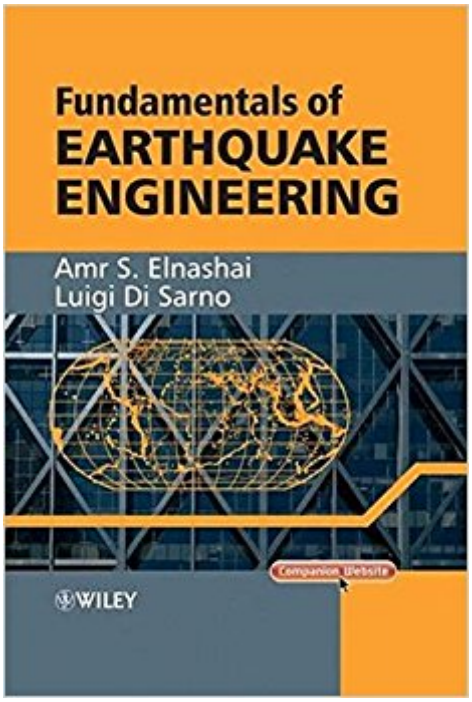
Fundamentals Of Earthquake Engineering



Synopsis

Fundamentals of Earthquake Engineering 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. The nature of earthquake risk assessment is inherently multi-disciplinary. Whereas Fundamentals of Earthquake Engineering 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. The book is designed to support graduate teaching and learning, introduce practicing structural and geotechnical engineers to earthquake analysis and design problems, as well as being a reference book for further studies. Fundamentals of Earthquake Engineering includes material on the nature of earthquake sources and mechanisms, various methods for the characterization of earthquake input motion, damage observed in reconnaissance missions, modeling of structures for the purposes of response simulation, definition of performance limit states, structural and architectural systems for optimal seismic response, and action and deformation quantities suitable for design. The accompanying website at www.wiley.com/go/elnashai contains a comprehensive set of slides illustrating the chapters and appendices.Ã Â A set of problems with solutions and worked-through examples is available from the Wley Editorial team. The book, slides and problem set constitute a tried and tested system for a single-semester graduate course. The approach taken avoids tying the book to a specific regional seismic design code of practice and ensures its global appeal to graduate students and practicing engineers.

Book Information

Hardcover: 366 pages

Publisher: Wiley; 1 edition (November 3, 2008)

Language: English

ISBN-10: 0470024836

ISBN-13: 978-0470024836

Product Dimensions: 7 x 1 x 9.9 inches

Shipping Weight: 1.7 pounds (View shipping rates and policies)

Average Customer Review: 4.0 out of 5 stars 4 customer reviews

Best Sellers Rank: #1,649,900 in Books (See Top 100 in Books) #82 inÃ Â Books > Engineering &

Transportation > Engineering > Civil & Environmental > Seismic Design #244 inÃ Â Books > Science & Math > Earth Sciences > Seismology #849 inÃ Â Books > Engineering & Transportation > Engineering > Civil & Environmental > Structural

Customer Reviews

Fundamentals of Earthquake Engineering 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. The nature of earthquake risk assessment is inherently multi-disciplinary. Whereas Fundamentals of Earthquake Engineering 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. The book is designed to support graduate teaching and learning, introduce practicing structural and geotechnical engineers to earthquake analysis and design problems, as well as being a reference book for further studies. Fundamentals of Earthquake Engineering includes material on the nature of earthquake sources and mechanisms, various methods for the characterization of earthquake input motion, damage observed in reconnaissance missions, modeling of structures for the purposes of response simulation, definition of performance limit states, structural and architectural systems for optimal seismic response, and action and deformation quantities suitable for design. The accompanying website at www.wiley.com/go/elnashai contains a comprehensive set of slides illustrating the chapters and appendices, as well as a set of problems with solutions and worked-through examples. The book, slides and problem set constitute a tried and tested system for a single-semester graduate course. The approach taken avoids tying the book to a specific regional seismic design code of practice and ensures its global appeal to graduate students and practicing engineers.

Professor Amr Elnashai is Bill and Elaine Hall Endowed Professor at the Civil and Environmental Engineering Department, University of Illinois at Urbana-Champaign. He is Director of the National Science Foundation (NSF) multi-institution multi-disciplinary Mid-America Earthquake Center. He is also Director of the NSF Network for Earthquake Engineering Simulation (NEES) Facility at Illinois. Amr obtained his MSC and PhD from Imperial College, University of London UK. Before joining the University of Illinois in June 2001, Amr was Professor and Head of Section at Imperial College. He

has been Visiting Professor at the University of Surrey since 1997. Other visiting appointments include the University of Tokyo, the University of Southern California and the European School for Advanced Studies in Reduction of Seismic Risk, Italy, where he serves on the Board of Directors since its founding in 2000. Amr is a Fellow of the Royal Academy of Engineering in the United Kingdom (UK-equivalent of the NAE), Fellow of the American Society of Civil Engineers and the UK Institution of Structural Engineers. He is founder and co-editor of the Journal of Earthquake Engineering, editorial board member of several other journals, a member of the drafting panel of the European design code, and past senior College Unwin Prize for the best PhD thesis in Civil and Mechanical Engineering (1984), the Oscar Faber Medal for best paper in the Institution of Structural Engineering, and two best paper medals from the International Association of Tall Buildings, Los Angeles. He is the administrative and technical team builder and director of both the MAE center and NEES@UIUC Simulation Laboratory, at Illinois. Amr is President o the Asia-Pacific Network of Centers of Earthquake Engineering Research (ANCER), a member of the FIB Seismic Design Commission Working Groups and two Applied Technology Council (ATC, USA) technical committees. He founded the Japan-UK Seismic Risk Forum in 1995 and served as its director until 2004. He leads a FEMA project for impact assessment for the eight central US states, was advisor to the UK Department of the Environment, advisor to the Civil Defense Agency of Italy, and review panel member for the Italian Ministry of research and the New Zealand and Canadian Science research Councils. Amr's technical interests are multi-resolution distributed analytical simulations, network analysis large-scale hybrid testing, and field investigations ofÃ Â the response of complex networks an structures to extreme loads, on which he has more than 250 research publications, including over 110 refereed journal papers, many conference, keynote and prestige lectures (including the Nathan Newmark Distinguished Lecture), research reports, books and book chapters, magazine articles, and field investigation reports. Amr has successfully supervised 29 PhD and over 100 Masters Theses. Many of his students holds significant positions in industry, academia and government in over 12 countries. He has a well-funded research group, with a large portfolio of projects from private industry, state agencies, federal agencies, and international government and private entities. Amr taught many different subjects both at Illinois and at Imperial college. He is recognized as an effective teacher and has been on the 'incomplete list o teaches considered excellent by their students' twice at UIUC. He has contributed to major projects for a number of international companies and other agencies such as the World Bank, GlaxoWellcome (currently GSK), Shell International, AstraZeneca, Minorco, British Nuclear Fuels, UK Nuclear Installations Inspectorate, Mott MacDonald, BAA, Alstom Power, the Greek, Indonesian and Turkish

Governments, and the National Geographic Society. He is currently the Greek, Indonesian and Turkish Governments, and the National Geographic Society. He is currently working on large projects for the Federal Emergency Management Agency (FEMA), State Emergency Management Agencies, Istanbul Municipality, US AID, Governments of Pakistan and Indonesia, among others. Amr enjoys scuba-diving and holds several certificates from the British Sub-Aqua Club and the US Professional Association of Diving Instructors. He also enjoys reading on history, the history of painting and film-making. Dr Luigi Di Sarno is Assistant Professor in Earthquake Engineering at the University of Sannio (Benevento), and holds the position of Research Associate at the Department of Structural Engineering (DIST), University of Naples, Federico II in Italy. He graduated cum laude in Structural Engineering from the University of Naples, Federico II. He then obtained two MSc degrees in Earthquake Engineering and Structural Steel Design from Imperial College, London. In 2001 Dr. Di Sarno obtained his PhD from University of Salerno in Italy and moved to the University of Illinois at Urbana Champaign in 2002 where he worked as a Post-doctoral Research Associate. He has been Visiting Professor at the Mid-America Earthquake Center at Illinois since 2004. His research interests are seismic analysis and design of steel, reinforced concrete and composite structures, and the response to tall buildings to extreme loads, on which he has written more than 60 research publications, including over 15 refereed journal papers, many conference papers, research reports, book chapters and field investigation reports. Dr. Di Sarno continues to work with the active research group at the University of Naples, with a large portfolio of projects from private industry, state agencies, and international government and private entities. He taught several courses at Naples, Benevento and the Mid-America Earthquake center. He is currently working on large projects funded by the Italian State Emergency Management Agency (DPC) and the Italian Ministry of Education and Research, amongst others. Dr. Di Sarno enjoys reading on history, science and art. He also enjoys playing tennis and swimming.

The book has done wonderful job. Fundamentals are explained with easy to grab language.

Book is designed for a graduate level course that introduces a "source to society" model for earthquake engineering that wonderfully captures the importance of interaction between the structural engineers (whom the book is primarily written for) and geologists, seismologists, geotechnical engineers, and public policy planners. The majority of the technical content focuses on the "source to structure" path of demand imposed by seismic events coupled with structural evaluation of the supply of buildings. This is a perfect introductory book to the topic, which covers

selection of records for use in seismic analysis better than other books of its type. The book stops where the seismic codes start, so the text will not be outdated by future changes to codes. The author has put great effort into compiling a thorough list of top quality sources at the end of each of the four chapters (two focusing on demand and two on supply) that will be useful to the student desiring to delve deeper into various topics covered. Included with the text are access to powerpoint slides for all 4 chapters and 2 appendices, solutions to the example problems given throughout the chapters, and source data from several events discussed in the text.

This is a very well written, comprehensive overview of Earthquake engineering as applied to buildings and bridges. There is also a very well prepared series of Power Point slides that you can download to augment the discussion in the book. For either college professors or practicing engineers, who have the need for understanding seismic behavior of structures, I highly recommend this book. I am a practicing civil-structural engineer, and I would say this book is written at the level of beginning graduate student or advanced undergraduate student. Well worth the price.

If you plan to purchase this book, be sure to buy a magnifier (or microscope) at at the same time. The font sizes and symbols are extremely tiny in many of the figures and not too many human beings could see it (not exaggerated at all; for example: see Fig. 4.42 on page 250). The quality of most photos is bad, which lowers the quality of the book. On top of that, a lot of contents are collection of authors' own papers, publications, and dissertation. The title of this book should be called "topics on earthquake engineering" rather than "Fundamentals of Earthquake Engineering". Not going into details of fundamentals. It might be suitable for those who know the topics well but not for beginners. By the way, Dr. Sashi Kunnath at UC Davis wrote good words for the book on the back cover. In the acknowledgements the authors said that they are grateful for a few people, including Sashi Kunnath at UC Irvine (Oops!)If you really want to have a "Fundamentals of Earthquake Engineering" book, go get Roberto Villaverde's "Fundamental Concepts of Earthquake Engineering (2009)". This is the best book so far to cover all the essential and state-of-the-art topics regarding earthquake engineering, such as earthquake mechanisms, basic soil dynamics, ground accelerations, Fourier spectrum (this is one of the best books to explain it), seismic hazard assessment, design response spectrum, structural response to strong ground motion and structural dynamics, code design concepts, soil-structural interaction, seismic response of nonstructural elements, base isolations, energy dissipating devices, to name a few. Much better figures/drawings and examples.Most important: this book 347 pages-->$112, Roberto Villaverde's book 949

pages-->$103.....GO FIGURE!

Perspectives on Earthquake Geotechnical Engineering: In Honour of Prof. Kenji Ishihara (Geotechnical, Geological and Earthquake Engineering) Fire Following Earthquake (American Society of Civil Engineers: Technical Council on Lifeline Earthquake Engineering Monograph, No. 26) Earthquake Engineering: From Engineering Seismology to Performance-Based Engineering Earthquake: Perspectives on Earthquake Disasters (Disaster Dossiers) Fundamentals of Earthquake Engineering Fundamentals of Earthquake Engineering: From Source to Fragility Geotechnical Earthquake Engineering, Second Edition (Mechanical Engineering) Structural Dynamics of Earthquake Engineering: Theory and Application Using Mathematica and Matlab (Woodhead Publishing Series in Civil and Structural Engineering) Engineering Fundamentals: An Introduction to Engineering (Activate Learning with these NEW titles from Engineering!) Seismic Design and Assessment of Bridges: Inelastic Methods of Analysis and Case Studies (Geotechnical, Geological and Earthquake Engineering) Introduction to Earthquake Engineering Geotechnical Earthquake Engineering Soil Behaviour in Earthquake Geotechnics (Oxford Engineering Science Series) Earthquake Engineering Bracing for Disaster: Earthquake-Resistant Architecture and Engineering in San Francisco, 1838-1933 Basic Earthquake Engineering: From Seismology to Analysis and Design Fundamental Concepts of Earthquake Engineering Seismic design with supplemental energy dissipation devices (Publication / Earthquake Engineering Research Institute) International Handbook of Earthquake Engineering: Codes, Programs, and Examples Seismic Ground Response Analysis (Geotechnical, Geological and Earthquake Engineering)