

Modulbeschreibung

BGU54011: Integriertes Wasserressourcen Management

Ingenieur fakultät Bau Geo Umwelt

Modulniveau: Master	Sprache: Englisch	Semesterdauer: Einsemestrig	Häufigkeit: Wintersemester
Credits:* 6	Gesamtstunden: 180	Eigenstudiumsstunden: 120	Präsenzstunden: 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 programmable) and the equation and table collection connected to the course. The theoretical part contains 25 % and the calculation part 75 % of the total points.

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

Hausaufgabe:

Ja

(Empfohlene) Voraussetzungen:

Grundmodul Hydrologie
Umweltmonitoring und Risikomanagement

Inhalt:

- Part I - Introduction
- I. Introducing IWRM
 - The Overall Problem and Main Challenges
 - IWRM Principles
 - Definition of IWRM
- II. How to Implement IWRM
 - The enabling environment
 - The institutional roles
 - Management instruments
- Part II - Management and planning tools (Lingo and MATLAB)
 - Introduction to optimization
 - Linear optimization
 - Dynamic optimization
 - Multi-objective optimization
- Part III - IWRM Performance and Evaluation
 - Uncertainty analysis
 - Introduction, Monte Carlo simulation, Stochastic Optimization
 - Quantifying Performance Criteria
- Part IV River Basin Management Overview
 - River Basin Planning Models
 - Water Quality Modeling and Prediction

Lernergebnisse:

At the end of the module, students are able to:

- understand the principles of integrated and sustainable water management,
- understand different institutional roles in several countries,
- apply linear and non-linear optimization tools,
- analyse and evaluate water related decision problems,
- differentiate between a range of river basin management tools and models.

Lehr- und Lernmethoden:

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

Medienform:

Power-Point-Presentation
blackboard

Literatur:

- Global Water Partnership Technical Advisory Committee (TAC) Background paper on Integrated Water Resources Management
- <http://www.gwp.org/en/The-Challenge/What-is-IWRM/Dublin-Rio-Principles/>
- Bonn 2011 Conference proceedings The Water, Energy and Food Security Nexus, Solutions for the Green Economy
- United Nations World Water Assessment Programme
- Water Resources System Planning and Management (Daniel P. Loucks)

Modulverantwortliche(r):

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

Lehrveranstaltungen (Lehrform, SWS) Dozent(in):

Integrated Water Resources Management (Vorlesung-Übung, 4 SWS)
Disse M [L], Disse M, Yassin F

Für weitere Informationen zum Modul und seiner Zuordnung zum Curriculum klicken Sie bitte www.campus.tum.de oder [hier](#).