



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Utformning av vägar Highway Design

VTVN01, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED V

Date of Decision: 2023-03-21

General Information

Compulsory for: IBYV3

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 geometric highway planning and design. It is also intended to give them in-depth knowledge of the geometric design of roads, with the focus on methods, models, quality of basic data and teaching/learning aids.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Analyse the interplay between horizontal and vertical alignment and its effects.
- Characterize the environmental effects that can occur due to placement of the road in landscape.
- Describe the environmental effects that may arise as a result of locating roads in the landscape.

Competences and skills

For a passing grade the student must

- Design a road delineation using Swedish standards, with due consideration to road users' needs and the prerequisites of the landscape.
- Be able to use a road design methodology.

- Present and argue for road delineation and justify it with drawings of plans, profiles, cross and normal sections.
- Design a normal section for a road.
- Calculate the costs of a road.

Judgement and approach

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.

Contents

A road 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 and thickness design of roads, including analysis of horizontal and vertical alignment from a road user perspective. Further requirements are emphasis on adapting the road to the terrain, formulating an analytical method for elements in the landscape and designing different types of intersections. Computer aids are used to describe prerequisites for the project and to design the road alignment.

Examination details

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

Assessment: Individual written home examination. Written and oral descriptions of the project work. The exam of the project is conducted through collaborative group testing. One day 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.

Parts

Code: 0112. **Name:** Home Examination.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Home Examination

Code: 0212. **Name:** Project Work.

Credits: 6. **Grading scale:** TH. **Assessment:** Written and oral descriptions of the project work. The exam of the project is conducted through collaborative group testing.

Code: 0312. **Name:** Field Studies.

Credits: 0. **Grading scale:** UG. **Assessment:** Compulsory Field Studies.

Admission

Admission requirements:

- VTVA45 Road and Railway Engineering or VTVA46 Road and Railway Engineering or VVBF20 Road Construction

The number of participants is limited to: No

The course overlaps following course/s: VTVF10, VVB027

Reading list

- Sven Agardh och Ebrahim Parhamifar: Vägbyggnad. Studentlitteratur, 2014, ISBN:

978-91-47-09346-5.

- Trafikverket: Vägar och Gators utformning, VGU. 2014. VGU is available on the Transport Administration's website and parts of it will be available on the course website.
- Föreläsninganteckningar.
- Benny Birgersson: Vägen, En bok om vägarkitektur. Vägverket, 2006, ISBN: 91-88250-52-0.
- T.F. Fwa: The handbook of highway engineering. Talyor & Francis, 2006, ISBN: 10-0-8493-1986-2. Boken är tillgänglig som referenslitteratur hos kursansvarige lärare.

Contact and other information

Examinator: Joacim Lundberg, joacim.lundberg@tft.lth.se

Course coordinator: Sven Agardh, sven.agardh@tft.lth.se

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

Further information: The course is offered in Lund.