The Department of Civil, Environmental and Architectural Engineering
At the
University of Kansas
Presents
The Science and Practice of Civil, Environmental and Architectural Engineering

Spring 2007

This series will be presented in the auditorium at Burns & McDonnell, 9400 Ward Parkway, Kansas City, MO. Presentations will be on Mondays from 4 – 6 p.m.

Twelve topics will be taught by the faculty of the Department of Civil, Environmental and Architectural Engineering at the University of Kansas and will cover current issues in practice. Two hours PDH credit will be given for each session.

February 5	Steven Schrock	**Innovations in Work Zone Traffic Control: How to Keep Drivers (and Workers!) Safe in Your Work Zones**

An overview of work zone traffic control concepts from the MUTCD will be presented, including: fundamental principles of temporary traffic control, temporary traffic control elements, and pedestrian and worker safety. Additionally, ITS innovations in work zone traffic control and internal traffic control plans will be presented.

February 12	Stan Rolfe	**Fracture and Fatigue Control in Steel Structures**

An overview of fracture and fatigue control in steel structures will be presented. The history of fracture control will be reviewed and case studies discussing the applications of fracture mechanics will be presented.

February 19	Belinda McSwain	**Measures of Water Quality for Pathogen TMDL Development**

Water quality monitoring for pathogens typically relies on indicator organisms such as total and fecal coliforms and *E. coli*. Lately, DNA-based methods have the potential to directly detect pathogens and specify the source of pathogen loads. An overview of the various measures will be presented with a case study of a watershed undergoing a TMDL development.

February 26	Oswald Chong	**Construction and Demolition Waste Recycling**

Construction and demolition waste recycling has become increasingly important to the construction industry. While most of the reasons are tied to the environment, social and economic factors are just as important. The issues that will be covered in this lecture include: 1. the types of C&D waste that are being recycled; 2. Problems of C&D waste recycling; 3. Economic feasibility of recycling for your project; and 4. How to implement a complete C&D recycling program in your project.

March 5 Tom Bowlin **Mathematical Modeling for Your Toolkit**

Mathematical modeling represents a realm of potential design and decision-making support which many engineers and other technical specialists are unfamiliar. This presentation is intended to: Acquaint participants with the field of mathematical modeling, specifically as connection with practical engineering and other technical applications; Outline a standard process for mathematical modeling; Engage participants in a detailed mathematical modeling demonstration, applying the discussed standard process and utilizing the built-in capabilities of Microsoft Excel; and Offer suggested follow-up resources, including guidance on related professional associations and publications.

March 12 Jie Han **Load and Resistance Factor Design (LRFD) of Deep Foundations**

The use of AASHTO LRFD Bridge Design Specifications will be mandatory by all US Departments of Transportation for federally funded projects from October 2007. A large number of bridges are supported by deep foundations, mainly driven piles and drilled shafts. This lecture will present the basics of LRFD, the calibration procedure of resistance factors, the difference from allowable strength design, and the LRFD-based design methods for deep foundations.

March 19 Tom Glavinich **Construction Project Scheduling: Avoiding Tricks, Traps, & Snares**

Project specifications often require that the contractor submit a project schedule for the engineer's review and approval. This seminar will discuss the advantages and disadvantages of common scheduling techniques; what to look for when reviewing a project schedule; common scheduling tricks, traps, and snares and how to avoid them; and the elements of a good scheduling specification.

March 26 Steve McCabe **Design of Structures to Mitigate Blast Effects and the Chance of Progressive Collapse**

Since 2001 owners and operators of buildings and bridges are increasingly concerned about the effects of intentional or accidental explosions on their facilities. The question is how to protect structural assets in a realistic and cost effective manner. Design codes and specifications do not provide detailed guidance as to how to mitigate the effects of an explosion for a "typical" structure. This seminar will provide a concise state of practice regarding design for blast and realistic approaches that can be employed to reduce the likelihood of progressive collapse following an event. Case studies of recent and historic events will be evaluated in light of present knowledge.

April 2 Bruce McEnroe **Hydrologic Design of Bridges and Culverts**

This presentation will explore the criteria and methods for sizing of waterway openings for bridges and culverts. Historical review, current best practices, recent research and future directions.

April 9 JoAnn Browning **Design of RC Structures in Regions of Moderate Seismicity**

This presentation focuses on seismic demands and design methods for reinforced concrete structures in regions of moderate seismicity, such as the Central and Eastern United States. Detailing requirements for frame elements are reviewed. Simplified methods to estimate drift and deformation demands for reinforced concrete structures are discussed.

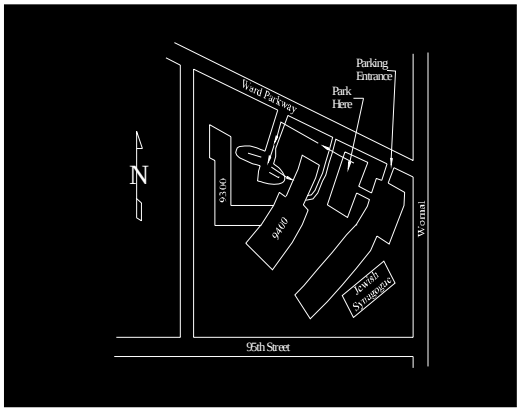
April 16 Steve Randtke **Membrane Systems for Water Treatment: Process Design Fundamentals**

Membrane systems are increasingly being used to treat municipal and industrial water supplies and wastewater discharges, to produce fresh water from seawater (membrane desalination), and to remediate contaminated ground water. This presentation will address the types of systems used, applications and limitations of commonly used systems, basic system design requirements and the proper use of vendor-supplied software as a design aid.

April 23 Mario Medina **Emerging Energy-Efficient Technologies in Buildings**

Commercial and residential buildings consume over 38% of the country's total primary energy and produce over 35% of greenhouse gas emissions in the U.S. Although technological innovations and integration protocols exist that would improve energy efficiency in buildings, little is known about a great number of them. This presentation will focus on emerging technologies that offer the potential for energy savings and cost reductions in the major areas of energy use in buildings, such as comfort systems (including enclosure improvements), lighting, water heating, and multiple-service integration technologies.

Session tickets, which are transferable, are $50 for each session of the 12 session series. There are a limited number of tickets. To obtain a ticket, contact Carol Jo Sloan, Department of Civil, Environmental & Architectural Engineering, 2150 Learned Hall, University of Kansas, Lawrence KS 66045. Telephone (785) 864-3766. Email: cjsloan@ku.edu



Each participant of each session will have their ticket stamped confirming attendance, the topic discussed, and verifying the 2.0 PDH credit.

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Please park in the Jewish Synagogue parking lot. Use the north lot, which is closest to the 9400 Building and then take the sidewalk to the front Burns & McDonnell entrance. ***This is the same parking lot we used last year. Parking in the Burns & McDonnell lot is strictly prohibited.***