

Course syllabus

Vägbyggnad Road Construction

VVBF20, 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

Main field: Technology.

Compulsory for: V3

Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to give basic knowledge about roads and how they function during a service life. This considers the relationship between the plan and profile, construction, test methods, maintenance and recycling of road materials.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Be able to explain and use fundamental concepts within road construction.
- Describe the function and structure of flexible and stiff pavements with different ground and terrain conditions
- To have knowledge of different measurement methods for maintenance of the infrastructures
- To be able calculate the costs of parts of an infrastructure
- To understand importance of economical evaluations

Competences and skills

For a passing grade the student must

- Evaluate different soils and terrain conditions and design a road with plan, profile and normal sections according to Swedish standards
- Implement different methods of dimension and designing road constructions

- Produce a recipe for production of standard asphalt concrete and evaluate its properties according to specifications
- Be able to carry through and present laboratory work within asphalt construction and be able to determine characteristics of materials used in the constructions.

Judgement and approach

For a passing grade the student must

- Understand importance of common points in a systematic planning and production of infrastructures and analyse the information that is used and evaluate the reliability of the results based on available information

Contents

Basic knowledge of roads and their technical life, relation between planning, geometrical design, construction and maintenance of the rural roads. Field- and laboratory methods used for determination of soil material properties. Understanding of how the geometrical design is influenced by traffic and topographical assumptions and to map out how the chosen alignment influences the road in the terrain.

Properties of different unbound and bound material and how chosen pavement design method affects the thickness of the road construction. Stresses and strains in flexible pavements.

To describe how the road maintenance is financed and organized with new investments and maintenance. Sustainable alternatives for construction and maintenances of roads.

Engineers skill in CAD

Examination details

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

Assessment: The examination is composed of two parts. The first part is based on written presentation of the project work and the second part is based on final written prov. Participation in laboratory and written presentation of the results is a part of the course. Mandatory attendance at a possible study visit.

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: VTGA01 Engineering Geology and VSMA05 Structural Mechanics.

The number of participants is limited to: No

The course overlaps following course/s: VVBF05

Reading list

- Sven Agardh & Ebrahim Parhamifar: Vägbyggnad. Liber, 2014, ISBN: 978-91-47-09346-5. Road construction.
- Ebrahim Pahamifar: Övnings-, laborations- och formelsamling. 2019. Exercise book.

Contact and other information

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

Further information: The course is given in Swedish