



**LUNDS UNIVERSITET**  
Lunds Tekniska Högskola

*Course syllabus*

# Trafiksimulering Traffic Simulation

**VTVN10, 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

**Elective for:** V4-tv

**Language of instruction:** The course will be given in English on demand

## Aim

The aim of the course is to give in-depth knowledge about traffic simulation, both regarding the underlying theories, as well as their applications in setting up a model adapted for actual needs.

## Learning outcomes

### *Knowledge and understanding*

For a passing grade the student must

- evaluate what kind of problems simulation is an appropriate tool for
- evaluate which are the most important input variables for simulation models, depending on the areas of application
- assess what output data are relevant for different areas of application, and analyse output data

### *Competences and skills*

For a passing grade the student must

- plan and conduct traffic simulation studies on different levels
- design traffic models

### *Judgement and approach*

For a passing grade the student must

- Understand the value of systematic investigation work, traffic modelling and traffic simulation,

## Contents

The course includes introduction to, and theoretical background of, different types of models (approaches, principles, scopes). The course also deals with frequent applications, essential differences between applied theories and limitations of the different models as well as handling stochasticity and uncertainty in simulation models. Students should practice all parts in a traffic simulation project preparing their assignment with the most commonly applied softwares for simulation and modelling. The project will include data collection and preparation, calibration, validation, analysis of software output, comparison between alternatives and presentation of results.

Learning is performed in various teaching assignment forms such as lectures, group assignments and computer assignments. Examination is done by oral and written presentation.

## Examination details

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

**Assessment:** Approved assignments and project work. The final grade is awarded on the basis of the grade on the individual assignments and the final project report and an oral presentation.

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

**Admission requirements:**

- VTTF01 Traffic Engineering
- VTVN15 Traffic Engineering and Analysis

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

**The course overlaps following course/s:** VTTN01

## Reading list

- Immers L.H. & Logghe S: Traffic Flow Theory. Katholieke Universiteit Leuven, Faculty of Engineering, Department of civil engineering, section Traffic and infrastructure,.
- Ortuzar J & Willumsen L: Modelling Transport, 4th ed. Wiley, 2011, ISBN: 978-0-470-76039-0.
- Handbok för kapacitetsanalys med hjälp av simulering. Trafikverket TRV2013/7994, 2013, ISBN: TRV2013/7994.
- Selected parts of VGU, TRAST and Effektkatalog (in Swedish).
- A course library is available during the course.

## **Contact and other information**

**Examiner:** Carl Johnsson, [carl.johnsson@tft.lth.se](mailto:carl.johnsson@tft.lth.se)

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