



REGISTRATION FORM

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Name(s)	Grade & Membership No.	Fees (RM)
Total Amount Payable		

Cheque no. _____ and made payable to "THE INSTITUTION OF ENGINEERS, MALAYSIA" for the amount of RM _____ (non refundable)

REGISTRATION FEE

Grade	Normal (Offline)	Online
IEM Student Member	RM150	RM120
IEM Graduate Member	RM600	RM500
IEM Corporate Member	RM900	RM800
Non IEM Member	RM1,400	RM1,200

Company: _____

Address: _____

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Contact Person: _____ Designation: _____

Signature: _____ Date: _____

Important Notes:

- For **ONLINE REGISTRATIONS**, only **ONLINE PAYMENT** is applicable [vizRHB and Maybank2u -Personal Saving & Personal Current ; **Credit Card** – Visa/Master ; **MEPS FPX** - Bank Islam personal account, CIMB Clicks personal account & CIMB Biz Channel business account, Hong Leong Bank Personal Account, Maybank2u Personal Account & Maybank2e Business Account, Public Bank Personal Account and RHB Bank Personal Account]
- Payment via **CASH / CHEQUE / BANK-IN TRANSMISSION / BANK DRAFT / MONEY ORDER / POSTAL ORDER / LO / WALK-IN** will be considered as **NORMAL REGISTRATION**
- For **online registrations**, please note that payment **MUST** be made before the closing date at the latest.
- If payment is not received and verified within the stipulated time, the registration fee will be reverted to the normal registration fee.
- FULL PAYMENT must be settled before commencement of the event**, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non-refundable. Registration fee includes lecture notes, refreshments and lunch. IEM reserve the right to reject any L/O not in accordance with these instructions. The Organizing Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.

COURSE ON LIFE THREATENING INCIDENTS OF EXPLOSION FIRE AND IMPACT IN BUILDINGS Structural Design to Mitigate a Disaster

Course Instructors

Professor Bill Wong
Professor Nelson Lam
Dr Tuan Ngo

29 & 30 May 2012 (Tuesday & Wednesday)
9.00 am – 5.30 pm
Hotel Armada Petaling Jaya

BEM Approved CPD/PDP hours: 13
Ref. No.: IEM12/HQ/067/C

Important Notes:

- Closing Date : 25 May 2012**
- Online registration will **NOT** be allowed after the closing date.
- Please refer to the **Important Notes** on the last page.

WHO SHOULD ATTEND: This course has been developed primarily to serve structural engineers, civil engineers, academics in pursuit of research in these topics, building code drafters, architects, contractors and builders and risks analysts.

Organised by:

Civil & Structural Engineering Technical Division, IEM

TENTATIVE PROGRAMME		Day 1 - Tuesday 29 May 2012
800am	- 0900am	Registration and Morning Refreshment
0900am	- 0910am	Opening Remarks by Ir. MC Hee
0910am	- 0920am	Course overview by Nelson Lam
0920am	- 1030am	Professor Bill Wong and Dr Tuan Ngo :-Lessons Learnt from Past Events Collapse of the twin towers of the <i>World Trade Centre</i> . Progressive collapse on the Seoul Departmental Store. Bombing at Oklahoma 1995, bombing of the Jakarta Australian Embassy 2004, and other major incidents.
1030am	- 1100am	Morning Tea Break
1100am	- 1230pm	Professor Bill Wong:-Structural Design for Fire Resistance (I) Overview of performance based procedure for fire resistance structural design. Fire behaviour and temperature predictions of compartments.
1230pm	- 0130pm	Lunch
0130pm	- 0300pm	Professor Bill Wong:-Structural Design for Fire Resistance (II) Temperature prediction of structural elements and designing reinforced concrete and steel building structures for fire resistance; illustrations by worked examples.
0300pm	- 0330pm	Afternoon Tea Break
0330pm	- 0515pm	Professor Nelson Lam:- Structural Design for Impact Actions (I) Simplified analysis of the impact action of a moving object and that of a fallen object on a column/beam assuming linear elastic behaviour. Experimental validation of estimates by hand calculation.
0515pm	- 0530pm	Q&A

TENTATIVE PROGRAMME		Day 2 – Wednesday 30 May 2012
0815am	- 0900am	Morning Refreshment
0900am	- 1030am	Professor Nelson Lam:- Structural Design for Impact Actions (II) Modelling of the conditions of contact. Estimates of impact induced deflection of ductile elements. Illustrations of methods by worked examples.
1030am	- 1100am	Morning Tea Break
1100am	- 1230pm	Dr Tuan Ngo :- Blast Actions (I) Types of explosion. Blast pressure and wave propagation. Blast load profile.
1230pm	- 0130pm	Lunch
0130pm	- 0300pm	Dr Tuan Ngo :- Blast Actions (II) Design of blast wall and illustration by a worked example.
0300pm	- 0330pm	Afternoon Tea Break
0330pm	- 0500pm	Professor Nelson Lam:-Impact Actions (III) The anomalies of vibration created by an impact. Failure mechanisms. Unified approach for analysing impact, blast and seismic actions.
0500pm	- 0515pm	Q & A
0515pm	- 0530pm	Summary and Closing remarks by Ir. M C Hee

Introduction

Life threatening events of explosion fire and impact of heavy fallen or moving objects in accidents or in incidences of acts of terrorism, crime or social unrest have always been of great concern to our community. Structural engineers who have been entrusted to ensure safety of the building occupants can be held accountable for poor structural performance in these extreme events. However, the amount of advanced technical education that can be obtained from an undergraduate engineering degree program on the related topics is typically limited because of their very specialised nature. This two-day short course aims to introduce key fundamental concepts and up-to-date knowledge, from theory to practice, that are required for the design and assessment of buildings for countering this type of threats.

The short course features:

- Description of the collapse of the twin towers of the *World Trade Centre* and an example demonstrating the temperature evaluation of steel joist beams using a current calculation method.
- Lessons learnt from bombing at *Oklahoma* 1995, bombing of the *Jakarta Australian Embassy* 2004, and other major incidents.
- Lessons learnt from the progressive collapse on the *Seoul Departmental Store*.
- A new approach to blast resistant design and simplified hand calculation method for practising engineers.
- Simplified hand calculation method for analysing the effect of the impact of a heavy fallen, or moving, object on a structural beam, or column.
- Analogy of calculation for seismic, impact and blast actions in a unified framework.

ABOUT THE INSTRUCTORS

Bill Wong BSc(Eng), PhD, MICE, CEng, FIEAust, Associate Professor, Department of Civil Engineering, Monash University, Australia.

Bill Wong is Associate Professor at Monash University Melbourne. His research aims to provide engineering solutions so as to minimise loss of lives and properties in building fires. Bill's current research explores the reasons for structural collapses, designing steel structures using both elastic and plastic methods, nonlinear structural analysis and its applications to fire resistant structures design. An advocate for the use of plastic method in structural design, Bill has developed simple methods for analysis using both computers and manual techniques. These techniques have now been built into the undergraduate civil engineering syllabus at Monash University. Publishing a book on plastic design was yet another highlight in Bill's teaching career and receiving the 2011 Teaching Excellence in Structural Engineering Award from Engineers Australia was icing on the cake. Using numerous case studies in his teaching methods, Bill explores the Hyatt Regency Walkway collapse in the USA, the progressive collapse of the Seoul Department Store and the footbridge collapse at the Maccabiah Games in Tel Aviv. Last and not least he is an Australian pioneer in the exploration of shape memory alloys for structural fire protection purposes



Nelson Lam BSc(Eng), MSc, DIC, PhD, MICE, MStructE Reader, Department of Infrastructure Engineering, University of Melbourne, Australia.

Nelson Lam, Reader in Civil Engineering at The University of Melbourne, is an internationally recognized expert in structural dynamics, earthquake engineering and protective technology. In the past 20 years, he has been researching and consulting widely in this field and has published some 200 technical articles which include some 80 journal articles. His achievement in research and knowledge transfer in this field was recognized by the award of the Chapman Medal (1999), the Warren Medal (2006) by Engineers Australia, Best Paper Award (2004-2007) by the ISET Journal of Earthquake Technology and Chapman Medal (2010). At University of Melbourne, he is co-ordinator of higher degree programs in civil and structural engineering. His early career was with Scott Wilson International as structural engineer in their Hong Kong Office throughout the 1980's and attained British chartered engineer status (MICE, MStructE) during that period. He was awarded the degree of PhD in structural engineering at the University of Melbourne in 1993, master degree in concrete structures at Imperial College of Science & Technology, London in 1982 and bachelor degree in civil engineering with first class honours at the University of Leeds, England in 1981.



Tuan Ngo BEng (Civil), MEng Sci, PhD Senior Lecturer, Department of Infrastructure Engineering, University of Melbourne, Australia.

Tuan Ngo is senior lecturer at University of Melbourne. He obtained his BScH (Civil Engineering) at the Hanoi University of Civil Engineering, Vietnam, and Master of Engineering Science and PhD at the University of Melbourne, Australia. Ngo has made a significant contribution to research in vulnerability modelling of critical infrastructure, particularly in the area of assessment of the effects of natural and technical hazards on buildings and infrastructure. Dr. Ngo was the Research Program Manager of the ARC Research Network for a Secure Australia and Research Director of the Advanced Protective Technologies for Engineering Structures (APTES) at the University of Melbourne. He is recognised as an expert in protective technologies for protecting critical infrastructure by many government organisations and industry. Ngo received the Safeguarding Australia Award for Best Contribution to National Security Technology Research in 2011. He was the finalist (one in three) of the 2011 DSTO Eureka Prize for Outstanding Science in Support of Defence or National Security. Ngo recent research grants are Critical Infrastructure Vulnerability to Blast Effects, Blast Modelling for Cordon Assessment and Bomb Scene Examination, Research Network for A Secure Australia, Assessment of Façade Systems of high-rise Buildings in Australia under Blast Loading, Innovative concrete panels for resisting severe impulsive loading. Ngo is also a member of The University of Melbourne Energy Institute Energy Efficiency Working Group.



For further details please contact:

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