

Syllabus academic year 2011/2012

(Created 2011-09-01.)

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## ROAD CONSTRUCTION VVBF20

**Credits:** 5. **Grading scale:** TH. **Cycle:** G2 (First Cycle). **Main field:** Technology. **Language of instruction:** The course will be given in Swedish. **VVBF20 overlaps following cours/es:** VVBF05. **Compulsory for:** V3. **Course coordinator:** Ebrahim Parhamifar, Ebrahim.Parhamifar@tft.lth.se, Traffic and Roads. **Recommended prerequisites:** VTGA01 Engineering Geology and VSMA05 Structural Mechanics. **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. **Home page:** <http://www.tft.lth.se>.

### **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.

### *Knowledge and understanding*

For a passing grade the student must

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

### *Skills and abilities*

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

Produce a recipe for production of standard asphalt concrete and evaluate its properties according to specifications

### *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*

### **Literature**

Course compendium i road construction