

Vorlesungsverzeichnis

M.Sc. Natural hazards and risk in structural engineering (as from Intake 2017/2018)

Winter 2017/18

Stand 07.05.2018

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M.Sc. Natural hazards and risk in structural engineering (as from Intake 2017/2018)**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

Applied mathematics and stochastics for risk assessment**2301012 Applied mathematics & Stochastics(Exercise)****T. Lahmer, D. Legatiuk**

Veranst. SWS: 2

Seminar

Mo, wöch., 17:00 - 18:30, Marienstraße 13 C - Hörsaal B, ab 30.10.2017

2301012-1 Applied mathematics (Lecture)**K. Gürlebeck**

Veranst. SWS: 2

Vorlesung

Di, wöch., 13:30 - 15:00, Coudraystraße 13 A - Hörsaal 2

Beschreibung**Applied mathematics:**

Fundamentals of linear algebra, eigenvalue problems, fixed point principles, solvers; Fourier series, convergence, Fourier transform, Laplace transform; Solution of initial value problems, boundary value problems and eigenvalue problems for ordinary differential equations; All topics are discussed from the mathematical point of view and their implementation in MAPLE will be studied. :

Leistungsnachweis

Klausur oder mündliche Prüfung

2301012-2 Stochastics for risk assessment (Lecture) / Mathematics for risk management (MBM)**T. Lahmer**

Veranst. SWS: 2

Vorlesung

Fr, Einzel, 11:00 - 12:30, Marienstraße 13 C - Hörsaal B, Prüfung, 09.02.2018 - 09.02.2018

Mo, wöch., 13:30 - 15:00, Marienstraße 13 C - Hörsaal B, Prof. Lahmer

Beschreibung**Stochastics for risk assessment:**

Introduction to probability theory with focus on situations characterized by low probabilities. Random events, discrete and continuous random variables and associated distributions. Descriptive statistics, parameter estimation. Risk Assessment by means of FORM and Monte Carlo Simulations. Introduction to reliability theory: Extreme value distributions; stochastic modeling with software tools e.g. MATLAB, Octave, Excel, R. Reliability Analysis of Systems. Catastrophic events + risk problems, Applications

Leistungsnachweis

Klausur oder mündliche Prüfung

Disaster management and mitigation strategies

Earthquake engineering and structural design

Finite element methods and structural dynamics

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%)

2401007-2 Structural Dynamics (Exercise)

V. Zabel

Veranst. SWS: 1

Seminar

1-Gruppe Di, wöch., 07:30 - 09:00, Marienstraße 7 B - Seminarraum 205, Tutorium - Group A

1-Gruppe Mi, wöch., 07:30 - 09:00, Marienstraße 7 B - Projektraum 302, Group A, bis 06.12.2017

2-Gruppe Di, wöch., 07:30 - 09:00, Marienstraße 7 B - Seminarraum 206, Tutorium - Group B

2-Gruppe Di, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 302, Group B, bis 05.12.2017

3-Gruppe Mi, wöch., 07:30 - 09:00, Marienstraße 7 B - Seminarraum 205, Tutorium - Group C

3-Gruppe Mi, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 302, Group C, bis 06.12.2017

2401007-2 Structural Dynamics (Lecture)**V. Zabel**

Veranst. SWS: 2

Vorlesung

Mi, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 105, 07.02.2018 - 07.02.2018

Mi, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 106, 07.02.2018 - 07.02.2018

Mi, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 205, 07.02.2018 - 07.02.2018

Mi, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 206, 07.02.2018 - 07.02.2018

Mi, Einzel, 09:00 - 10:30, Marienstraße 7 B - Seminarraum 103, 07.02.2018 - 07.02.2018

Mi, wöch., 11:00 - 12:30, Marienstraße 13 C - Hörsaal C, bis 29.11.2017

Do, wöch., 09:15 - 10:45, Marienstraße 13 C - Hörsaal C, bis 30.11.2017

Beschreibung**Structural Dynamics:** (50% of semester course time)

SDOF systems: free vibrations, harmonic, impulse and general excitation for undamped and damped systems, Impulse response function, frequency response function, base excitation, time step analysis: central difference and Newmark methods; MDOF systems: modal analysis, modal superposition, modal damping, Rayleigh damping, Frequency response functions, state-space models

Voraussetzungen

Bachelor Civil Engineering

Leistungsnachweis**1 written exam:** „Fundamentals of structural dynamics“/ 90 min (50%)**Geo- and hydrotechnical engineering****Geographical Information Systems (GIS) and building stock survey****2904002 Geographical information systems (GIS) and building stock survey (Exercise/Project)****J. Schwarz, S. Beinersdorf**

Veranst. SWS: 3

Seminar

1-Gruppe Di, wöch., 09:15 - 10:45, Coudraystraße 13 D - Pool Fak. B 009, Group A, ab 07.11.2017

2-Gruppe Mo, wöch., 15:15 - 16:45, Marienstraße 7 B - Projektraum 301, Group B, ab 06.11.2017

3-Gruppe Di, wöch., 07:30 - 09:00, Coudraystraße 13 D - Pool Fak. B 009, Group C, ab 07.11.2017

Mo, Einzel, 15:15 - 18:30, Marienstraße 13 C - Hörsaal B, 09.10.2017 - 09.10.2017

Mo, Einzel, 15:15 - 16:45, Marienstraße 13 C - Hörsaal B, 16.10.2017 - 16.10.2017

Mo, Einzel, 15:15 - 16:45, Marienstraße 13 C - Hörsaal B, 30.10.2017 - 30.10.2017

Mo, Einzel, 15:15 - 16:45, Marienstraße 13 C - Hörsaal B, 11.12.2017 - 11.12.2017

Mo, Einzel, 15:15 - 18:30, Marienstraße 13 C - Hörsaal B, 29.01.2018 - 29.01.2018

Beschreibung**Training in:**

Coordinate systems; global maps for the natural hazard phenomena; quality and availability of input data; layers for natural hazard related parameters (topography, geology and subsoil); reproduction of historical events and associated parameters; layers for risk assessment and loss estimation procedures; link between layers and risk mapping procedures.

Leistungsnachweis

Project report + oral presentation

2904002 Geographical information systems (GIS) and building stock survey (Lecture)

V. Rodehorst

Veranst. SWS: 1

Integrierte Vorlesung

Di, wöch., 11:00 - 12:30, Coudraystraße 11 C - Seminarraum/Hörsaal 001

Beschreibung

Fundamentals of three-dimensional positioning, photogrammetry, GIS/cartography, land management / cadastre; earthwork computation; spatial data in daily life; instruments, equipment and technologies for advanced detailed building survey (geodetic, photogrammetric, satellite data).

Leistungsnachweis

1 project presentation + written report

Life-lines engineering

Primary hazards and risks

2202001 Seismic Monitoring / Regional Ground Motion

J. Schwarz

Veranst. SWS: 4

Integrierte Vorlesung

1-Gruppe Di, wöch., 15:15 - 16:45, Marienstraße 7 B - Projektraum 302, Group A - Regional ground motion, ab 17.10.2017

2-Gruppe Di, wöch., 17:00 - 18:30, Marienstraße 7 B - Projektraum 302, Group B - Regional ground motion, ab 17.10.2017

3-Gruppe Mo, wöch., 15:15 - 16:45, Marienstraße 7 B - Projektraum 302, Group C, ab 06.11.2017

Di, Einzel, 15:15 - 16:45, Coudraystraße 9 A - Hörsaal 6, 05.12.2017 - 05.12.2017

Fr, Einzel, 14:00 - 17:00, Marienstraße 13 C - Hörsaal A, 09.02.2018 - 09.02.2018

Fr, Einzel, 14:00 - 17:00, Marienstraße 13 C - Hörsaal B, 09.02.2018 - 09.02.2018

Do, wöch., 15:15 - 18:30, Marienstraße 13 C - Hörsaal C, Seismic monitoring

Beschreibung

Seismic Monitoring:

Description of seismic action; recording instruments, input parameters for seismic hazard assessment; EQ-Action for building design; Measurements for site response evaluation; Building Monitoring Systems: tasks and developments, analysis of instrumental data; identification of dynamic and structural parameters

Regional Ground Motion:

Identification of hazard describing parameters; seismic networks, availability/ elaboration of ground motion data and records; Ground Motion Prediction Equations (GMPEs); application of ground motions models and tools to the study area and target site; re-interpretation of national code background; site categorization and response studies.

Voraussetzungen

Bachelor Civil Engineering

Leistungsnachweis

1 Project report „Regional Ground Motion ” (17%) /

1 written exams „Seismic Monitoring “/ 180 min (50%)

2204017 Wind Risk Mitigation in Structural Engineering

G. Morgenthal

Veranst. SWS: 2

Integrierte Vorlesung

Mo, Einzel, 09:00 - 18:30, Marienstraße 13 C - Hörsaal C, 19.02.2018 - 19.02.2018

Di, Einzel, 09:00 - 18:30, Marienstraße 13 C - Hörsaal C, 20.02.2018 - 20.02.2018

Mi, Einzel, 09:00 - 18:30, Marienstraße 13 C - Hörsaal C, 21.02.2018 - 21.02.2018

Do, Einzel, 09:00 - 18:30, Marienstraße 13 C - Hörsaal C, 22.02.2018 - 22.02.2018

Fr, Einzel, 10:00 - 11:30, Marienstraße 13 C - Hörsaal A, Final examination, 23.02.2018 - 23.02.2018

Fr, Einzel, 10:00 - 11:30, Marienstraße 13 C - Hörsaal B, Final examination, 23.02.2018 - 23.02.2018

Beschreibung

Wind Risk Mitigation in Structural Engineering

meteorology, stochastic wind effects including aeroelasticity, extreme value analysis; risk chain, storm tracks with high damage accumulation, hazard maps; basics of wind resistant design and environmental planning, wind tunnel technology, monitoring and simulations, risk control (control of exposition, shelter projects, wind effects at new types of infrastructures), examples and applications

Leistungsnachweis

1 exam (written or oral - weighting acc. to credit points)

Structural engineering

2205012 Final Examination "Structural engineering - Standard systems"

M. Kraus, G. Morgenthal

Prüfung

Mi, Einzel, 13:00 - 14:30, Marienstraße 7 B - Seminarraum 103, 14.02.2018 - 14.02.2018

Mi, Einzel, 13:00 - 14:30, Marienstraße 7 B - Seminarraum 104, 14.02.2018 - 14.02.2018

Mi, Einzel, 13:00 - 14:30, Marienstraße 7 B - Seminarraum 105, 14.02.2018 - 14.02.2018

Mi, Einzel, 13:00 - 14:30, Marienstraße 7 B - Seminarraum 106, 14.02.2018 - 14.02.2018

2205012 Structural engineering – Standard systems (Lecture)

G. Morgenthal

Veranst. SWS: 2

Vorlesung

Fr, wöch., 09:15 - 12:30, Marienstraße 13 C - Hörsaal C, Start on 13th October 7 dates by arrangement

Beschreibung

Structural Engineering – Standard systems:

History of structures; building materials; structural form and structural behavior; actions on structures; structural reliability and codes of practice; mechanical modelling of structures; design of reinforced concrete and steel structures

2205012 Structural engineering – Standard systems (Exercise)

G. Morgenthal, S. Rau, C. Taube

Veranst. SWS: 1

Seminar

1-Gruppe Fr, wöch., 13:30 - 15:00, Marienstraße 7 B - Seminarraum 205, Group A - 7 dates by arrangement
 2-Gruppe Fr, wöch., 15:15 - 16:45, Marienstraße 7 B - Seminarraum 205, Group B - 7 dates by arrangement
 3-Gruppe Fr, wöch., 11:00 - 12:30, Marienstraße 7 B - Seminarraum 105, Group C - 7 dates by arrangement, ab 03.11.2017

2205013 Structural engineering – Standard systems (Lecture)

M. Kraus, B. Wittor

Veranst. SWS: 1

Vorlesung

Do, wöch., 07:30 - 09:00, Marienstraße 13 C - Hörsaal C, 7 dates by arrangement

Beschreibung

Design of steel and steel-concrete composite structures; Post-tensioned concrete structures – design and detailing;
 Design of steel connections and detailing

Bemerkung

Start on 23.11.

Voraussetzungen

Bachelor Civil Engineering

Structural parameter survey and evaluation

Elective compulsory modules

2401011 Applied Structural Dynamics (Exercise)

Veranst. SWS: 1

Seminar

1-Gruppe Mi, wöch., 07:30 - 09:00, Marienstraße 7 B - Projektraum 302, Group A, ab 13.12.2017
 2-Gruppe Di, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 302, Group B, ab 12.12.2017
 3-Gruppe Mi, wöch., 09:15 - 10:45, Marienstraße 7 B - Projektraum 302, Group C, ab 13.12.2017

2401011 Applied Structural Dynamics (Lecture)

V. Zabel

Veranst. SWS: 2

Vorlesung

Mi, wöch., 11:00 - 12:30, Marienstraße 13 C - Hörsaal C, ab 06.12.2017
 Do, wöch., 09:15 - 10:45, Marienstraße 13 C - Hörsaal C, ab 07.12.2017
 Fr, Einzel, 09:15 - 10:45, Marienstraße 7 B - Seminarraum 105, Tutorial, 19.01.2018 - 19.01.2018
 Fr, Einzel, 09:15 - 10:45, Marienstraße 7 B - Seminarraum 106, Tutorial, 19.01.2018 - 19.01.2018
 Mi, Einzel, 10:45 - 12:15, Marienstraße 7 B - Seminarraum 205, 07.02.2018 - 07.02.2018
 Mi, Einzel, 10:45 - 12:15, Marienstraße 7 B - Seminarraum 206, 07.02.2018 - 07.02.2018

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