

Vorlesungsverzeichnis

M.Sc. Natural hazards and risk in structural engineering (up to Intake 2016/2017)

Winter 2017/18

Stand 07.05.2018

M.Sc. Natural hazards and risk in structural engineering (up to Intake 2016/2017)	3
Wahlpflichtmodul I	3
Wahlpflichtmodul II	3
Wahlpflichtmodul III	3
Earthquake engineering and structural design	3
Experimental structural evaluation and rehabilitation	3
Finite element methods	4
Structural dynamics	4
Geo- and hydrotechnical engineering	4
Geographical Information Systems (GIS) and building stock survey	4
Hazard projects and advanced geotechnologies	4
Life-lines engineering	4
Primary hazards and risks	5
Disastermanagement and mitigation strategies	5
Stochastics and risk assessment	6
Structural engineering	6
Elective compulsory modules	6

M.Sc. Natural hazards and risk in structural engineering (up to Intake 2016/2017)

NHRE - Meeting with DAAD scholarship holders

B. Bode

Sonstige Veranstaltung

Di, Einzel, 17:00 - 18:30, Marienstraße 7 B - Seminarraum 205, 05.12.2017 - 05.12.2017

Wahlpflichtmodul I

Wahlpflichtmodul II

Wahlpflichtmodul III

Earthquake engineering and structural design

Re-Examination "Earthquake engineering"

J. Schwarz

Prüfung

Di, Einzel, 13:00 - 16:00, Marienstraße 7 B - Seminarraum 205, 06.02.2018 - 06.02.2018

Experimental structural evaluation and rehabilitation

2350002 Experimental Structural Evaluation / Experimental Structural Evaluation

M. Kraus, S. Mämpel

Veranst. SWS: 2

Integrierte Vorlesung

Di, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal C

2350002 Experimental Structural Evaluation - Model testing for Rehabilitation

J. Schwarz

Veranst. SWS: 2

Projekt

Di, wöch., 17:00 - 18:30, Marienstraße 13 C - Hörsaal C

Beschreibung

Model testing for rehabilitation

Experimental investigation of retrofitting strategies on small scale structural models; testing of elements real scale, derivation of force-displacement relationships,

Voraussetzungen

Obligatory moduls of 1st and 2nd semester

Leistungsnachweis

1 exam (written or oral)

2350002 Experimental Structural Evaluation / Signal Processing and Interpretation

T. Lahmer

Veranst. SWS: 3

Vorlesung

Di, Einzel, 11:00 - 12:30, Marienstraße 13 C - Hörsaal C, 07.11.2017 - 07.11.2017

Di, wöch., 15:15 - 16:45, Marienstraße 13 C - Hörsaal C

Beschreibung

Experimental Structural evaluation

Testing facilities and technical equipment; demands on specimens and scaling requirements; arrangement of sensors, application of equivalent forces and ground motion in pseudostatic and dynamic testing; Load and displacement relationship for full-scale testing of structural elements (RC columns, masonry wall); damping devices, prediction of capacity curves and material properties and parameters; recalculation of model calibration

Voraussetzungen

Obligatory moduls of 1st and 2nd semester

Leistungsnachweis

1 exam (written or oral)

Final Examination "Experimental Structural Evaluation and rehabilitation"

M. Kraus, T. Lahmer, J. Schwarz

Prüfung

Do, Einzel, 13:00 - 16:00, Marienstraße 13 C - Hörsaal B, 15.02.2018 - 15.02.2018

Do, Einzel, 13:00 - 16:00, Marienstraße 13 C - Hörsaal C, 15.02.2018 - 15.02.2018

Finite element methods

Structural dynamics

Geo- and hydrotechnical engineering

Geographical Information Systems (GIS) and building stock survey

Hazard projects and advanced geotechnologies

Re-Examination "Hazard projects and advanced geotechnologies"

J. Schwarz

Prüfung

Fr, Einzel, 14:00 - 16:00, Marienstraße 13 C - Hörsaal C, 16.02.2018 - 16.02.2018

Life-lines engineering

Re-Examination "Life-lines engineering"

G. Morgenthal

Prüfung

Mo, Einzel, 09:00 - 12:00, Marienstraße 7 B - Seminarraum 205, 12.02.2018 - 12.02.2018

Primary hazards and risks

Disastermanagement and mitigation strategies

1724415 Urban Sociology (Introduction)

F. Eckardt

Veranst. SWS: 2

Vorlesung

Mo, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal D, 16.10.2017 - 02.02.2018

Beschreibung

Life in German cities has undergone substantial changes in the last decade. Not only the East German cities had to address new challenges after the reunification of the German nation in 1990, but also the West German cities had to reformulate their place in the complex urban networks. Cities are mirroring wider changes in German society where new social and political developments can be observed. Economic and cultural globalization has had a major impact on many aspects of urban life. This lecture will give an overview about major developments in German cities since the German reunification in 1990. It will provide both a sound source of information on the most important issues of German society and reflect important discussion of the international debate on urban studies. After delivering a historical overview of German cities, basic concepts of urban sociology will be developed by discussing subjects like gentrification, segregation, migration, life style diversity and others. The lecture provides an insight view into classical theories of urban sociology as deriving from Max Weber, Georg Simmel and the Chicago School.

Richtet sich an: Advanced Urbanism, Europäische Urbanistik, IPP/Urban, Heritage, MediaArchitecture, MA NHRE (Fak. B)

Termine: montags, 13:30 bis 15:00 Uhr, 1. Termin 16.10.2017

Bemerkung

Richtet sich an: Advanced Urbanism, Europäische Urbanistik, IPP/Urban Heritage, MediaArchitecture, MA NHRE (Fak. B)

Termine: montags, 13:30 bis 15:00 Uhr, 1. Termin 16.10.2017 Ort:

2901005 Project- and Disaster Management

H. Bargstädt

Veranst. SWS: 3

Integrierte Vorlesung

Fr, Einzel, 09:15 - 10:45, Marienstraße 7 B - Seminarraum 206, 24.11.2017 - 24.11.2017

Fr, wöch., 11:00 - 12:30, Marienstraße 7 B - Seminarraum 206, ab 24.11.2017

Fr, Einzel, 15:15 - 18:30, Marienstraße 13 C - Hörsaal D, 19.01.2018 - 19.01.2018

Sa, Einzel, 09:15 - 15:00, Marienstraße 13 C - Hörsaal C, 20.01.2018 - 20.01.2018

So, Einzel, 09:15 - 12:30, Marienstraße 13 C - Hörsaal C, 21.01.2018 - 21.01.2018

Di, Einzel, 13:00 - 14:30, Marienstraße 13 C - Hörsaal A, 20.02.2018 - 20.02.2018

Fr, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal D

Beschreibung

Acquisition of knowledge of the methods of the project management and acquisition of skills with their practical application:

Imparting of means and methods as well as of social and technical aspects of the project management in the construction industry (the-oretical and on the basis practical examples)
 Consolidate of knowledge in handling a project management soft-ware

Additional: Lecture of "Postwar cities"

Bemerkung

Modul "Disaster management and mitigation strategies" --> 6 ECTS

Part "Mitigation strategies" --> see lecture "Postwar cities"

Leistungsnachweis

Klausur oder mündliche Prüfung

Stochastics and risk assessment

Re-Examination "Stochastics and risk assessment"

R. Illge, T. Lahmer

Prüfung

Mo, Einzel, 14:00 - 16:00, Coudraystraße 13 B - Seminarraum 210, 12.02.2018 - 12.02.2018

Structural engineering

Re-Examination "Structural engineering"

G. Morgenthal

Prüfung

Mi, Einzel, 13:00 - 16:00, Marienstraße 7 B - Seminarraum 206, 14.02.2018 - 14.02.2018

Elective compulsory modules

2204015 Model Validation and Simulation - "Project Wind Engineering"

G. Morgenthal

Projekt

Mi, wöch., 13:30 - 16:45

Veranst. SWS: 4

2210012 Secondary Hazards and Risks (land-use, site studies)

T. Wichtmann

Integrierte Vorlesung

Mo, wöch., 11:00 - 12:30, Coudraystraße 11 C - Seminarraum (geologische Sammlung) 202

Di, wöch., 09:15 - 10:45, Coudraystraße 11 C - Seminarraum (geologische Sammlung) 202, Prof. Witt

Veranst. SWS: 4

Beschreibung

Mass Movements: Classification, Landslides in Soil & Rock, Landslide hazards, Slope-Stability- Analysis, Slope Monitoring & Investigation, Slope Control, Stabilization; Problem Soils: Quick clays, Expansive and Collapsible soils

Geotechnical Earthquake Engineering: Assessment of Liquefaction potential, Amplification studies and site effects & topography, Seismic bearing capacity, Seismic design of retaining walls & Seismic earth pressure

Voraussetzungen

Geo- and hydrotechnical Engineering (Soil Mechanics)

Leistungsnachweis

1 exam (written or oral)

2340010 Risk projects and evaluation of structures

J. Schwarz, L. Abrahamczyk

Veranst. SWS: 4

Projekt

Do, wöch., 11:00 - 12:30, Marienstraße 7 B - Seminarraum 206, 26.10.2017 - 26.10.2017

Do, wöch., 09:15 - 12:30, Marienstraße 7 B - Projektraum 302

Beschreibung

Risk mitigation projects

German TaskForce for Earthquake and lessons from recent missions; reinterpretation of case studies for different building types; evaluation of damaged structures, basics of tagging; Rehabilitation strategies and applied reconstruction techniques; design concepts; regional seismic risk assessment projects; damage scenarios, and loss prediction; results from Global Earthquake Model (GEM)

Evaluation and Re-Design of structures

Empirical and analytical vulnerability assessment for representatives of typical building types; identification of structural, non structural and structural affecting systems; replacement and up-grading of existing systems, performance- and scenario-based evaluation of structural damage; definition of critical conditions for simplified approaches; modeling and analysis of strengthened systems.

training in calculation tools Perform3D / 3Muri

Voraussetzungen

B.Sc.

Primary Hazards and risks; Earthquake engineering and structural design/ GIS

Leistungsnachweis

1 exam (written or oral)

2350007 Nonlinear Analysis of Structures under Extreme Loading

H. Timmler, C. Taube

Veranst. SWS: 4

Integrierte Vorlesung

Mo, wöch., 15:15 - 18:30, Marienstraße 7 B - Seminarraum 205, ab 16.10.2017

Beschreibung

Geometrically and physically nonlinear analysis of steel- and RC-structures under extreme loading; energy and numerical methods;

basics of modeling of structures and loads; nonlinear material behavior; stability and large deformations of beam structures; capacity design of seismically loaded RC-structures

Voraussetzungen

B. Sc.

Mechanics

Leistungsnachweis

1 exam (written or oral)

2401007-1 Finite element methods (Exercise)**C. Könke, C. Zacharias**

Veranst. SWS: 1

Seminar

1-Gruppe Mi, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 301, Group A, bis 06.12.2017

2-Gruppe Mi, wöch., 07:30 - 09:00, Marienstraße 7 B - Projektraum 301, Group B, bis 06.12.2017

3-Gruppe Di, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 301, Group C, bis 05.12.2017

2401007-1 Finite element methods (Lecture)**C. Könke**

Vorlesung

Fr, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 103, 16.02.2018 - 16.02.2018

Fr, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 105, 16.02.2018 - 16.02.2018

Fr, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 106, 16.02.2018 - 16.02.2018

Fr, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 205, 16.02.2018 - 16.02.2018

Fr, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 206, 16.02.2018 - 16.02.2018

Do, wöch., 11:00 - 12:30, Marienstraße 13 C - Hörsaal C, bis 30.11.2017

Do, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal C, bis 30.11.2017

Beschreibung**Finite element methods:** (50% of semester course time)

strong and weak form of equilibrium equations in structural mechanics, Ritz and Galerkin principles, shape functions for 1D, 2D, 3D elements, stiffness matrix, numerical integration, Characteristics of stiffness matrices, solution methods for linear equation systems, post-processing and error estimates, defects of displacements based formulation, mixed finite element approaches,

Voraussetzungen

Bachelor Civil Engineering

Leistungsnachweis

1 written exam: „Fundamentals of finite element methods“/ 90 min (50%)

2401012 Applied Finite element methods (Exercise)**C. Könke**

Veranst. SWS: 1

Seminar

1-Gruppe Mi, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 301, Group A, ab 13.12.2017

2-Gruppe Mi, wöch., 07:30 - 09:00, Marienstraße 7 B - Projektraum 301, Group B, ab 13.12.2017

3-Gruppe Di, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 301, Group C, ab 12.12.2017

2401012 Applied Finite element methods (Lecture)**C. Könke**

Veranst. SWS: 2

Vorlesung

Do, wöch., 11:00 - 12:30, Marienstraße 13 C - Hörsaal C, ab 07.12.2017

Do, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal C, ab 07.12.2017

Fr, Einzel, 10:45 - 12:15, Marienstraße 7 B - Seminarraum 205, 16.02.2018 - 16.02.2018

Fr, Einzel, 10:45 - 12:15, Marienstraße 7 B - Seminarraum 206, 16.02.2018 - 16.02.2018

2911001 Real estate asset management**A. Kämpf-Dern, B. Bode**

Veranst. SWS: 4

Integrierte Vorlesung

Di, wöch., 07:30 - 10:45, Marienstraße 7 B - Seminarraum 103

Beschreibung**Real Estate Asset Management**

Lecturers: Prof. Dr. Annette Kämpf-Dern (Vertretungsprofessorin), Professur Immobilienwirtschaft und –management; Oliver Vitzthum, Geschäftsführer Vitzthum Projektmanagement GmbH

Scientific Assistant: Kassandra Löffler M.Sc.

Language: English

Learning Outcomes:

The students

- acquire a solid understanding of the goals, structures, tools/methods and processes/workflows of modern sustainable real estate management
- are able to develop workflows and use tools/methods for strategic decision making in regards to the one-property-level as well as the portfolio level
- experience the practical value of theory and models in applying them on problems of every day real estate management work
- gain knowledge about the different situations and requirements of major real estate asset classes (residential and commercial: office, logistics, hotel, and/or retail)
- are able to apply knowledge and skills to formulate concepts and strategies to prepare decisions and realize value generating potential of typical asset management problems in the life-cycle of residential and commercial assets
- are competent to develop alternative options as well as scenarios and to compare them based on explicit criteria deducted from assumed or given stakeholder goals
- practice individual as well as interdisciplinary team work case studies
- learn to write and present well founded decision memos on property or portfolio strategies or regarding single measures like lease contracts or tenant improvement measures

Module Outline:

- 10.10.2017: Introduction (3 h)
- 07.11.2017, 7.30-8.30: Opening exam/Testat (60 min), based on defined pre-readings (instead of final exam)
- Interactive lectures in which
 - case studies from different life cycle phases of residential and commercial real estate asset management (strategy, marketing, letting, maintenance, redevelopment, transaction) are introduced. Topics are #
 - 07.11.17: REAM transaction of residential buildings; #
 - 21.11.17: REAM strategy and asset redevelopment; #
 - 05.12.17: Building components and interdependency, energy-oriented refurbishments; #

- 19.12.17: Asset maintenance and life cycle costs / considerations; #
- 09.01.18: REAM-marketing and leasing contracts and parameters; #
- 23.01.18: REAM organizational structure and in- and outsourcing options for REAM and asset services;
- students brainstorm, propose and discuss possible strategies/solutions, based on previous studies, personal background and concepts/models/tools/ from preparatory literature;
- external experts provide input on selected, case-relevant issues (21.11./5.12./9.1.);
- students' written decision memos are discussed and commented.
- 30.1.18: Course wrap-up (1,5 h)

Bemerkung**Additional information:**

Organization:

- Course dates: #

10.10.17, 9.30-11.00

07.11./19.12./23.1.: 7.30-10.45 #

21.11./5.12./9.1.: 7.30-12.30 (thereof 11.00-12.30 partly optional guest lectures, together with "Immobilienprojekt")

#

30.1., 7.30-9.00 (thereafter option to attend at "Immobilienprojekt" presentations)

- Total: 20 students
- Group size: 2 students ("tandems")
- Course work: 10.10.17-30.01.2018 (last submission on 21.1.18)
- Subscription: until 09.10.2017 via Moodle

Leistungsnachweis**Examination:**

- Opening exam: 25% (individual work)
- Submission of 4 (out of 5) case memos: 75% (student tandem work)

907004 Fundamentals of structural health monitoring (SHM) and intelligent structural systems

K. Smarsly, E. Tauscher, M. Theiler, M. Steiner, J. Wagner

Integrierte Vorlesung

Mi, wöch., 09:15 - 12:30, Coudraystraße 13 D - Pool-Raum 010

Beschreibung

Structural health monitoring (SHM) and smart structural systems, also referred to as "smart structures" or "intelligent infrastructure", are primary subjects of this course: Basic principles of modern SHM are taught; also, concepts of smart structural systems, which are capable of self-assessing their structural condition with a certain degree of intelligence, are elucidated in more detail. Measuring techniques, data acquisition systems, data management and processing as well as data analysis algorithms will be discussed. Furthermore, approaches towards autonomous and embedded computing, to be used for continuous (remote) monitoring of civil infrastructure, are presented. Throughout the course, a number of illustrative examples is shown, demonstrating how state-of-the-art SHM systems and smart structural systems are implemented. In small groups, the students design structural health monitoring systems that are validated in the field. The outcome of every group is to be documented in a paper, which is graded, together with an oral examination, at the end of the course. Prerequisites for this course: Object-oriented modeling and Java programming language. Requirements for examination: (i) Development of a wireless SHM system, (ii) participation in the project work (including the laboratory test), (iii) written paper. No previous experience in the above fields is required by the students; limited enrollment.

Bemerkung

Please note: Time and location will be announced. Enrollment must be done online.

Information on how to enroll will be provided in the first lecture on October 11, 2017 (9:15am), Coudraystr. 13D, Orion-Pool.

Voraussetzungen

Object-oriented modeling and Java programming language.

Basic knowledge in structural dynamics would be an advantage.

Leistungsnachweis

Oral examination and written paper.

Re-Examination "Modelling of steel structures"**M. Kraus**

Prüfung

Mi, Einzel, 09:00 - 11:00, Marienstraße 7 B - Seminarraum 205, 21.02.2018 - 21.02.2018

Re-Examination "Nonlinear analysis of structures ..."**H. Timmler**

Prüfung

Fr, Einzel, 13:00 - 15:00, Marienstraße 7 B - Seminarraum 205, 23.02.2018 - 23.02.2018