

Module code (1.)	Module description (2.)	Category (3.)
MBI 2510 Stand: 07.10.2021	Geodesign	Int. Master
	Degree program (4.)	Sustainable Engineering of Infrastructure
	Faculty (5.)	Civil Engineering and Conservation / Restoration

Module supervisor (6.)	Prof. Dr.-Ing. Robert Kaden
Type of module (7.)	P (obligatory)
Frequency (8.)	Annually
Standard semester of study (9.)	2nd semester
Credits (ECTS) (10.)	5 ETCS
Assessment (11.)	Coursework and project report
Language of instruction (12.)	English
Admission requirements (13.)	-
Module is a requirement for (14.)	-
Module duration (15.)	1 semester
Mandatory registration (16.)	No
Applicability of module (17.)	Civil Engineering

Course (18.)	Lecturer (19.)	Type (20.)	No. of students (max.) (21.)	No. of courses per week (22.)	Contact hours per week (23.)	Workload	
						Face-to-face (24.)	Self-study (25.)
1 Geoinformation Technology	Prof. Dr. Kaden	Seminar	25	1	2	30	30
2 Geodesign Project	Prof. Dr. Kaden	Seminar	25	1	2	30	60
Total					4	60	90
Workload for the module (26.)						150	

Learning objectives (27.)	After successful participation in the course, the students are familiar with the concepts and methods of geoinformatics, they are familiar with Geographic Information Systems (GIS) and are trained in the use of multi-layered and differently structured, open geodata (data models and formats). In addition, the students are able to include spatio-semantic aspects of a design of a planned infrastructure in a GIS and to analyse its inventions to the environment and visualise the results e.g. for decision support.
Course contents (28.)	The contents of the module are as follows: <ul style="list-style-type: none"> • Basic concepts and methods of geoinformatics • Principles and functions of Geographic Information Systems

	<ul style="list-style-type: none"> • Structure, content and sources of (open) geodata • Geo Web Services and Geodata Infrastructures (GDI) • Geodatabase systems and SQL • Object-oriented geodata models (UML) and derivation of relational database schemes • Geodata analysis of raster and vector data • Design and layout of thematic maps
Preliminary exam requirements and assessment	<p style="text-align: right;">(29.)</p> <ul style="list-style-type: none"> • Module assessment: coursework and project report • Assessed using grades 1-5
Literature	<p style="text-align: right;">(30.)</p> <ul style="list-style-type: none"> • Bill: Grundlagen der Geoinformationssysteme, Wichmannverlag • Kraus: Photogrammetrie III: Topographische Informationssysteme, Dümmler