Professional Short Course Series

Seismic Design of Building and Bridge Structures

Organised by
Department of Civil Engineering, The University of Hong Kong
Supported by
Institution of Civil Engineers, Hong Kong Association
Structural Division, Hong Kong Institution of Engineers
Hong Kong Institute of Steel Construction
American Society of Civil Engineers (Greater China Section)

Syllabus:

This short course series aims to introduce fundamental concepts and up-to-date knowledge required for the design and assessment of structures in countering seismic hazards in a low to moderate seismicity region like Hong Kong. Fundamental principles and relevant skillsets are explained and illustrated with examples showing details of each step of the calculations. **Use of software facilities that can be accessed free online from website https://www.quakeadvice.org is a new feature in many parts of the short course**.

Registrants have the option of enrolling in any one, or more, day(s) of the short course series.

Day One is to cover the basic principles in relation to earthquake actions and how best to represent these actions for design purposes. First-time registrants of these short courses given by Prof Nelson Lam on this topic is recommended to enroll in Day One in combination with Day Two or Three, or both.

Day Two presents both static and dynamic methods of analysis of structures. The static method of analysis has been enhanced by Prof. Lam in order that results generated from the dynamic analysis of a structure by a commercial software can be checked using hand calculations based on static analysis to verify the correctness of the input/output to the computer program. Techniques taught are of great practical value in a design office.

Day Three presents methods of design and detailing of reinforced concrete to a desirable level of ductility. The modelling of reinforced concrete is covered at both the member and structural levels to facilitate structural design applications. Site specific seismic design involving selection, scaling and generation of accelerograms by site response analyses is introduced.

WHO SHOULD ATTEND: This course is suitable for civil and structural engineers working at different levels from graduate engineers to supervising senior / chief engineers, checkers, regulators and code drafters who want to acquire a sound fundamental understanding of the key principles on this subject in order to effectively exercise their respective professional duties that are associated with the engineering of structures.

Speakers:

Professor Nelson Lam *BSc(Eng), MSc, DIC, PhD, FIStructE, FIEAust* Professor and leader of structure and building discipline, Infrastructure Engineering, University of Melbourne, Australia.

Professor Francis T.K. Au *BSc(Eng), MSc(Eng), PhD, FHKIE, FIStructE, FICE, RPE(CVL, STL), CEng*, Honorary Professor and Former Head, Department of Civil Engineering, The University of Hong Kong.

Continuing Professional Development Credits:

The course is considered suitable for 1, 2 or 3 CPD-day credits.
* A Certificate of Attendance will be issued to those who attend all the registered sessions.

Dates: Friday 24, Monday 27 & Wednesday 29 November 2023 (8:45 a.m. - 5:00 p.m.)
Course Venue: Regal Kowloon Hotel, 71 Mody Road, Tsim Sha Tsui East

Course Fees (Non-refundable): HK$1,850 (one day), HK$3,600 (two days) or HK$5,400 (three days) (including course notes, a Certificate of Attendance*, welcome coffee & tea during registration, 2 coffee breaks with refreshments, buffet lunch & free flow of water)

Enquiries:

All enquiries about this professional course should be addressed to Mr Chen Jiajun, Rm 618, Haking Wong Bldg, Department of Civil Engineering, The University of Hong Kong at +852 6093 4379 (Email: junjames@connect.hku.hk).

(20231108amended)

THE UNIVERSITY OF HONG KONG
DEPARTMENT OF CIVIL ENGINEERING
Professional Short Course Series

Seismic Design of Building and Bridge Structures

Course Venue: Room Tivoli, 3/F, Regal Kowloon Hotel, 71 Mody Road, Tsim Sha Tsui East

COURSE PROGRAMME

DAY ONE (Friday 24 November 2023) - Earthquake Actions (recommended for all beginners)

8:45 am - 9:00 am	*Registration & Welcoming Coffee/Tea*
9:00 am - 9:05 am	Introduction to Day One
9:05 am - 10:15 am	Earthquake ground motions and earthquake hazard modelling.
10:15 am -10:30 am	Coffee break with refreshments
10:30 am - 11:30 am	Introduction to structural design and analysis for seismic actions.
11:30 am - 12:30 pm	Seismic design of bridges (I) #
12:30 pm - 2:00 pm	Lunch break
2:00 pm - 3:15 pm	Structural dynamics basics
3:15 pm – 3:30 pm	Coffee break with refreshments
3:30 pm – 4:45 pm	Earthquake actions represented in different formats
4:45 pm - 5:00 pm	Summary of Day One
5:00 pm	Collection of Certificate of Attendance

DAY TWO (Monday 27 November 2023) - Analysis of Structures

8:45 am - 9:00 am	*Registration & Welcoming Coffee/Tea*
9:00 am - 9:05 am	Introduction to Day Two
9:05 am - 10:15 am	Generalised Force Method (GFM) of Analysis of a building in 2D
10:15 am -10:30 am	Coffee break with refreshments
10:30 am - 11:30 am	Extension of GFM for analysis of a building in 3D (illustrating use of online software on https://www.quakeadvice.org)
11:30 am - 12:30 pm	Seismic design of bridges (II) #
12:30 pm - 2:00 pm	Lunch break
2:00 pm - 3:15 pm	Structural dynamic simulations on a laptop (no license required) Part 1
3:15 pm – 3:30 pm	Coffee break with refreshments
3:30 pm – 4:45 pm	Structural dynamic simulations on a laptop (no license required) Part 2
4:45 pm - 5:00 pm	Summary of Day Two
5:00 pm	Collection of Certificate of Attendance

DAY THREE (Wednesdat 29 November 2023) - Seismic Design and Detailing

8:45 am - 9:00 am	*Registration & Welcoming Coffee/Tea*
9:00 am - 9:05 am	Introduction to Day Two
9:05 am - 9:25 am	Seismic Design Considerations for Buildings
9:25 am – 10:15 am	Seismic Design and Detailing of Reinforced Concrete - part 1
10:15 am -10:30 am	Coffee break with refreshments
10:30 am - 11:30 am	Seismic Design and Detailing of Reinforced Concrete - part 2 (illustrating use of online software on https://www.quakeadvice.org)
11:30 am - 12:30 pm	Seismic design of bridges (III) #
12:30 pm - 2:00 pm	Lunch break
2:00 pm - 3:15 pm	Site specific seismic design Part 1
3:15 pm – 3:30 pm	Coffee break with refreshments
3:30 pm – 4:45 pm	Site specific seismic design Part 2 (illustrating use of online software on https://www.quakeadvice.org)
4:45 pm - 5:00 pm	Summary of Day Three
5:00 pm	Collection of Certificate of Attendance

Given by Professor Francis T.K. Au; others are taught by Professor Nelson Lam.

REGISTRATION FORM

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Please send the completed registration form with a crossed cheque made payable to "**The University of Hong Kong**":

Mr Chen Jiajun, Course Secretariat
Department of Civil Engineering, The University of Hong Kong, Pokfulam Road, Hong Kong

Please do not send any cash in the post. All payments are non-refundable.

Please note that registration will only be confirmed upon receipt of payment and on a first-come-first-served basis. The official receipt for the registration fees will be distributed on the days of the course. Note that ONLY softcopy of the course note will be provided unless requested in the above form. The download link will be offered in the due course.

Number of Persons: _____ Total Amount (HK$): _____ Enclosed Cheque No.: _____

Please complete in **ENGLISH** (in **BLOCK LETTERS**):

	Surname	**Given Name**	**Name of Company**	**Telephone**	**Email Address**	**Need Hardcopy of Course Note (Y/N)**
1						

Please put a '√ ' to select the day(s) of registration and #delete the amount as appropriate:

	DAY ONE 24 Nov 2023 (Fri)	**DAY TWO 27 Nov 2023 (Mon)**	**DAY THREE 29 Nov 2023 (Wed)**	**Amount (HK$)**
1				1,850 / 3,600 / 5,400 #

Please complete in **ENGLISH** (in **BLOCK LETTERS**):

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2						

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