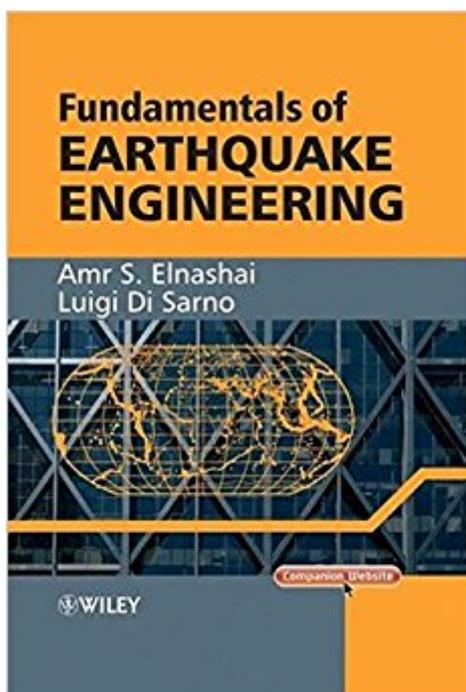


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# Fundamentals Of Earthquake Engineering



## 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](http://www.wiley.com/go/elnashai) contains a comprehensive set of slides illustrating the chapters and appendices. A set of problems with solutions and worked-through examples is available from the Wiley 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: 3.7 out of 5 stars See all reviews (3 customer reviews)

Best Sellers Rank: #1,122,586 in Books (See Top 100 in Books) #58 in Books > Engineering &

Transportation > Engineering > Civil & Environmental > Seismic Design #151 inÂ Books > Science & Math > Earth Sciences > Seismology #563 inÂ Books > Engineering & Transportation > Engineering > Civil & Environmental > Structural

## Customer Reviews

If you plan to purchase this book, be sure to buy a magnifier (or microscope) 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!

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.

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