



Performance-based Bridge Design to the new S6-14 Canadian Highway Bridge Design Code

21 July 2015 8:00 a.m.-4:30 p.m.

Course Description

Significant changes have been made in the seismic requirements of the new S6-14 Canadian Highway Bridge Design Code. Performance-based design (PBD) to functional damage and service performance criteria and multiple-hazard analysis replaces most of the old single hazard force-based approach.

This course will address the new PBD approach and best practices in modelling, analysis and design choices. It will also provide guidance on how to explicitly demonstrate that the performance criteria have been met. The manual, Guidelines for PBD of Bridges to S6-14 will be provided to all attendees and the course will be taught from it.

Who Should Attend

Engineers, owners and researchers who are responsible for the design or construction of bridges to performance-based criteria, particularly those involved in design/build or P3 projects; who are responsible for risk management of bridge assets and are interested in furthering the understanding of projected seismic damage.

Course Outline

- Introduction to PBD as per S6-14
- Foundations and ground issues
- Methodologies
- Modelling
- Analysis
- Explicit demonstration of meeting performance criteria
- Worked examples
- Open discussion

Course Fee

The regular course fee: \$350 plus tax and The fee includes lunch, PBD Guidelines, and refreshment breaks. Lodging and additional food or materials are not included.

Instructors

Denis Mitchell-*McGill University*

Dr. Mitchell specializes in the behaviour and design of concrete structures. His research interests include shear and torsion design, design of disturbed regions, seismic design, evaluation and retrofit, the behaviour of prestressed and high-strength concrete structures. He Chairs the S6-14 Seismic subcommittee.



Prof. Denis Mitchell

Don Kennedy - *Associated Engineering*

Don Kennedy is a Senior Bridge Engineer and Vice President of Transportation Structures for Associated Engineering in Canada. He has extensive experience on seismic design and retrofit of bridges, dams and structures in both traditional and P3 environments. He is a member of the S6-14 Seismic subcommittee.



Don Kennedy

Robert Trembley-*Polytechnique Montreal*

Dr. Trembley's current research is mainly directed towards the seismic design and response of steel structures. He is a member of the Standing Committee on Earthquake Design for the National Building Code of Canada, the CSA-S16 Technical Committee on Steel Structures for Buildings, the CSA S6 Technical Subcommittee on Seismic Design of Bridge Structures, the AISC Task Committee 9 on seismic design of steel structures and the AISC Adhoc Task Group on Non-Building Structures and Industrial Buildings.



Robert Trembley

Saqib Khan - *MMM Group*

Saqib Khan is a Senior Project Engineer in the Bridges Department of MMM Group's Vancouver office. Saqib has extensive experience on seismic-resistant design of new bridges and seismic performance assessment of existing bridges, including use of PBD.



Saqib Khan

Dr. Upul Atukorala - *Golder Associates*

Dr. Upul Atukorala is a Principal in Golder Associates' Vancouver office. Dr. Atukorala is a geotechnical engineer specializing in Earthquake Engineering, Soil-Structure Interaction, and Soil Dynamics. He has worked on projects involving seismic risk analysis, ground response analysis, soil-pipe and soil-cable interaction analysis, liquefaction assessment of soils, analysis of liquefaction-induced ground displacements and evaluation of mitigative measures for liquefaction. Upul is a member of S6-14 Seismic and Foundation subcommittees.



Upul Atukorala