

Module number	Module name	Module coordinator
3010907	Distributed Information Systems for Civil Engineering	Univ.Prof. Dr.-Ing. Jörg Blankenbach blankenbach@gia.rwth-aachen.de
<b>Learning goals</b>	<p><b><u>(Geo)Databases:</u></b> ability to design an abstract database and to implement in the relational database model, learning how to access a database system and insert, query and search data, basic knowledge of object-relational databases, knowledge of database-driven management of spatial data (geo data);</p> <p><b><u>Distributed (Geo)Information Systems:</u></b> understanding the architecture and functional principle of distributed information systems, basic knowledge about the underlying Internet and Web technologies, ability to build Web applications and simple Web GIS in civil and environmental engineering.</p>	
<b>Content</b>	<p><b><u>(Geo)Databases:</u></b> introduction to databases; history, terms / definitions, architecture and layer models; data modeling and abstract database design (ERM, UML); relational database model and SQL; concepts of object-oriented and object-relational database models using the example of spatial databases; geo data models, data types, spatial indexing and methods.</p> <p><b><u>Distributed (Geo)Information Systems:</u></b> architecture of distributed information systems and ntier models, basics of internet and web technology: protocols (TCP / IP, HTTP), markup and scripting languages (XML, HTML, JavaScript), basics of (geo) Web Services and Web GIS, Web (2.0) Map Viewer, AJAX.</p>	
<b>Teaching and learning methods</b>	2 SWS Small group exercise, 1 SWS Lecture and self-study.	
<b>Prerequisites</b>	None	
<b>(recommended) Requirements</b>	Knowledge of 'Programming and Geo Information Systems' is strongly recommended for participation.	
<b>Language</b>	English/German	
<b>Applicability</b>	Compulsory elective module in the Master's program Civil Engineering	
<b>Requirements for earning credit points</b>	Graded written exams. The modul grade is weighted according to the CP distribution. Admission requirements for participation in the written exam „Distributed (Geo)Information Systems“: compulsory attendance of the exercise „(Geo)Information Systems“. Admission requirements for participation in the written exam „(Geo)Databases“: Passing of etests under real classroom-based exam conditions during semester.	
<b>Credit points and grades</b>	8 ECTS Credits	
<b>Module frequency</b>	The module is offered every academic year in winter/summer semester.	
<b>Workload</b>	The total workload is 240 hours.	

<b>Module duration</b>	The module lasts two semesters.
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