

## Course information

# Quantitative analysis of transport and traffic systems

### Aim:

The aim of the course is that the participants should develop knowledge and understanding for how quantitative models and tools can be used for analysis and evaluation of transport and traffic systems, with special focus on the system effects of introducing ITS.

### Objectives:

After the course the participants should be able to

- describe typical application areas for quantitative traffic models and logistic models
- describe the possibilities and limitations for using traffic models and logistic models
- describe the principles and theoretical background for the models
- discuss and evaluate the possibilities to use quantitative models for analyzing applications of ITS
- perform experiments and analysis with model-based commercial software.

### Target group:

The main target group is the PhD-students in the National Postgraduate School of ITS. Other students with an interest in ITS and quantitative analysis are also welcome.

### Course content:

- Classification of models
- Models for route choice and traffic network analysis
- Models for microscopic traffic simulation
- Models for planning and simulation of logistic systems and supply chains
- Practical use of software EMME/3, AIMSUN and Movex.

## **Course structure**

The course encompasses 7.5 hp and is given during the fall 2009. The course has three parts focusing on three types of models and three types of software. The three parts are:

- I/ Analysis of traffic networks. Software EMME/3.
- II/ Micro-simulation of road intersections and vehicle-based systems. Software AIMSUN.
- III/ Analysis of supply chains. Software Movex SCP.

The participants meet four times (full days) in Norrköping. On each meeting (1-3) there is a lecture introducing problems, models and theory. Thereafter the software and the project task are introduced. To each part a number of articles are given describing analysis and applications. On the following occasion (2-4), the project and the articles are presented and discussed in a seminar.

## **Examination:**

The grading in the course is “passed” or “not passed”. The participants will be assessed based on their project work and their performance during the presentations and discussions.

## **Course literature:**

To be announced.

## **Examiner:**

Prof Jan Lundgren, Linköpings universitet, e-mail: janlu@itn.liu.se

## **Teachers:**

Clas Rydergren (Part 1), Andreas Tapani (Part 2) and Fredrik Persson (Part 3).