



Applied Technology Group

AUSTRALIA • NEW ZEALAND • HONG KONG • MALAYSIA • SINGAPORE

PROFESSIONAL COURSE ON:

2-Day Course on Design Applications to Eurocodes, EC2 - from the Perspectives of Consulting Engineers (with emphasis on fundamental approach - manual computation and structural software)



Conducted by

**Ir. Adjunct Specialist MC Hee
M C Hee & Associates**

Design Applications To EC 2

© 2017

MCH

Petaling Jaya

Armada Hotel

23rd - 24th August 2017



Supported by :The Institution of Structural Engineers (Malaysia Regional Group)

Design Applications To EC2 with Brief Overview of EC0 & EC1

- from the Perspectives of Consulting Engineers

COURSE OVERVIEW

This course provides an in-depth analysis and design on concrete structure with emphasis on fundamental approach. Manual computation is used throughout the seminar to facilitate the understanding, complemented by computer methods for verification. Some novel techniques in sketching deflection profiles, verified by two-cycle moment distribution, principle of virtual displacement (with short cut), powerful simplified unified approach in concrete section analysis/design, stability index, braced/unbraced columns, element of slabs (including punching shear), beams, columns, shear walls are highlighted. Advantage of using stress unit (mpa) in shear design is emphasised. At the end of the course participants will have more confidence and enjoy using Eurocodes.

BENEFITS OF COURSE

At the conclusion of the course, the learning outcome is enormous inclusive the followings:

- Sketch deflection profile by hand, followed verification by 2 cycle moment distribution. Transform the indeterminate structure by making the structure statically determinate without violation of the boundary conditions (short cut). Compute rotation/deflection using principle of virtual displacement. Design/analysis of concrete sections by simplified unified method seamlessly.
- Gain better understanding on how to use loadings and load combination in EC0, EC1 and EC2. Refer to detailed example on how to use ψ , ψ_0 , ψ_1 and ψ_2 .
- Conversion shear (kn) in stress units (mpa) allows the engineer to have a better feel of how the structure response to the effect of shear force.
- A definite way to determine the columns in the building are braced or unbraced.
- Serviceability limit states - bond, durability and fire resistance, loads and load combination are explained in details.
- Participants are more confident to use Eurocodes to design slabs, beams, columns and walls both in bending and shear.

MAIN COURSE PRESENTER



Ir. Adjunct Specialist MC Hee

Dip CE, FRMIT, BE (Civil), M. Eng. Sc., FIEM, MIE Aust., MACI, P.Eng.
Registered Structural Accredited Checker

Ir. MC Hee is a practicing Structural Consulting Engineer and Principal of M C Hee & Associates. He obtained his Bachelor of Engineering (BE) and Master of Engineering Science (M.Eng.Sc.) from The University of New South Wales, Sydney, Australia. His expertise is in the design and construction of high-rise buildings particularly in value engineering and alternative design. His philosophy is “**design for simplicity and buildability**” with a “**total concept approach**”.

He has over 40 years’ of experience in this field. His major overseas projects include the 68-storey MLC tower, 40-storey CML building in Sydney and 42-storey at 530, Collins St in Melbourne. In Malaysia, the number of high rise buildings he has embarked on is numerous, some of which are the 39-storey Core Project and 25-storey Plaza Perangasang in Shah Alam, 43-storey Mount Kiara Condominium, 28-storey Desa Parker Condominium, 25-storey Arab Malaysian Bank in Kuala Lumpur and the 4 high tower blocks of condominium ranging from 20 to 28 storeys in Sentul.

In addition, he is well versed in computer modelling of high-rise buildings and his current interest is in strut and tie applications in the field of structural engineering particularly transfer girders and deep beams. He is a strong advocate of manual check methods such as 2-cycle moment distribution and qualitative analysis on load response by sketching the deflected shapes and drawing the bending moment diagrams.

Ir. Hee is active in contributing to the engineering society. He is a registered accredited structural checker in BEM and highly regarded in the investigation committee. Some of his other activities include being the Vice President of IEM from 2009 to 2011, Chairman for drafting the Malaysian National Annex of EC0, EC1, EC2 and active member of Technical Committee drafting the Malaysian National Annex of EC8.

Ir. Hee has also conducted other intensive courses such as Design to BS8110, Eurocodes EC0, EC1 and EC2, Finite Element Modelling of Deep Beams and Raft Foundation and Analysis and Design to EC8.

Claimable under HRDF SBL scheme subject to max limit allowed.

12 BEM Approved CPD Hours (Ref. No.: ISE/MD/CPD/ATG/016), 20 CIDB Approved CCD Points (Ref. No.:CIDBSL/C/2017/0517)

TENTATIVE COURSE SCHEDULE

DAY 1

9.00am - 10.30am	<p>Session 1: Back to Basics on Structural Fundamental</p> <ul style="list-style-type: none"> Moment distribution revisited Sketching deflection profile 2 cycle moment distribution Examples in 2 cycle moment distribution Principle of virtual displacement PVD Graphical integration diagram Short cut in applications
10.30am - 10.50am	<i>MORNING TEA BREAK</i>
10.50am - 12.30pm	<p>Session 2: Serviceability limit states - bond, durability and fire resistance</p> <ul style="list-style-type: none"> Exposure conditions -mild (internal) and severe (external) Concrete grade selection for selected exposure condition Cover for bond, durability and fire resistance Worked examples <p>Session 3: Loadings and load combinations MS EN 1991-1-1:2002 Part 1-1 General actions - densities, self weight imposed loads for buildings</p> <ul style="list-style-type: none"> Imposed load reduction for beams Imposed load reduction for columns Worked examples <p>Combination values of variable action $Q_r = \psi_0 Q_k$ Frequent values of variable action $Q_r = \psi_1 Q_k$ Quasi-permanent(almost permanent) values of variable action $Q_r = \psi_2 Q_k$ Serviceability limit states Worked examples</p>
12.30pm - 1.45pm	<i>LUNCH</i>
1.45pm - 3.00pm	<p>Session 4: Unified Approach to Bending - Design & Analysis on Concrete Sections</p> <ul style="list-style-type: none"> Use of powerful method with only two equations Analysis and design of sections in transparent manner □, L, T sections Comparison between BS8110 and EC2
3.00pm - 3.30pm	<i>TEA BREAK</i>
3.30pm - 5.00pm	<p>Session 5: Shear using stress units</p> <ul style="list-style-type: none"> Beam shear Shear with concentrated load close to support Punching shear in flat slab
<i>END OF DAY ONE</i>	

DAY 2

9.00am - 10.30am	Session 6: 1 way and 2 way RC slabs <ul style="list-style-type: none"> • Simplified 1 way slab coefficient • Reduction of support moments due to continuity • Simplified 2 way slab coefficients • Worked examples
10.30am - 11.00am	<i>MORNING TEA BREAK</i>
11.00am - 12.30pm	Session 7: RC Beams <ul style="list-style-type: none"> • Effective flange width T and L beams. • Simplified continuous beam code coefficients • Simplified division of braced framed structure • Lateral load on unbraced frames
12.30pm - 1.45pm	<i>LUNCH</i>
1.45pm - 3.00pm	Session 8: RC Columns <ul style="list-style-type: none"> • Definition of a column • Braced or unbraced column-ACI 318-14 and EC 2 stability index • Code min eccentricity • Global geometrical imperfection • Short braced/slender braced columns • ISE column equivalent 'stress' value
3.00pm - 3.30pm	<i>TEA BREAK</i>
3.30pm - 4.30pm	Session 9: Plain walls and RC walls <ul style="list-style-type: none"> • Definition of a wall • Structural Classification Plain concrete walls/RC walls • Braced/unbraced wall classification • Plain concrete wall-effective length L_0 • Transverse eccentricity of loads • Effective height of braced plain walls • Capacity of stocky plain walls • Capacity of slender braced plain walls • Shear strength capacity of plain walls • Braced col effective L_e simplified method • ISE manual method slenderness ratio for isolated walls • ISE equivalent "stress" method for stocky braced RC Walls • Braced stocky RC walls N_{Ed}, M_{Ed}, in plane • Braced stocky RC walls N_{Ed}, M_{Ed}, inplane, transverse plane K • ISE Manual braced slender RC walls • ISE method lateral deflection e_2 RC slender wall • Braced slender RC wall under axial load • Slender RC wall-N_{Ed} and M_{Ed}, inplane M • Slender RC wall-N_{Ed} and M_{Ed}, inplane, transvers plane • Temperature/shrinkage wall rebar detailing <p>Questions and Answers</p>
<i>END OF DAY TWO</i>	



COURSE REGISTRATION FORM

<p>Course title: 2-Day Course on Design Applications to Eurocodes, EC2</p>

(✓ Please tick)

<p>23rd - 24th August, 2017 (Wednesday & Thursday) Petaling Jaya, <i>Armada Hotel</i></p>

Company Information

Company:	
Address:	
State/ Province:	
Zip/Postal Code:	
Country:	
Contact Person:	
Email:	
Phone:	

Attendee Information

Name (1)	
Job title:	
E-mail:	
Mobile/Tel No:	
Name (2)	
Job title:	
E-mail:	
Mobile/Tel No:	
Name (3)	
Job title:	
E-mail:	
Mobile/Tel No:	

Registration Fee

	Fee Before GST (6%)	GST (6%)	TOTAL
Individual Fee	RM2,000.00	RM120.00	RM2,120.00
Group Fee (3 or more delegates)	RM1,800.00	RM108.00	RM1,908.00

Closing date: 16th August 2017. An early bird discount of RM100 for payment received before 22nd July 2017.

Payment

Payment is to make payable to:
Applied Technology Group Sdn Bhd
Public Bank Berhad (Malaysia)
 Account no: 3178247302
 GST Registration Number: 000641294336

Payment terms:

Payment is required before the event. Once payment is received, your seat will be reserved. Registration fee includes lunch, refreshments and full training documentation as specified. Delegates may be refused admission if payment is not received prior to the event. The fee does not include hotel accommodation.

Cancellation Policy

All cancellation of registration must be made in writing. If you are unable to attend:

- a) A substitute delegate is welcomed at no additional charge.
- b) Your registration can be credited to a future event.
- c) You will receive a full refund less 10% administration charge if cancellation is received in writing more than 14 days before the event.
- d) No cancellations will be accepted within 14 days before the event start date. Full course documentation will however be sent to the delegate.

Course Schedule

Course starts at 9.00am and ends at 5.00pm daily. Please arrive at 8.30am on day one to allow time to register and receive course materials.

Please send completed form to:

Fax to: **+603 5637 9945**
 or Email to : admin@apptechgroups.net
 For enquiry, please call: +603 5634 7905
 Or refer to our website www.apptechgroups.net

<p>Applied Technology Group Sdn Bhd Lot 13, Jalan TP 5A, Prestij 16, Taman Perindustrian UEP, 47600 Subang Jaya, Selangor Darul Ehsan, Malaysia.</p>
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