GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Groundwater Flow (I002660)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 90 h** **Contact hrs** 30.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	lecture	10.0 h
			seminar: practical PC room classes	20.0 h

Lecturers in academic year 2020-2021

Verhoest, Niko	LA20	lecturer-in-charge

Offered in the following programmes in 2020-2021	**crdts**	**offering**
Master of Science in Bioscience Engineering: Land and Water Management	3	A

Teaching languages

Dutch

Keywords

Groundwater flow, numerical techniques, groundwater modelling

Position of the course

To gain insight in groundwater flow and its modelling.

Contents

1. Introduction to groundwater flow
2. Flow towards wells
3. Numerical solution methods
4. Principes of groundwater modelling

Initial competences

Groundwater flow builds upon certain final competences of the courses 'Hydrological Processes and Hydrometry', 'Modelling and simulation of biosystems', 'Scientific computing' (knowledge of Matlab) and 'Differential Equations'; or the learning outcomes have been achieved differently.

Final competences

1 To derive theoretically the basic equations of groundwater flow.
2 To calculate the groundwater flow to wells.
3 To implement a numerical groundwater model.
4 To understand the procedure taken during a groundwater modelling study.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, seminar: practical PC room classes

Extra information on the teaching methods

The theory is taught during lectures. Exercises exist of solving problems that demonstrate the theory and of implementing a groundwater model in Matlab.

Learning materials and price

A syllabus is available (in Dutch) Estimated cost: 12 EUR

References

The handbook of groundwater engineering, J.W. Delleur (ed.), Springer-Verlag, Heidelberg, 1999.

Course content-related study coaching

Possibility to ask questions during and after lectures and availability of the lecturer for questions and additional information with regard to theory and practice.

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions, skills test

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions, skills test

Examination methods in case of permanent evaluation

Report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Closed book exam and a PC- exercise in which a groundwater model needs to be addressed.

Calculation of the examination mark

Theory (period aligned evaluation): 20%
Exercises (period aligned evaluation): 50%
Exercises (non-period aligned evaluation): 30%

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.