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International Conference on Case Histories in
Geotechnical Engineering

(2008) - Sixth International Conference on Case
Histories in Geotechnical Engineering

11 Aug 2008, 8:00 am - 12 Aug 2008, 12:00 pm

Soil Dynamics Course Schedule

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Soil Dynamics Short Course

Schedule

Monday, August 11, 2008

8:00 AM - 10:00 AM - Soil Dynamics and Modeling (Prakash)

Problems of dynamic loading of soils, seismic loading, other sources of dynamic load, ground motion associated with earthquakes, effects of earthquakes on structures, damage during earthquakes, engineering vibrations, sensitivity of humans to vibrations. Single and Multiple Degrees of System. Natural Frequencies, Springs and Dashpot, Material and Radiation Damping, and idealization of structure for analysis. Free and forced vibrations. Source and magnitude of damping in structures.

10:00 AM – 12:00 PM - DYNAMIC SOIL PROPERTIES AND COMPUTATION MODELING (Elgamal)

Measures of dynamic soil properties at low and high strain. Cyclic strength. Use of wave propagation techniques. Non-linear soil behavior. Ground response to earthquakes. Data Bank, problems; selection of design parameters computational modeling including site amplification and 2D finite element modeling,. Shake 91: typical results.

12:00 PM – 1:00 PM Lunch Break

1:00 PM – 3:00 PM - LIQUEFACTION AND CASE HISTORIES (Elgamal)

Liquefaction of soils. Settlement and spreading. Methods of analysis. Cyclic: A nonlinear finite-element code <http://cyclic.ucsd.edu>. Remedial measure against liquefaction, lateral loads on piles, . OpenSeesPL a 3D ground modification FE user-friendly interface (<http://cyclic.ucsd.edu/openseespl>), Case Histories.

3:00 PM – 5:00 PM - RETAINING WALL UNDER SEISMIC LOADING (Prakash)

Static and dynamic earth pressure. Design of retaining walls. Displacement analysis of rigid retaining walls and abutments. Design procedure. Design problems. Design charts, and retrofit of existing structures.

5:00 PM 6:00 PM Discussion

Tuesday, August 12, 2008

8:00 AM – 10:00 AM - RESPONSE SPECTRA AND APPLICATION (Elgamal)

Response spectra for force-excited systems. Design approaches for dynamic loads. Experimental determination of dynamic system properties. Euro-code and uniform building code recommendations.

10:00 AM – 12:00 PM - PILE FOUNDATION UNDER SEISMIC LOADING (Prakash)

Piled foundations under static, dynamic and seismic loadings: Overview of models and methods of analysis. Simplified models. Pile response and dynamic impedance of single piles in vertical, horizontal and rocking loading. Dynamic response of pile groups to seismic loading. Interaction between piled foundation and superstructures. Case studies.

Instructors

Ahmed Elgamal
Shamsher Prakash

Name: Ahmed Elgamal
Employer: Department of Structural Engineering
University of California, San Diego (UCSD)
Title: Professor



Ahmed Elgamal Chaired the Department of Structural Engineering from 2003 to 2007. In 1984, he received his Ph.D. from Princeton University. He joined UCSD in 1997 as Professor after a post-doctoral appointment at the California Institute of Technology (1985-86), and faculty positions at Rensselaer Polytechnic Institute (1986-96) and Columbia University (1996-97). He served (2006-2007) as Principal Investigator of the Network for Earthquake Engineering IT project (<http://it.nees.org>) and as a Thrust Area Leader (2001-2007) of the Pacific Earthquake Engineering Research (PEER <http://peer.berkeley.edu/>) Center. His areas of research interest include large-scale soil-structure experimental and computational simulation of liquefaction and related mitigation approaches, Information Technology (IT) applications in Civil Engineering research and education, and interpretation of recorded seismic response through system-identification and data mining procedures. Incorporation of IT into structural engineering is currently among his main research areas, with emphasis on Health Monitoring of Structures and Earthquake Engineering. Internet applications include sensor networks for monitoring the civil infrastructure, with real-time condition assessment and decision-making algorithms (<http://healthmonitoring.ucsd.edu>). Integration of research and education with live web-accessible experiments is a main interest (<http://webshaker.ucsd.edu>). He is author and co-author of over 200 Technical Publications.



Dr. Shamsheer Prakash

Professor Emeritus

Missouri University of Science and Technology

Dr. Prakash is a nationally and internationally recognized geotechnical engineer with outstanding record of teaching, research and professional services. His professional career which started at Roorkee in India continued to grow in the United States when he went there in 1978. He initiated research on (1) displacement based design of rigid walls under seismic loading and liquefaction of sands with fines at Roorkee (1962-1978). All along, he has vigorously worked for the development of geotechnical engineering and soil dynamics since the beginning of his academic career. He chaired five international conferences in geotechnical earthquake engineering and soil dynamics and another five on case histories in geotechnical engineering.

He is member of more than ten professional societies and fellow of (i) American Society of Civil Engineers, (ii) Institution of Civil Engineers, London, and he has been admitted Honorary Fellow of Indian Society of Earthquake Technology and Indian Geotechnical Society for his contribution in Soil Dynamics. His technical committee participation includes, soil dynamics committee of ASCE, ASTM D-18, ACI-351, TC-4 on soil dynamics.

He has co-authored (1) Soil Dynamics (2) Machine Foundation (3) Pile Foundations and (4) Fundamentals of Soil Mechanics and about 300 papers in professional journals and conferences: <http://campus.umn.edu/geotech/people/faculty/prakash.html> He is President of Shamsheer Prakash Foundation who have two annual “Shamsheer Prakash Awards,” one for Excellence in Research and the other for Practice of Geotechnical Engineering. Dr. Prakash contributed to this aspect of life by providing a dynamic leadership as a ‘Yoga Teacher’ and authored two books on Yoga and Pranayam: <http://www.yoga10.org/>

In recognition his academic and professional achievements, the Technical University of Civil Engineering, Bucharest Romania, conferred the degree of ‘Doctor, Honoris Causa to Dr. Prakash in 2003, and University of Illinois (UIUC), have recognized him as Distinguished Alumni of Civil Engineering in 2004.