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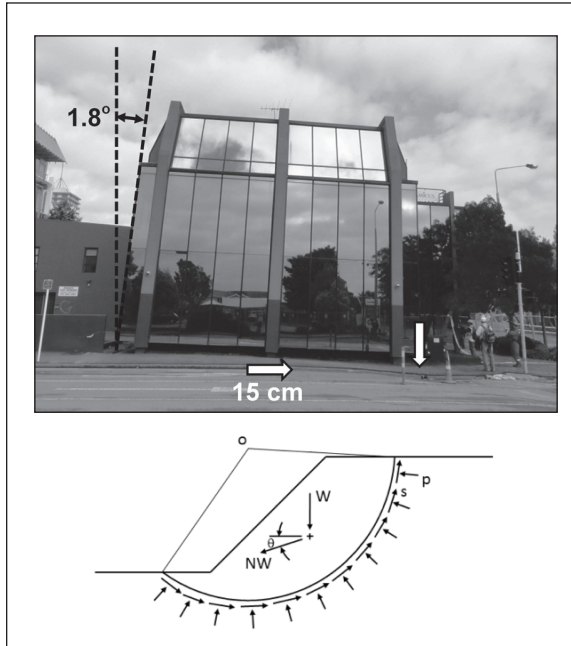
## Geotechnical Aspects of Earthquake Engineering

December 6-7, 2011  
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# Geotechnical Aspects of Earthquake Engineering

December 6-7, 2011

The Inn at Virginia Tech and  
Skelton Conference Center  
Blacksburg, VA



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**Geotechnical Earthquake Engineering** is a practical short course that covers the basics of earthquake geology and engineering seismology, procedures for evaluating the seismic stability of slopes and retaining walls, and procedures for evaluating liquefaction potential and associated phenomena.

The course is designed to answer common questions about geotechnical earthquake engineering such as:

- How do I determine the ground motion parameters to use in my analysis/design from information available from the US Geological Survey?
- If I want to perform a site specific seismic hazard analysis, what are the applicable ground motion predictive equations for my site?
- How do I evaluate the seismic stability of a slope?
- How do I estimate the earthquake-induced displacement for a given slope?
- How do I determine the seismically induced earth pressures acting on a retaining wall?
- For a given set of design ground motion parameters, how do the various types of retaining walls compare?
- How do I evaluate the liquefaction potential at my site?
- How do I determine the appropriate factor of safety against liquefaction for my site?
- How do I estimate the magnitude of seismic compression or the post-liquefaction consolidation at my site?

**Who should attend?** Engineering staff from project level engineers through senior level managers who wish to refresh and/or expand their knowledge of geotechnical aspects of earthquake engineering and practice oriented analysis/design procedures.

**What you'll receive:**

- 16 hours of instruction
- Notes for all lectures in a 3-ring binder
- A flash drive with reference materials
- An opportunity to interact with the instructors regarding your particular concerns regarding geotechnical aspects of earthquake engineering
- Refreshments at breaks, lunches both days
- 1.6 CEUs

## About the Speakers

**Russell Green, Ph.D., P.E.**, is an associate professor at Virginia Tech where he teaches and performs research in geotechnical earthquake engineering, engineering seismology, and soil and site improvement, among other topics. Prior to joining the faculty at Virginia Tech in 2008, he was on the faculty at the University of Michigan for 7 years. He also worked for 6 years as an Earthquake Engineer on the Technical Staff of the US Defense Nuclear Facilities Safety Board where he performed seismic safety evaluations of nuclear weapon production facilities. Recently, he headed National Science Foundation sponsored teams to Christchurch, New Zealand to assess the damage caused by the Mw7.0, 2010 Darfield and the Mw6.1 Christchurch earthquakes, as well as serving on a team that assessed the damage caused by the Mw7.0, 2010 Haiti earthquake. Green also recently served on the National Earthquake Prediction Evaluation Council (NEPEC) Independent Expert Panel on New Madrid Seismic Zone (NMSZ) Earthquake Hazard.

**Adrian Rodriguez-Marek, Ph.D.**, is an associate professor at Virginia Tech where he teaches graduate courses in Geotechnical Earthquake Engineering and Risk and Risk and Reliability Analysis. He obtained his doctorate from the University of California at Berkeley in 2000 and joined the faculty at Washington State University before joining Virginia Tech in 2010. His research focuses on various areas of geotechnical earthquake engineering, including site response, ground motion characterization, and stochastic response of geotechnical systems. His consulting work includes service as a resource expert and technical integrator in seismic hazard assessment projects for nuclear power plants in Switzerland and South Africa. He also led three NSF-sponsored earthquake reconnaissance missions to earthquakes in Peru and Mexico.

**Luis B. Fargier-Gabaldon, Ph.D.** obtained his M.S. and Ph.D. from the University of Michigan, Ann Arbor, with concentration in Structures. He founded Spectrum Engineering, a consulting firm responsible of the design and retrofit of numerous earthquake-resistant structures, including buildings, bridges, industrial facilities, retaining/tie-back walls and storage tanks. He is an adjunct professor at the Universidad de los Andes in Mérida, Venezuela, and member of various professional organizations including, EERI, ACI (voting member of the ACI-318L Sub-Committee of the Structural Building Code), IABSE (voting member of the Working Group 7 on Earthquake Resistant Structures) and was a member of the EERI-US/NSF reconnaissance team after the February 2010 Chilean earthquake. Fargier-Gabaldon co-authored the book "Concreto Armado, Comportamiento y Diseño" and several other publications on earthquake-related topics. Currently, he is spending his sabbatical as a research assistant at Virginia Tech and is completing a master's degree in Geotechnical Engineering.

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## Lecture Schedule

1. Plate tectonics and earthquake basics
2. Ground motion parameters
3. Ground motion predictive equations
4. Determining seismic design parameters
5. Pseudostatic analysis procedures for evaluating seismic slope stability
6. Estimating earthquake induced permanent displacements in slopes
7. Seismic analysis of retaining walls
8. Computer-based seismic analysis of retaining walls
9. Evaluation of liquefaction potential
10. Estimating the magnitude of post-liquefaction consolidation
11. Estimating the magnitude of seismic compression

Visit [www.cpe.vt.edu/gee/](http://www.cpe.vt.edu/gee/) for a detailed course agenda

## Location and Lodging

The short course will be held at The Inn at Virginia Tech and Skelton Conference Center, 901 Price's Fork Road on the Virginia Tech campus. A block of discounted lodging rooms is being held at The Inn at Virginia Tech at a special rate of \$124 plus tax for a single or double lodging room. The rooms are reserved and available at this rate until **November 7, 2011**. To reserve please call 540-231-8000 or 1-877-200-3360 and mention the name of the short course. Free parking will be provided.

## Registration Information

The registration fee is \$1,050 (\$525 for employees of CGPR member firms). Please complete the attached form and return to the Conference Registrar by **November 23, 2011**. You may also register online at: [www.cpe.vt.edu/gee/](http://www.cpe.vt.edu/gee/).

## For More Information

For further technical information about the short course, contact Lisha Farrier at phone 540-231-5052, or email: [lfarrier@vt.edu](mailto:lfarrier@vt.edu). For all other information, please contact Robyn Smyth 540-231-4140.

**Note:** Payment of registration fees is required prior to program attendance. Registration will be processed when payment is received. **Refund Policy:** Requests for refunds will be honored when received seven calendar days prior to the program. However, another person may be substituted at any time for this program. A \$75 administrative fee will be deducted for cancellations. In the unlikely event that this program is cancelled or postponed due to insufficient enrollments or unforeseen circumstances, the university will fully refund registration fees but cannot be held responsible for any other expenses, including cancellation or change charges assessed by airlines, hotels, travel agencies, or other organizations.

For weather or disaster-related program cancellation or postponement information, please call 540-231-9489.

## Registration Geotechnical Aspects of Earthquake Engineering

December 6-7, 2011 ■ Blacksburg, VA

Please print or type—complete a separate form for each participant or register online at: [www.cpe.vt.edu/gee/](http://www.cpe.vt.edu/gee/).

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