GEOTECHNICAL EARTHQUAKE ENGINEERING

STEVEN L. KRAMER

In countless earthquakes, damage to buildings, bridges, and other structures has been strongly influenced by soil and rock conditions. For the first time, the basic principles, theories, and methods of geotechnical earthquake engineering have been compiled in a comprehensive textbook.

Written for graduate students and practicing geotechnical engineers, this book was designed to help readers understand the fundamental principles and practical methods of geotechnical earthquake engineering. The author begins with basic concepts of seismology, earthquakes, and strong ground motion and introduces procedures of deterministic and probabilistic seismic hazard analysis. Basic principles of wave propagation are used to develop procedures for ground response analysis and to provide insight into such important problems as local site effects, liquefaction, seismic slope stability, and seismic design of retaining structures. Concepts are fully developed and illustrated with examples. Each chapter includes a point-by-point summary of its most important concepts and principles.

Topics include:

- Seismology and Earthquakes
- Strong Ground Motion
- Seismic Hazard Analysis
- Wave Propagation
- Dynamic Soil Properties
- Ground Response Analysis
- Local Site Effects and Design Ground Motions
- Liquefaction
- Seismic Slope Stability
- Seismic Design of Retaining Structures
- Mitigation of Seismic Hazards

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