Module title	Hydrodynamic Simulation – RWTH Aachen
Identifier	3015870
Duration (Semester)	one semester
Cycle (Semester)	summer/ winter semester
Valid from	winter semester 2017
Valid until	-
Module level	Master
Content	Basics; discretization of flow equations; solving methods; theory of modelling; practical exercise with commercial simulation software in model design, model calibration, display of results, interpretation and presentation of results
Learning Objectives/ Learning Outcomes	Students acquire advanced knowledge of numerical methods for solving flow and transport processes in channels and in groundwater. A key aspect is to obtain understanding of modelling processes using real-life engineering projects in the field of water resource management. Furthermore students are encouraged to apply numerical methods independently using conventional numerical simulation software in the area of resource management and mapping complex domains. Learning objective of the course is the practical application of numerical simulation software as a preparation for engineering practice. The course supports both individual and group-related work in order to encourage problemsolving competence. Hereby an opportunity for self-assessment is given to the students.
(Study-Specific) Prerequisites	None
(recommended) Requirements	Recommended prior knowledge: Hydrodynamic equations (Hydromechanics III or comparable).
References	• Umdrucke HM III, HYD-SIM; • Martin, H.; Pohl, R. (2008): Technische Hydromechanik 4 -Hydraulische und numerische Modelle. Huss-Medien-GmbH. ISBN 978-3345009242; • Kinzelbach, W. (1992): Numerische Methoden zur Modellierung des Transports von Schadstoffen im Grundwasser. Oldenbourg. ISBN 3-486-26347-1 - • Handbücher der verwendeten Software-Produkte; • Bollrich, G. (2007): Technische Hydromechanik 1 - Grundlagen. Huss-Medien-GmbH. ISBN 3345009129; • Forkel, C. (2003) Numerische Modelle für die Wasserbaupraxis: Grundlagen, Anwendungen und Qualitätsaspekte. IWW, RWTH Aachen. ISBN: 3-8322-3082-3. (Mitteilungen; 130); • Helmig, R. (1996): Einführung in die numerischen Methoden der Hydromechanik. Institut für Wasserbau, Universität Stuttgart. ISBN 3-921694-86-8 (Mitteilungen; 86)
Language	English
Examination Terms	Graded written exam. There are no admission requirements for attending the written exam
Miscellaneous	-
Module coordinator	Universitätsprofessor Dr.-Ing. Holger Schüttrumpf
ETCS credits	5
Contact time (WSH)	2
Examination duration (min)	0

Total hours (h)	120
Contact hours (h)	30
Self-study hours (h)	90

Exam node (Kennung)

Title	ECTS Credits	Contact time (WSH)	Recommended Semester (Study start winter)	Recommended Semester (Study start summer)
Exam Hydrodynamic Simulation (3015870)	5	0	2nd semester	no semester recommended

Offer node

Title	ECTS Credits	Contact time (WSH)	Recommended Semester (Study start winter)	Recommended Semester (Study start summer)
Lecture/exercise Hydrodynamic Simulation	-	2	2nd semester	no semester recommended