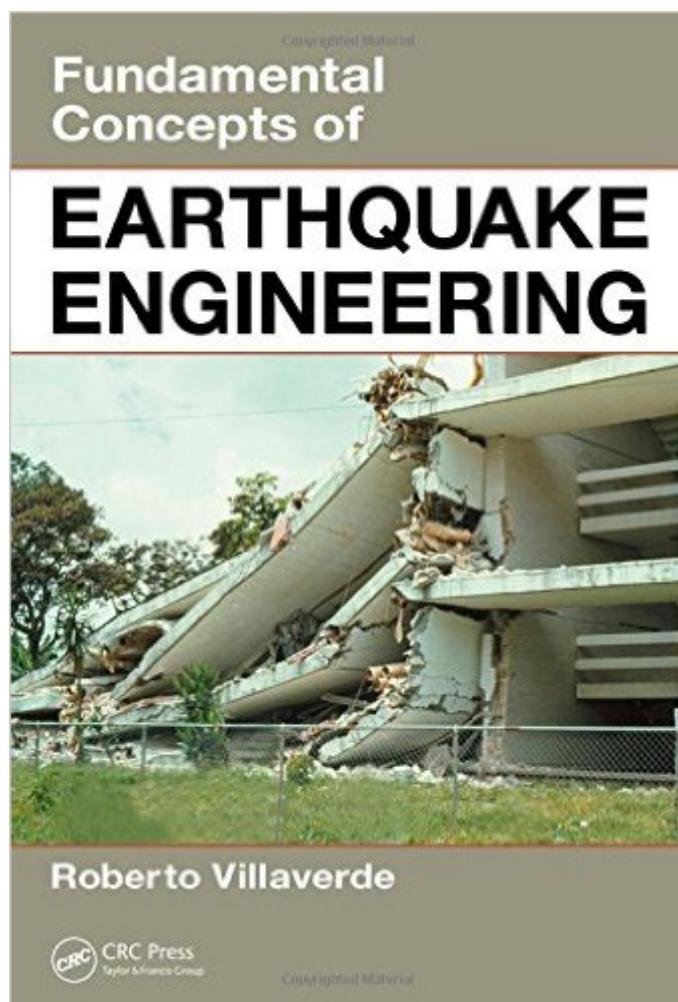


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# Fundamental Concepts Of Earthquake Engineering



## Synopsis

While successfully preventing earthquakes may still be beyond the capacity of modern engineering, the ability to mitigate damages with strong structural designs and other mitigation measures are well within the purview of science. *Fundamental Concepts of Earthquake Engineering* presents the concepts, procedures, and code provisions that are currently being used to make structures as earthquake-resistant as is presently feasible. The book begins by describing the purpose, main aspects, and historical development of earthquake engineering and provides an overview of the type and extent of damage an earthquake can produce. It then introduces the concepts of seismology, the mechanisms of earthquake generation and propagation, and the difference between the various scales used to quantify the size of an earthquake and its potential to cause damage. The book also discusses the response spectrum and the different ways earthquake ground motions may be characterized and how local soil conditions may affect ground motion characteristics. Later chapters examine the design spectrum, conventional methods used to calculate the response of structures, soil-structure systems, and nonstructural components to earthquake ground motions. This comprehensive resource is certain to advance the knowledge of those tasked with taking preemptive action against the devastating effects of major, catastrophic earthquakes.

## Book Information

Hardcover: 960 pages

Publisher: CRC Press (January 16, 2009)

Language: English

ISBN-10: 1420064959

ISBN-13: 978-1420064957

Product Dimensions: 7.2 x 2.3 x 10.2 inches

Shipping Weight: 4.1 pounds (View shipping rates and policies)

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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. Excellent figures/drawings and examples. 949 pages-->\$103. Good deal.

I have read quite a few books in Earthquake Engineering, but none of them had material organized quite like this. Earthquake Engineering is a vast subject which involves geoscience, geotechnical, structural, geography and many more subjects. I can say this one is a complete reference and presents the material in a articulate manner. Author has explained everything in very simple language and can be understood by anyone. It contains more than enough material you need to know about Earthquake Engineering. I would recommend this textbook to all Earthquake Engineering students and professionals.

Dr. Villaverde's treatment of earthquake engineering is in a league of its own. Having read this book cover-to-cover, I can state as an engineer that the author provides a comprehensive treatment of the subject matter which could only be made through many years of research in the field. This book is a veritable treasure trove of scientific information on topics covering soil dynamics, wave propagation, elastic and nonlinear response, general seismology and hazard/risk assessment, response spectrum methods and mitigation. If there's one book the practicing civil/structural engineer should have - it's this one...

This book is by far the best and most comprehensive book on Earthquake Engineering I have ever read. I have found many other books in the subject to be either too simple or too complex that you learn nothing. This book takes a very balanced approach, while still being comprehensive. It would be a valuable reference for both a novice and more experienced person in Earthquake Engineering.

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