



# AH2171 Traffic Engineering and Management 7.5 credits

## Traffic Engineering and Management

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for AH2171 valid from Autumn 2014

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Built Environment

## Specific prerequisites

For admitted students to the Master of Science in Civil Engineering and Urban Management (CSAMH) or the Master of Science in Transport and Geoinformation Technology (TTGTM), there are no additional requirements.

For other students:

- A completed bachelor's degree in civil engineering, urban planning, geomatics, geography, engineering physics, computer science, statistics, economics, and/or mathematics, with at least 60 university credits (hp) in mathematics, physics, statistics and/or computer science; and
- English language proficiency equivalent to (the Swedish upper secondary school) English course B/6.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

The overall aim of the course is to provide fundamental knowledge of traffic flow theory and its application methods for capacity analysis, design, management, operation and selection of control method for road traffic facilities with regard to traffic performance and safety.

After the course you should be able to:

- Understand the fundamental traffic flow theories and identify basic traffic variables and their relationships including speed, density and flow.
- Analyze a variety of traffic facilities and evaluate capacity and level of service (LOS).
- Design signalized intersections including isolated, coordinated and roundabouts.
- Assess, evaluate and justify methods of traffic management and control.
- Understand the use of advanced simulation methods for the analysis of traffic systems and software tools for the design of traffic control strategies.
- Evaluate traffic impacts on the environment and safety.
- Calculate and apply methods for reducing traffic impacts on communities such as traffic calming strategies, accident reductions and parking management.
- Understand the role of ITS in Dynamic Traffic Management.

## Course contents

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- Understand the role of ITS in Dynamic Traffic Management.

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## Course literature

- May, A. Traffic Flow Fundamentals (1990), selected sections.
- R.Roess, E.Prassas, W.Mc Shane (2004), Traffic Engineering 3rd Edition. Prentice Hall
- O'Flaherty (ed.) (1997) Transport Planning and Traffic Engineering, part III, chapters 16-18, 20 and 22 – Part IV, chapters 24-28, Arnold, London, together with a selection of research articles.
- Al-Mudhaffar, 2006 Impacts of traffic signals control strategies, part 1.
- Manual for TRANSYT.
- HCM 2010 (selected chapters)
- Freeway Management and Operations Handbook <http://ops.fhwa.dot.gov/freeway-magmt/publications/...>

## Examination

- PROA - Project, 3.5 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Examination, 4.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

- TENA - Examination, 4,0 hp, betygsskala: A, B, C, D, E, FX, F
- PROA - Project, 3,5 hp, betygsskala: A, B, C, D, E, FX, F

## Other requirements for final grade

A mandatory written examination equivalent to 4 cr with grading scale A-F and a mandatory project assignment equivalent to 3.5 cr with A-F .

The course grade will be determined by the grade on the written examination and project.

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.