



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Utformning av järnvägar **Railway Design**

VTVF85, 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: IBYI3

Elective for: V4-at, V4-tv

Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to provide students with the ability to use methodology in railway planning and design. It is also intended to give them in-depth knowledge of the geometric design of railways, quality of basic data and teaching/learning aids.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Understand the correlation between horizontal and vertical alignment and its effects.
- Describe the environmental effects that may arise as a result of locating railways in the landscape.
- Analyse the effects on urban development and on transport accessibility.

Competences and skills

For a passing grade the student must

- Design a railway using Swedish and European standards, with due consideration to rolling stock performance and the prerequisites of the landscape.
- Be able to use railway design methodology.
- Present and argue for railway alignment supported by drawings of plans, profiles, cross and normal sections.

- Present a basic evaluation of railway construction costs.

Judgement and approach

For a passing grade the student must

- Compile and evaluate relevant information from different disciplines, with different perspectives while designing for a sustainable urban and natural environment.

Contents

A railway project in rural area is followed from its conception to final design, requiring students to study the principles and basics of the prevailing regulations and guidelines for geometric design of the railway, including analysis of horizontal and vertical alignment. Adaptation to terrain and benefits for the society is emphasized in the initial sketch work, while effects and consequences of the chosen alignment are emphasized in the more detailed final stages of the project work. Road intersections and stations are studied. Initial sketch work is conducted by hand while computer aids are used for detailed design.

Examination details

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

Assessment: Individual written test. Written and oral presentation of the project, which is carried out in groups. Compulsory field studies.

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.

Admission

Assumed prior knowledge: VVBF20 Road Construction or VTVA45 Road and Railway Engineering.

The number of participants is limited to: No

The course overlaps following course/s: VVB027, VTVF10

Reading list

- Clifford F Bennett: Practical Railway Engineering. Imperial College Press, 2005, ISBN: 1-86094-515-5. REFERENSLITTERATUR Boken är tillgänglig hos kursansvarige lärare.
- Övningshandledning järnväg. Inst. för teknik och samhälle, 2012.
- Föreläsninganteckningar.
- Sven Bårström och Pelle Granbom: Den svenska järnvägen. Trafikverket, 2012, ISBN: 978-91-7467-227-5. REFERENCE.
- Sven Agardh och Ebrahim Parhamifar: Vägbyggnad. 2014, ISBN: 978-91-47-09346-5.

- Trafikverket: Vägar och gators utformning. VV Publikation 2004:80, 2004. VGU finns tillgänglig på Trafikverkets hemsida och delar av den kommer att finnas på kursens hemsida.

Contact and other information

Examinator: Carl-William Palmqvist, carl-william.palmqvist@tft.lth.se

Course coordinator: Carl-William Palmqvist, carl-william.palmqvist@tft.lth.se

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

Further information: The course is offered in Lund.