknik Road and Railway Engineering

**VTVA46, 7,5 credits, G1 (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: IBYI1, IBYV1

Language of instruction: The course will be given in Swedish

## Aim

The course is intended to give the student fundamental knowledge of roads and railways with related technical systems and their functions over their whole existence, i.e. the connected phases of planning, construction, operation and maintenance. The course also give insights on how the road and railway systems work together.

The On The Job training connects the theoretic parts of the course to the industry.

## Learning outcomes

### *Knowledge and understanding*

For a passing grade the student must

- Have knowledge of the structure and function of road and railway systems.
- Have knowledge of the designing conditions for roads and railways
- Have knowledge of the conditions for dimensioning road and railway constructions
- Have knowledge of the different types of technology in the railway system, track, electrical engineering, and traffic control
- Have understanding of similarities and differences between the road and rail system

### *Competences and skills*

For a passing grade the student must

- Compile and evaluate relevant information, in a sustainable way, from different

- disciplines, with different perspectives while designing road alignment.
- Carry out design of a pavements according to Swedish standards
  - Compile and evaluate a design for a railway track and operation site
  - Account for pros and cons with different types of intersections between roads and railways.

### *Judgement and approach*

For a passing grade the student must

- Understand the conflicts of interests that arise in connection with the road and railway project.
- Understand the considerations being made when choosing infrastructure systems and types of technique

## **Contents**

- Geometric design of roads and railways
- Dimensioning of road and railway construction
- Environmental effects of roads and railways
- Materials and their attributes
- Operation and maintenance of roads and railways
- Structure and function of track substructure and superstructure and information about track track technology, electrical technology, signalling technology and tele communication technology within the railway.
- Regulations in the road and railway sector

## **Examination details**

**Grading scale:** UG - (U,G) - (Fail, Pass)

**Assessment:** Written and oral presentations of the project works. Passed on the job training.

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:** 0121. **Name:** Road and Railway Engineering.

**Credits:** 7,5. **Grading scale:** UG.

**Code:** 0221. **Name:** Work Related Training.

**Credits:** 0. **Grading scale:** UG.

## **Admission**

**The number of participants is limited to:** No

**The course overlaps following course/s:** AAK630, VTVA20, VVB620, VTVA45

## **Reading list**

- Ebrahim Parhamifar, Sven Agardh: Vägbyggnad. Studentlitteratur, 2014, ISBN: 978-91-47-09346-5.
- Kompendium Järnvägsteknik. Trafikverksskolan.

## Contact and other information

**Course coordinator:** Andreas Persson, [Andreas.Persson@tft.lth.se](mailto:Andreas.Persson@tft.lth.se)

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**Course coordinator:** Markus Gustavsson, [markus.a.gustavsson@trafikverket.se](mailto:markus.a.gustavsson@trafikverket.se)

**Course homepage:** <https://www.tos.lth.se/utbildning/grundutbildning/>

**Further information:** Some exercises are performed at Trafikverksskolan in Ängelholm.

Any travel expenses related to AFU/mandatory field trips are paid for by the student.