

EXCHANGE STUDY PACKAGE WATER ENGINEERING & MANAGEMENT



This exchange package will pay attention to different quantitative and qualitative aspects of water management. You will learn about the physical mechanisms in different water systems (i.g. river basins, marine systems), the impact of different measures on the water systems and their environment. In addition, you will learn to carry out a design process for an integrated water management problem.

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 Hydrology (7,5 EC)

Hydrology deals with the part of the hydrological cycle occurring around the earth surface. It constitutes the link between weather and climate on the one hand and the discharge of water in rivers on the other hand and therefore plays a central role in water management. Knowledge of the amounts of precipitation, corresponding frequencies and the resulting of runoff are of major importance to estimate impacts of measures and changes in a river basin on for example river discharge. Next, this knowledge can be used to support water policy and management in rural and urban areas. During this course the hydrological cycle from precipitation to river discharge will be considered, in particular those aspects which are important for a civil engineer.

Choose 1 of 2 options: 1. Water Systems (7,5 EC)

The course water systems gives a qualitative introduction into river systems, marine systems, and water quality. The part on river systems deals with the following topics: river forms, water flow in rivers, influence of tides on rivers, sediment transport, field measurements and human interventions in river systems. Marine systems discusses essential physical processes such as tides, waves, sediment transport and morphology that plays a role in the marine environment

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Water is the driving force of all nature.

like shelf seas, estuaries and beaches. Water quality pays attention to the sources, fate, and transport of various types of pollutants in surface water and their effects on the environment. In addition, attention is given to water quality policies, the derivation of water quality standards and measures to improve water quality.

2. Water Footprint Assessment (7,5 EC)

The aim of the course is to develop understanding of the intricate relation between freshwater and the functioning of societies and economies at large, and the role that governments, companies, farmers, investors and consumers have in achieving a sustainable, efficient and equitable use of freshwater systems. The course is characterized by an interdisciplinary approach, in which knowledge and techniques from different disciplines are brought together in order to arrive at an integral understanding of the impact of humans on freshwater systems and, vice versa, the societal and economic impact of freshwater scarcity and pollution. Substantial attention will be paid to the global and cross-sector dimension of water management.

Second half of semester Design Project Water (7,5 EC)

The central goal of the course is to learn to carry out a design process for an integrated water management problem. A design has to fulfil functional requirements, it has to address additional user demands as well as possible, and it has to have a scientifically sound basis. Creative, elegant solutions are sought and presented as attractive as possible. Alternative designs are evaluated against a collection of relevant criteria, leading to the selection of a preferred design. All these aspects of a design trajectory appear in this design project, which is representative for future professional activities of graduated students. In the project, a design is made for the implementation of water management measures in the catchments of the rivers Aa and Dommel and the surroundings of the city of 's Hertogenbosch.

Data analysis in Water Engineering & Management (7,5 EC)

Observational data are an important source of information for understanding and predicting the behaviour of water systems. During this course several data analysis techniques are treated that are commonly applied in the analysis of time series, spatial data, and multivariate data. The focus will be on getting insight in the underlying concepts, merits, and pitfalls, rather than on gaining in-depth expertise in applying these techniques. In addition, attention will be paid to learning a general strategy for data investigation at large, that is, how to proceed form an initial question with imperfect data, to an answer that is supported by a sound analysis of that data.

Detailed Learning Goals of all courses 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 Fall 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**