Technische Universität München

Modulbeschreibung
BGU54009: Hochwasserrisiko und Hochwassermanagement

Ingenieurfakultät Bau Geo Umwelt

Modulniveau:	Sprache:	Semesterdauer:	Häufigkeit:
Master	Englisch	Einsemestrig	Sommersemester

Credits:*	Gesamtstunden:	Eigenstudiumsstunden:	Präsenzstunden:
6	180	120	60

* Die Zahl der Credits kann in Einzelfällen studiengangsspezifisch variieren. Es gilt der im Transcript of Records oder Leistungsnachweis ausgewiesene Wert.

Beschreibung der Studien-/ Prüfungsleistungen:

The written exam consists of a theoretical part with short questions and a second part with calculations. For the theoretical part no further help is allowed. For the calculation part students can use a calculator (non progammable) and the equation and table collection connected to the course.

Prüfungsart:	Prüfungsdauer (min.):	Wiederholungsmöglichkeit:
schriftlich	120	Folgesemester

Hausaufgabe:

Ja

(Empfohlene) Voraussetzungen:

Grundmodul Hydrologie
Umweltmonitoring und Risikomanagement

Inhalt:

Concepts:
- Security and risk: terms and concepts
- The risk management cycle
- Methods for flood risk assessment: qualitative, semi-quantitative and quantitative
- Data analysis
- Uncertainty quantification
- Concepts of selection/optimization of flood protection measures (incl. Cost-Benefit Analysis)

Applications:
- Traditional flood design methods
- Risk-oriented methods / Flood design in Germany and foreign countries
- Failure of flood protection measures
- Flood scenarios in river basins
- Flood damage functions cumulative damages in river basins
- Validation of risk analysis - possibilities and limits
- Objectives and tasks of the EU directive on the assessment and management of flood risks
- Communication and legal aspects of risk, risk acceptance

Case Study:
- Programming an own MATLAB code for a simple rainfall-runoff-model
- Extend the Matlab code to probabilistically model flood extent and damages
- Selection of optimal protection measures using the MATLAB-based model

Lernergebnisse:

At the end of the module, students are able to:
- Understand the concept of risk analysis
- Apply methods for assessing flood hazard, damages and risk
- Evaluate different flood protection measures
- Understand the objectives and tasks of the EU directive on flood risk management
- Create a flood model based on MATLAB
- Use this model for flood risk assessment and for planning of flood protection measures

Lehr- und Lernmethoden:

Lectures (Power-Point-Presentation, blackboard)
Exercises (individual, small groups)
homework
script

Medienform:

Power-Point-Presentation
Blackboard

Literatur:

Will be recommended during lectures.

Modulverantwortliche(r):

Prof. Dr.-Ing. Markus Disse, markus.disse@tum.de

Lehrveranstaltungen (Lehrform, SWS) Dozent(in):

Flood Risk and Flood Management (Vorlesung-Übung, 4 SWS)
Disse M [L], Disse M, Kasparek A, Straub D

Für weitere Informationen zum Modul und seiner Zuordnung zum Curriculum klicken Sie bitte www.campus.tum.de oder hier.