

## **Geotechnical Earthquake Engineering in the Central and Eastern US**

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- COURSE TITLE:** Geotechnical Earthquake Engineering in the Central and Eastern US Engineering Shortcourse
- DATE:** May 20, 2005 from 8:00 am to 4 pm. Lunch will be provided.
- LOCATION:** Capital View Holiday Inn, Frankfort, Kentucky
- INSTRUCTOR:** James R. Martin, II, Ph.D, Professor of Civil and Environmental Engineering and Associate Director of the Center for Extreme Load Effects on Structures (CELES) at Virginia tech
- COSTS:** KGEG and SEAOK members \$25  
Non-member \$35
- REGISTRATION:** Limit to the first 50 paid participants.

*Material will be presented through a series of visuals with hard copy handouts for each student*

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### **SCOPE:**

The shortcourse will provide a comprehensive discussion of geotechnical earthquake engineering procedures and methodologies, with a focus on seismic design issues specific to the central and eastern United States (CEUS) with consideration for Kentucky. The course will begin with a review of fundamental earthquake engineering and seismological concepts, such as fault mechanisms, attenuation of seismic waves, and local site effects. Coverage will include the basic concepts of probabilistic seismic hazard assessment and the development of the national seismic hazard maps used as the basis for design. Discussion will be provided on recent findings in the CEUS that have led to increased seismic design requirements for the region. Of particular importance, the course will cover IBC2003 seismic design procedures and discuss unique geological and geotechnical conditions in the CEUS that require site-specific analysis. The tasks involved with site-specific analysis, such as generation of time histories and site response analysis, will be discussed. The course will also include a brief review of liquefaction evaluation procedures and present new findings that suggest current procedures underestimate the seismic vulnerability of fine-grained soils, including silts and clays. The course will conclude with examples of site-specific seismic analyses in the CEUS performed as per the IBC2003 code. These examples will demonstrate the tasks required for site-specific seismic analysis, and importantly, illustrate the process involved with interpreting the results and using judgment to develop final design specifications.

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### **James R. Martin, II, Ph.D:**

Dr. Martin is a Professor of Civil and Environmental Engineering and Associate Director of the Center for Extreme Load Effects on Structures (CELES) at Virginia Tech in Blacksburg, Virginia. He has more than 15 years experience in earthquake engineering practice and research, and has taught undergraduate and graduate university courses at Virginia Tech since 1990. He has also served as Instructor for the Advanced Earthquake Protective Design course at FEMA's Multi-Hazard Building Design Institute in Emmitsburg, MD, and developed university courses on earthquake hazards for FEMA's Higher Education Project.

Dr. Martin specializes in the area of geotechnical earthquake and foundation engineering, including site response analysis and soil effects on ground motions, liquefaction, soil and site improvement, probabilistic seismic hazard assessment, numerical modeling, and Geographical Information System (GIS) applications. He is active in earthquake hazard assessment studies in the eastern and central US, and has been closely involved with the transfer of seismic engineering technology to the region and development of building codes. Martin is an active civil engineering consultant, and has worked on more than 60 major projects for more than 40 different private and public organizations.

Dr. Martin has received a number of national and state recognitions for teaching, research, and professional work, including the American Society of Civil Engineer's Norman Medal. He received his B.S. degree from The Citadel, and M.S. and Ph.D. degrees from Virginia Tech.

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## Seismic Seminar Registration Form

Registration is limited to the first 50 people who get their Money in to Andy.

Date: \_\_\_\_\_

Circle One: KEGG SEAOK Non-Member

Name: \_\_\_\_\_

Business: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

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Home Phone: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Home Fax: \_\_\_\_\_

Business Fax: \_\_\_\_\_

e-mail: \_\_\_\_\_

Circle One: KEGG & SEAOK Member Price \$25

Non-Member Price \$35

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Please return this form and payment check to:

Andy Fiehler P.E. - KEGG Secretary  
QORE Property Sciences  
422 Codell Drive  
Lexington, KY 40509

Please make check payable to KEGG

DIRECTIONS

From I-64 Exit 53, go north on US 127 about 5 1/2 miles.

As you approach the Kentucky River, you will see the high rise which is the Holiday Inn

