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EXCHANGE STUDY PACKAGE TRANSPORT ENGINEERING & MANAGEMENT



This exchange package is divided into four different courses. During the first half of the semester you will learn about the complex links between transport and land use in the course "Land Use & Transport Interactions". You will pay attention to mathematical techniques that are commonly used in Traffic Engi neering in "Mathematical Optimization in Transport". The second half of the semester contains the courses: "Sustainable Transport" and "Traffic Management". Problems and solution of sustainability in the transport sector will be discussed. In addition, you will learn about traffic modelling and traffic management.

WHAT IS AN EXCHANGE STUDY PACKAGE?

Exchange Study Packages are balanced, coherent, well-structured, and self-contained sets of courses at a final Bachelor year academic level. Choosing one of these packages means you do not have to worry about selecting the right courses or managing your calendar to fit all of your classes. Simply apply for a package that suits your academic background and interest to be ensured of a well-balanced exchange programme, often consisting of 30 EC. These packages are generally accessible to students who have successfully completed the first two years of their Bachelor programme.

EXCHANGE STUDY PACKAGE First half of semester

Land Use & Transport Interactions (7,5 EC)

Transport and land use are strongly interrelated. It is well-known that the quality of transport services influences the attractiveness of locations of activities (working, living, etc.). Land use density, diversity and neighbourhood design influences transport demands.

The course is divided in three parts and focuses on transport and land use interactions in the Western world, in particular Europe and the United States, but attention will also be paid to the developing world. Firstly, it treats theories and empirical evidence on land use and (passenger) transport interactions. This is done through a series of lectures. Moreover, students will review and discuss a journal paper related to the topic of the course. Secondly, the course deals with Land-Use and Transport Interaction (LUTI) models. Furthermore, students will conduct a scenario study and examine the land use, mobility and accessibility impacts of land use and transport policy strategies, using a GIS-based land-use/transport interaction model for the Netherlands. Thirdly, the course deals with the practice of integrated land-use and transport planning. Lectures will cover examples of accessibility planning and Transit Oriented Development (TOD) in the Netherlands. Students will write and examine Stedenbaan as a case study, including an analysis of governance issues and barriers for TOD around a Stedenbaan railway station.

UNIVERSITY OF TWENTE.





It never gets easier, you just go faster.

Mathematical Optimization in Transport (7,5 EC)

This course provides mathematical techniques which are commonly used in Traffic Engineering. After finishing this course you are able to deal with the basic concepts of continuous and combinatorial optimization. In addition, you will become acquainted with concepts and mathematical techniques related to transport networks and equilibrium problems. Lastly, you will learn to apply analytical and numerical solution methods using Matlab.

Second half of semester Sustainable Transport (7,5 EC)

This course discusses problems and solutions of sustainability in the (urban) transport sector in a national and international context. In addition, attention will be paid to scientific methods and techniques for applying sustainable development theory in the planning and assessment of sustainable transport systems. Also specific topics and dilemmas in sustainable transport theory and practice will be discussed. During the course you will review key literature in the field of sustainable transport, linked to actual developments in the field. Based on the students' individual interest one or more topics or dilemmas of sustainable transport will be addressed in an issue paper that will be presented in a public seminar. Students are expected to actively debate and deliberate in this course. Each class session will be chaired by some students who also prepare a discussion through a chapter summary and presentation, followed by a discussion and defending propositions in a Lagerhuis debate.

Traffic Management (7,5 EC)

In this course the concept of traffic management is explained, starting from the basis of traffic operations, which can be described by speed, density and flow, and further by studying temporal and spatial variations and correlations. A number of specific traffic management measurers is explained, including the importance of data, the impact on behaviour, and the impact on traffic operations, externalities and equity. The course starts with the concept of regional traffic monitoring. Then qualities of the transport system are discussed, such as traffic safety, reliability, robustness, and environmental impact, together with some statistical properties of the transport system. Next, traffic control and its properties are discussed, followed by important measures, such as Ramp Metering, Motorway Traffic Management system, Traffic information, Pricing and Shockwave control. The course includes two assignments. One assignment deals with a simulation environment in which a traffic management plan is implemented and its operations is studied on a network level. The other assignment deals with behavioural issues in relation to the design and operation of traffic management measures.

Detailed Learning Goals can be found in the Osiris Course Catalogue.

MORE INFORMATION TUITION FEES To be paid at home institution.

ADMISSION CRITERIA

Two years of Bachelor-level in Civil Engineering or equivalent.

STUDY LOAD

30 EC

START Spring Semester

For more information about this Exchange Study Package, contact the Departmental Exchange Coordinator of the Faculty of Engineering Technology utwente.nl/go/exchange-coordinators