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Earthquake Geotechnical Engineering
Geotechnical Earthquake Engineering Risk Management Series: Designing for Earthquakes - A Manual for Architects
Principles of Geotechnical Engineering
Advancements in Geotechnical Engineering
Geotechnical Engineering Design
Geographic Information Systems and Their Application in Geotechnical Earthquake Engineering
Physical Modelling in Geotechnics, Volume 1
Computational Methods in Earthquake Engineering
Third International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics [proceedings]
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Fundamentals of Earthquake Engineering
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Earthquake Geotechnical Engineering Design
Soil Dynamics and Earthquake Geotechnical Engineering
Manual of Numerical Methods in Concrete
Soil-Foundation-Structure Interaction

Earthquake Geotechnical Engineering

Physical Modelling in Geotechnics collects more than 1500 pages of peer-reviewed papers written by researchers from over 30 countries, and presented at the 9th International Conference on Physical Modelling in Geotechnics 2018 (City, University of London, UK 17-20 July 2018). The ICPMG series has grown such that two volumes of proceedings were required to publish all contributions. The books represent a substantial body of work in four years. Physical Modelling in Geotechnics contains 230 papers, including eight keynote and themed lectures representing the state-of-the-art in physical modelling research in aspects as diverse as fundamental modelling including sensors, imaging, modelling techniques and scaling, onshore and offshore foundations, dams and embankments, retaining walls and deep excavations, ground improvement and

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environmental engineering, tunnels and geohazards including significant contributions in the area of seismic engineering. ISSMGE TC104 have identified areas for special attention including education in physical modelling and the promotion of physical modelling to industry. With this in mind there is a special themed paper on education, focusing on both undergraduate and postgraduate teaching as well as practicing geotechnical engineers. Physical modelling has entered a new era with the advent of exciting work on real time interfaces between physical and numerical modelling and the growth of facilities and expertise that enable development of so called 'megafuges' of 1000tonne capacity or more; capable of modelling the largest and most complex of geotechnical challenges. Physical Modelling in Geotechnics will be of interest to professionals, engineers and academics interested or involved in geotechnics, geotechnical engineering and related areas. The 9th International Conference on Physical Modelling in Geotechnics was organised by the Multi Scale Geotechnical Engineering Research Centre at City, University of London under the auspices of Technical Committee 104 of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). City, University of London, are pleased to host the prestigious international conference for the first time having initiated and hosted the first regional conference, Eurofuge, ten years ago in 2008. Quadrennial regional conferences in both Europe and Asia are now well established events giving doctoral researchers, in particular, the opportunity to attend an international conference in this rapidly evolving specialist area. This is volume 1 of a 2-volume set.

Geotechnical Earthquake Engineering

This book include research studies which deal with the attempts to address new solutions for challenges in geotechnical engineering such as characterization of new materials, application of glass fibre, geotextile fabric and permeable concrete, new numerical methods for traditional problems and some other geotechnical issues that are becoming quite relevant in today's world. The book adds to the geotechnical engineering field which still bears lots of big challenges. It contributes to make the civil infrastructures more sustainable using new technologies and materials that have been proposed and applied in various fields. Papers were selected from the 5th GeoChina International Conference 2018 - Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability, held on July 23 to 25, 2018 in HangZhou, China.

Risk Management Series: Designing for Earthquakes - A Manual for Architects

Principles of Geotechnical Engineering

Pseudo-static analysis is still the most-used method to assess the stability of geotechnical systems that are exposed to earthquake forces. However, this method does not provide any information about the deformations and permanent displacements induced by seismic activity. Moreover, it is questionable to use this approach when geotechnical systems are affected by

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frequent and rare seismic events. Incidentally, the peak ground acceleration has increased from 0.2-0.3 g in the seventies to the current value of 0.6-0.8 g. Therefore, a shift from the pseudo-static approach to performance-based analysis is needed. Over the past five years considerable progress has been made in Earthquake Geotechnical Engineering Design (EGED). The most recent advances are presented in this book in 6 parts. The evaluation of the site amplification is covered in Part I of the book. In Part II the evaluation of the soil foundation stability against natural slope failure and liquefaction is treated. In the following 3 Parts of the book the EGED for different geotechnical systems is presented as follows: the design of levees and dams including natural slopes in Part III; the design of foundations and soil structure interaction analysis in Part IV; underground structures in Part V. Finally in Part VI, new topics like the design of reinforced earth retaining walls and landfills are covered.

Advancements in Geotechnical Engineering

This book sheds new light on improved methods for the study of the initiation and run-out of earthquake-induced landslides. It includes an initiation study method that considers tension-shear failure mechanism; an improved, rigorous, dynamic sliding-block method based on dynamic critical acceleration; and a run-out analysis of earthquake-induced landslides that takes account of the trampoline effect, all of which add to the accuracy and accessibility of landslide study. The book includes abundant illustrations, figures and tables, making it a valuable resource for those looking for practical landslide research tools.

Geotechnical Engineering Design

An accessible, clear, concise, and contemporary course in geotechnical engineering design. covers the major in geotechnical engineering packed with self-test problems and projects with an on-line detailed solutions manual presents the state-of-the-art field practice covers both Eurocode 7 and ASTM standards (for the US)

Geographic Information Systems and Their Application in Geotechnical Earthquake Engineering

Calculate structural loads in compliance with the 2018 IBC® and ASCE/SEI 7-16 This practical guide shows, step by step, how to interpret and apply the load provisions contained in the 2018 IBC® and ASCE/SEI 7-16. You will learn how to accurately determine structural loads including dead loads, live loads, and environmental loads. Throughout the book, detailed design examples, unique flowcharts, and design aids illustrate the proper usage of the code within the scope of everyday practice. Coverage includes:

- Structural load fundamentals
- IBC® and ASCE 7 explanations
- Load combinations
- Dead, live, rain, and soil lateral loads
- Snow and ice loads
- Wind loads
- Earthquake loads
- Flood and tsunami loads
- Load paths

Physical Modelling in Geotechnics, Volume 1

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Established as a standard textbook for students of geotechnical engineering, this second edition of Geotechnical Engineering provides a solid grounding in the mechanics of soils and soil-structure interaction. Renato Lancellotta gives a clear presentation of the fundamental principles of soil mechanics and demonstrates how these principles are

Computational Methods in Earthquake Engineering

Third International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics [proceedings]

This book gathers selected proceedings of the annual conference of the Indian Geotechnical Society, and covers various aspects of soil dynamics and earthquake geotechnical engineering. The book includes a wide range of studies on seismic response of dams, foundation-soil systems, natural and man-made slopes, reinforced-earth walls, base isolation systems and so on, especially focusing on the soil dynamics and case studies from the Indian subcontinent. The book also includes chapters addressing related issues such as landslide risk assessments, liquefaction mitigation, dynamic analysis of mechanized tunneling, and advanced seismic soil-structure-interaction analysis. Given its breadth of coverage, the book offers a useful guide for researchers and practicing civil engineers alike.

Geotechnical Engineering Design

Written by a leader on the subject, Introduction to Geotechnical Engineering is first introductory geotechnical engineering textbook to cover both saturated and unsaturated soil mechanics. Destined to become the next leading text in the field, this book presents a new approach to teaching the subject, based on fundamentals of unsaturated soils, and extending the description of applications of soil mechanics to a wide variety of topics. This groundbreaking work features a number of topics typically left out of undergraduate geotechnical courses.

Using the Engineering Literature

Access usable seismic engineering data right at your fingertips Don't miss out on the first book specifically devoted to seismology, geotechnical engineering basics, earthquake analysis, and site improvement methods. Written by Robert Day, one of the most respected names in the field, Geotechnical Earthquake Engineering Handbook is a one-stop resource that gives you instant access to: Field and laboratory testing methods and procedures Current seismic codes Site improvement methods In-depth earthquake engineering analysis as applied to soils Worked-out problems illustrating earthquake analysis Subsurface exploration data Fundamental geotechnical engineering principles

Geotechnical Engineering

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This book presents computational tools and design principles for piles used in a wide range of applications and for different loading conditions. The chapters provide a mixture of basic engineering solutions and latest research findings in a balanced manner. The chapters are written by top experts in the field. The materials are presented in a unified manner based on both simplified and rigorous numerical methods. The first four chapters present the basic elements and steps in analysis of piles under static and cyclic loading together with clear references to the appropriate design regulations in Eurocode 7 when relevant. The analysis techniques cover conventional code-based methods, solutions based on pile-soil interaction springs, and advanced 3D finite element methods. The applications range from conventional piles to large circular steel piles used as anchors or monopiles in offshore applications. Chapters 5 to 10 are devoted to dynamic and earthquake analyses and design. These chapters cover a range of solutions from dynamic pile-soil springs to elasto-dynamic solutions of large pile groups. Both linear and nonlinear soil behaviours are considered along with response due to dynamic loads and earthquake shaking including possible liquefaction. The book is unique in its unified treatment of the solutions used for static and dynamic analysis of piles with practical examples of application. The book is considered a valuable tool for practicing engineers, graduate students and researchers.

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions

Fundamentals of Earthquake Engineering: From Source to Fragility, Second Edition combines aspects of engineering seismology, structural and geotechnical earthquake engineering to assemble the vital components required for a deep understanding of response of structures to earthquake ground motion, from the seismic source to the evaluation of actions and deformation required for design, and culminating with probabilistic fragility analysis that applies to individual as well as groups of buildings. Basic concepts for accounting for the effects of soil-structure interaction effects in seismic design and assessment are also provided in this second edition. The nature of earthquake risk assessment is inherently multi-disciplinary. Whereas this book addresses only structural safety assessment and design, the problem is cast in its appropriate context by relating structural damage states to societal consequences and expectations, through the fundamental response quantities of stiffness, strength and ductility. This new edition includes material on the nature of earthquake sources and mechanisms, various methods for the characterization of earthquake input motion, effects of soil-structure interaction, damage observed in reconnaissance missions, modeling of structures for the purposes of response simulation, definition of performance limit states, fragility relationships derivation, features and effects of underlying soil, structural and architectural systems for optimal seismic response, and action and deformation quantities suitable for design. Key features: Unified and novel approach: from source to fragility Clear conceptual framework for structural response analysis, earthquake input characterization, modelling of soil-structure interaction and derivation of fragility functions Theory and relevant practical applications are merged within each chapter Contains a new chapter on the derivation of fragility Accompanied by a website containing

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illustrative slides, problems with solutions and worked-through examples
Fundamentals of Earthquake Engineering: From Source to Fragility, Second Edition is designed to support graduate teaching and learning, introduce practising structural and geotechnical engineers to earthquake analysis and design problems, as well as being a reference book for further studies.

Introduction to Geotechnical Engineering

Advances in Geotechnical and Transportation Engineering

Geotechnical Earthquake Engineering Handbook

Geotechnical Earthquake Engineering

Innovative Earthquake Soil Dynamics

Intended as an introductory text in soil mechanics, the eighth edition of Das, PRINCIPLES OF GEOTECHNICAL ENGINEERING offers an overview of soil properties and mechanics together with coverage of field practices and basic engineering procedure. Background information needed to support study in later design-oriented courses or in professional practice is provided through a wealth of comprehensive discussions, detailed explanations, and more figures and worked out problems than any other text in the market. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Fundamentals of Earthquake Engineering

Manual of numerical methods in concrete aims to present a unified approach for the available mathematical models of concrete, linking them to finite element analysis and to computer programs in which special provisions are made for concrete plasticity, cracking and crushing with and without concrete aggregate interlocking. Creep, temperature, and shrinkage formulations are included and geared to various concrete constitutive models.

Geotechnical and Geoenvironmental Engineering Handbook

New Solutions for Challenges in Applications of New Materials and Geotechnical Issues

This is the first book on the market focusing specifically on the topic of geotechnical earthquake engineering. The book draws from the fields of

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seismology and structural engineering to present a broad, interdisciplinary view of the fundamental concepts in seismology, geotechnical engineering, and structural engineering.

Basic Geotechnical Earthquake Engineering

Written in a concise, easy-to understand manner, INTRODUCTION TO GEOTECHNICAL ENGINEERING, 2e, presents intensive research and observation in the field and lab that have improved the science of foundation design. Now providing both U.S. and SI units, this non-calculus-based text is designed for courses in civil engineering technology programs where soil mechanics and foundation engineering are combined into one course. It is also a useful reference tool for civil engineering practitioners. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Structural Load Determination: 2018 and 2021 IBC and ASCE/SEI 7-16

Innovative Solutions for Deep Foundations and Retaining Structures

Appropriate for courses in Structural Dynamics, Earthquake Engineering or Seismology. This is the first book on the market focusing specifically on the topic of geotechnical earthquake engineering. Also covers fundamental concepts in seismology, geotechnical engineering, and structural engineering.

Geotechnical Engineering

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions contains invited, keynote and theme lectures and regular papers presented at the 7th International Conference on Earthquake Geotechnical Engineering (Rome, Italy, 17-20 June 2019). The contributions deal with recent developments and advancements as well as case histories, field monitoring, experimental characterization, physical and analytical modelling, and applications related to the variety of environmental phenomena induced by earthquakes in soils and their effects on engineered systems interacting with them. The book is divided in the sections below: Invited papers Keynote papers Theme lectures Special Session on Large Scale Testing Special Session on Liquefact Projects Special Session on Lessons learned from recent earthquakes Special Session on the Central Italy earthquake Regular papers Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions provides a significant up-to-date collection of recent experiences and developments, and aims at engineers, geologists and seismologists, consultants, public and private contractors, local national and international authorities, and to all those involved in research and practice related to Earthquake Geotechnical Engineering.

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Seismic soil structure interaction of navigation locks

Introduction to Earthquake Engineering

An accessible, clear, concise, and contemporary course in geotechnical engineering design. covers the major in geotechnical engineering packed with self-test problems and projects with an on-line detailed solutions manual presents the state-of-the-art field practice covers both Eurocode 7 and ASTM standards (for the US)

Mechanics of Machinery

This collection contains 27 papers on the application of geographic information system technology to issues of geotechnical earthquake engineering presented at a workshop held in Atlanta, Georgia, January 29-30, 1993.

Geotechnical Earthquake Engineering

Soil-Foundation-Structure Interaction contains selected papers presented at the International Workshop on Soil-Foundation-Structure Interaction held in Auckland, New Zealand from 26-27 November 2009. The workshop was the venue for an international exchange of ideas, disseminating information about experiments, numerical models and practical en

Analysis of Pile Foundations Subject to Static and Dynamic Loading

The field of engineering is becoming increasingly interdisciplinary, and there is an ever-growing need for engineers to investigate engineering and scientific resources outside their own area of expertise. However, studies have shown that quality information-finding skills often tend to be lacking in the engineering profession. Using the Engineerin

Earthquake-Induced Landslides

Preface. Dedication. List of Figures. List of Tables. List of Contributors. Basic Behavior and Site Characterization. 1. Introduction; R.K. Rowe. 2. Basic Soil Mechanics; P.V. Lade. 3. Engineering Properties of Soils and Typical Correlations; P.V. Lade. 4. Site Characterization; D.E. Becker. 5. Unsaturated Soil Mechanics and Property Assessment; D.G. Fredlund, et al. 6. Basic Rocks Mechanics and Testing; K.Y. Lo, A.M. Hefny. 7. Geosynthetics: Characteristics and Testing; R.M. Koerner, Y.G. Hsuan. 8. Seepage, Drainage and Dewatering; R.W. Loughney. Foundations and Pavements. 9. Shallo.

International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics

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This edited book's theme is organized as a part of the GeoMEast 2019 International Congress and Exhibition that was held in Cairo, Egypt, on November 10-14 2019. The editors like to express their deep appreciation and gratitude to the authors for their valuable contributions to the GeoMEast 2019 proceedings and to all session chairs and reviewers for their sincere efforts to make this book a reality. The editors are very grateful to have this opportunity to participate in organizing this GeoMEast 2019 conference and hope that this book theme is a valuable reference to the civil/geotechnical engineering community worldwide.

Geotechnical Earthquake Engineering

This book contains the full papers on which the invited lectures of the 4th International Conference on Geotechnical Earthquake Engineering (4ICEGE) were based. The conference was held in Thessaloniki, Greece, from 25 to 28 June, 2007. The papers offer a comprehensive overview of the progress ongoing in soil dynamics and geotechnical earthquake engineering, examine ongoing and unresolved issues, and discuss ideas for the future.

Geotechnical Engineer's Portable Handbook

This fascinating new book examines the issues of earthquake geotechnical engineering in a comprehensive way. It summarizes the present knowledge on earthquake hazards and their causative mechanisms as well as a number of other relevant topics. Information obtained from earthquake damage investigation (such as ground motion, landslides, earth pressure, fault action, or liquefaction) as well as data from laboratory tests and field investigation is supplied, together with exercises/questions.

Geotechnical Earthquake Engineering and Soil Dynamics III

One-volume library of instant geotechnical and foundation data Now for the first time ever, geotechnical, foundation, and civil engineers, geologists, architects, planners, and construction managers can quickly find information they must refer to every working day, in one compact source. Edited by Robert W. Day, the time- and effort-saving Geotechnical Engineer's Portable Handbook gives you field exploration guidelines and lab procedures. You'll find soil and rock classification, basic phase relationships, and all the tables and charts you need for stress distribution, pavement, and pipeline design. You also get abundant information on all types of geotechnical analyses, including settlement, bearing capacity, expansive soil, slope stability - plus coverage of retaining walls and building foundations. Other construction-related topics covered include grading, instrumentation, excavation, underpinning, groundwater control and more.

Earthquake Geotechnical Engineering Design

This book provides an insight on advanced methods and concepts for the design and analysis of structures against earthquake loading. This second volume is a

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collection of 28 chapters written by leading experts in the field of structural analysis and earthquake engineering. Emphasis is given on current state-of-the-art methods and concepts in computing methods and their application in engineering practice. The book content is suitable for both practicing engineers and academics, covering a wide variety of topics in an effort to assist the timely dissemination of research findings for the mitigation of seismic risk. Due to the devastating socioeconomic consequences of seismic events, the topic is of great scientific interest and is expected to be of valuable help to scientists and engineers. The chapters of this volume are extended versions of selected papers presented at the COMPDYN 2011 conference, held in the island of Corfu, Greece, under the auspices of the European Community on Computational Methods in Applied Sciences (ECCOMAS).

Soil Dynamics and Earthquake Geotechnical Engineering

This book is intended primarily as a textbook for students studying structural engineering. It covers three main areas in the analysis and design of structural systems subjected to seismic loading: basic seismology, basic structural dynamics, and code-based calculations used to determine seismic loads from an equivalent static method and a dynamics-based method. It provides students with the skills to determine seismic effects on structural systems, and is unique in that it combines the fundamentals of structural dynamics with the latest code specifications. Each chapter contains electronic resources: image galleries, PowerPoint presentations, a solutions manual, etc.

Manual of Numerical Methods in Concrete

Mechanics of Machinery describes the analysis of machines, covering both the graphical and analytical methods for examining the kinematics and dynamics of mechanisms with low and high pairs. This text, developed and updated from a version published in 1973, includes analytical analysis for all topics discussed, allowing for the use of math software

Soil-Foundation-Structure Interaction

Innovative Earthquake Soil Dynamics deals with soil dynamics in earthquake engineering and includes almost all aspects of soil behavior. Both generally accepted basic knowledge as well as advanced and innovative views are accommodated. Major topics are (i) seismic site amplification, (ii) liquefaction and (iii) earthquake-induced slope failure. Associated with the above, basic theories and knowledge on wave propagation/attenuation, soil properties, laboratory tests, numerical analyses, and model tests are addressed in the first part of the book. A great number of earthquake observations in surface soil deposits as well as case histories with new findings are addressed in the later chapters, together with associated laboratory test data. Most of the research results originate from Japan, which is rich in earthquake records and case histories, although mostly isolated from the outside world because of the language barrier. Another important feature characterizing this book is an energy perspective in addition to the force-equilibrium perspective, because it is the author's strong belief that energy is a very relevant index in determining

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seismic failures, particularly of soils and soil structures. Innovative Earthquake Soil Dynamics is written for international readers, graduate students, researchers, and practicing engineers, interested in this field.

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