



January 2012 Course Outline

C4-1 Introduction to Earthquake Engineering and Seismicity

Offered via the classroom and web cast

Purpose: This course covers fundamental concepts of earthquake engineering and will provide the student with a background necessary for understanding and performing seismic analyses and design of building structures covered in other courses of this program.

Selected Topics: Causes and effects of earthquakes, how earthquake forces are developed and resisted; seismic response of simple structures and the concept of response spectrum; seismicity of Canada, earthquake hazard, background of uniform hazard design spectra; design philosophy (ductility, seismic vs. wind effects); fundamentals of dynamics for multi-degree-of-freedom systems; NBCC seismic provisions – base shear formula; seismic force distribution; torsional effects; soil effects on seismic response; irregular structures; parts of buildings (nonstructural elements, pipelines); diaphragms and their effect on seismic response, modern technologies for controlling the seismic response of structures.

Course Coordinator: *Carlos Ventura*, Ph.D., P.Eng., Professor, Department of Civil Engineering, UBC

Instructors: *Carlos Ventura*, Ph.D., P.Eng., Professor, Department of Civil Engineering, University of British Columbia; *L. Finn*; *T. Yang*; and *M. Motamedi*.

Contact: *Carlos Ventura*, email: ventura@civil.ubc.ca

Communications: Notices to students and questions outside of class will be handled through e-mail only.

Submission of Assignments: Web cast students will be expected to submit electronic course assignments in the format prescribed by the instructor. All other students are required to submit their assignments at the beginning of the next class in hardcopy.

Student Code of Conduct: Registration in this course confirms that the student has read, and will abide by, the Student Code of Conduct: http://seabc.ca/documents/course_outlines/StudentCodeOfConduct.pdf

Schedule: 12 Tuesdays, 4:00 P.M. to 6:00 P.M., January 24 to April 17, 2012 (Mid-term break: March 6)

Venue: Alma Van Dusen Room, Vancouver Public Library, 350 West Georgia Street, Vancouver

Internet: This course is being offered **via the internet** as well as in the classroom. As it is a live transmission, the dates and times of the classes are the same as in the classroom. Should you wish to take this course via the internet, please complete the application form provided for internet courses.

System requirements for CSE Program LIVE e-learning Training:

- ✓ Any DSL or Cable Connection better than 56K. (Boosted 56K also works. Please test to be sure)
- ✓ A microphone and speakers or headset plugged into your PC.
- ✓ PC with Windows 2000 or XP running a processor greater than 750 MHz. with Ram of 256 or greater.