Short Courses for CSCE Calgary 2006 Annual Conference

TOPICS

A) Corrosion-Free Bridge Deck Slab Design, Construction and Life-Cycle Costing

Speakers:

Dr. Aftab Mufti: President ISIS Canada Research Network and Professor of Civil Engineering University of Manitoba.

Dr. Baidar Bakht: TAC ISIS Canada Research Network and President JMBT Toronto.

Dr. Gamil Tadros: TAC ISIS Canada Research Network and Principal Speco Engineering Ltd Calgary.

Dr. Gordon Sparks: Project Leader ISIS Canada Research Network and Professor of Civil Engineering University of Saskatchewan.

Objectives:

The majority of bridge superstructures consist of steel or precast concrete girders supporting concrete deck slabs. New design methods using FRP (fiber-reinforced polymers) and based on restraining lateral deformation have been included in the new chapter 16 of the Canadian Highway Bridge Design Code. This course will discuss design methods and construction procedures according to the new code for both externally and internally restrained options as well as life cycle costing for this type of deck slab. The last two hours will be live interaction to compare life cycle cost for different types of deck slabs.

Duration: Full Day

B) River Flood Emergency Planning (CANCELED)

Speakers:

John Sealy, P.Eng. – Senior Research Engineer, The City of Calgary, Utilities and Environmental Protection

Greg Solecki – Disaster Services Officer, The City of Calgary, Fire/Emergency Management Division

Klas Ohman, P. Eng. – Manager Laboratory Services, The City of Calgary's, Water Services unit Ray Geller, Team Leader, Flow Forecasting with Alberta Environment

Objectives:

The workshop is intended to describe the extreme weather patterns and resultant river floods that impacted central/southern Alberta including the City of Calgary in June 2005. In this context several speakers will describe the City of Calgary's emergency response framework and procedures including contingency plans and mapping for river flood emergencies, planning for raw water supply quality variations such as those that impacted Calgary last June, and communication plans (media, citizens, staff, and elected officials). We will also address the City's operational responses to the June 2005 flooding and we will present a summary of the City's 'Lessons Learned' report.

Duration: Half Day

C) Introduction to Structure and Blast-wave Interaction

Speakers:

Dr. Pat Heffernan, Royal Military College, Kingston, Ontario Dr. Abass Braimah, Canadian Explosives Research Laboratory, National Research Council

Objectives:

The workshop will introduce participants to the fundamental characteristics of a blast wave and how to calculate its defining characteristics as it pertains to a target structure. Structural response and failure modes resulting from blast waves will be discussed as well as traditional empirical (P-I) and analytical (SDOF) methods used to predict damage. Some mitigation techniques to strengthen against blast will be introduced and discussed. Participants will learn the concepts associated with vulnerability assessment of structures and a structured approach for reducing vulnerabilities.

The workshop is presented at the introductory level and is intended for structural engineers interested in expanding their awareness of the blast/structures environment.

Duration: Half Day

D) Seismic Design of Multistorey Concrete Structures

Speakers:

Dr. Amin Ghali and Dr. Ramez Gayed, University of Calgary Dr. Carlos Ventura, Professor and Director of Earthquake Engineering Research Facility, UBC. Mr. John Pao, BPA Group, Vancouver, B.C.

Objectives:

The course will focus on the seismic design of multi-storey reinforced concrete structures. It will review the code provisions in the 2005 National Building Code of Canada and Chapter 21 of CSA A23.3-04. The course will discuss the practical aspects of the use of dynamic analysis for evaluating the seismic response of buildings. It will help structural engineers to better understand how to use dynamic analysis for the design of buildings that will require this type of analysis in accordance with the NBCC 2005. Course notes and a book to be included with the course.

Duration: Full Day

E) Advances in Landfill Technology: Theoretical and Practical Aspects

Speakers:

Dr.Ed MacBean, CRC Chair and Professor, University of Guelph, Dr. Patrick Hettiaratchi, Professor, University of Calgary

Objectives:

This short course will be geared towards introducing to the practicing professionals and graduate students the most recent advances in landfill engineering. The focus is on the design and operation of bioreactor landfills. Engineering techniques available to design and operate bioreactor landfills in a cost effective and environmentally responsible manner will be introduced and critically reviewed. The course will be delivered by two nationally and internationally recognized experts in landfill engineering: Dr. Ed McBean of University of Guelph and Dr. Patrick Hettiaratchi of University of Calgary. Visit their home pages at http://www.uoguelph.ca/~emcbean/ and www.schulich.ucalgary.ca/resrch_civil/Civil_Hettiaratchi.htm.

Duration: Full Day

F) Design for Structural Fire Safety (CANCELED)

Speakers:

Dr. Venkatesh Kodur, P.Eng, Senior Scientist, NRC Fire Laboratory Dr. Luke Bisby, P.Eng., Queen's University Dr. Mark Green, P.Eng, Queen's University

Objectives:

In recent years, with the collapse of the World Trade Center towers, and other large scale highrise fires in Chicago, Caracas, and Madrid, there has been a renewed interest in the fire performance of structures and structural components. This is particularly true in the case of innovative structures and structural systems using new materials such as fibre reinforced polymers (FRPs), either as internal reinforcement in new construction or as externally-bonded or near-surface-mounted reinforcement for structural strengthening and repair. In light of concerns as to the performance in fire of both conventional and innovative structures, this workshop will discuss various current issues with respect to design for structural fire safety, including: background information on the objectives of structural fire engineering, research into the fire performance of FRP-strengthened and FRP-reinforced concrete structures, and current trends toward objective-based design for fire safety.

Duration: Half Day

Please note:

1. Early Bird Registration before **April 22, 2006** is encouraged in order to assess attendance levels.

2. Organizers reserve the right to cancel any seminar due to low attendance levels or other circumstances.