



FAF3813 Traffic Flow Theory 7.5 credits

Trafikflödesteori

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

Establishment

The course syllabus is valid from Autumn 2023 according to the Head of school decision: A-2023-0360, 3.2.2. Decisiondate 2023-08-29

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Admitted to third cycle studies in transport science.

Language of instruction

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

Intended learning outcomes

After successfully completing this course, the student shall be able to

- Describe basic concepts and theories of traffic flows of different modes of transport
- Understand the difference between macroscopic and microscopic models
- Apply traffic flow theory to the analysis, design and operation of transport systems
- Discuss the role of new technologies, computational methods and business models in enabling equal and sustainable transport systems

Course contents

This course introduces students to the field of transportation engineering, focusing on supply-oriented traffic flow theory and analysis for various modes of transportation, including motorized individual transportation (car), scheduled transportation (logistics, rail, public transportation), and active transportation (e.g., bicycle/pedestrian). The course provides knowledge of traffic flow theory and its application methods for capacity analysis, planning, design, management, operation and control of transport facilities to improve safety, mobility, reliability, productivity and sustainability for different transport modes.

The course content focuses on modelling and analysis of transport supply, and is structured by transport mode.

- Basics of traffic flow
- Continuum models for traffic flows
- Road traffic flow theory and applications
- Rail traffic flow theory and applications
- Public transport flow theory and applications
- Active Traffic flow theory and applications

Examination

- PRO1 - Project, 4.0 credits, grading scale: P, F
- TEN2 - Oral exam, 3.5 credits, grading scale: P, 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.

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

Other requirements for final grade

The student shall pass all modules in order to pass the course.

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.