



1-DAY SHORT COURSE ON STRUCTURAL ENGINEERING FAILURES

18 FEBRUARY 2020 (14TH RUN)

Course Objectives

Collapse is every engineer's worst nightmare. Fortunately, not every engineer must go through the experience of a collapse first-hand as we can all learn from the mistakes of others. This course aims to impart knowledge by way of sharing examples of structural engineering failures so engineers can learn how not to repeat such mistakes.

Target Audience

This course will benefit civil and structural designers, builders and Resident Engineers.



**“Those who cannot
remember the past are
condemned to repeat it”**
*George Santayana, the
Philosopher (1863-
1952)*

UTAP SUPPORTED
(NTUC union members
can claim up to 50%
course fees)

CPD PROGRAMME
7 PDU /6 STU

COURSE DETAILS

Fees

\$299.60 (IES members)
\$353.10 (Non-members)

Date & Time

18 FEBRUARY 2020
9.00am – 5.15pm

Venue

IES Academy@ Jurong East
80 Jurong East St 21 #04-10
Devan Nair Institute for
Employment and Employability
Singapore 609607

Course Outline

Theories on different themes

Case studies are grouped into several “themes”. Lessons are drawn from each of the following themes:

Theme 1: Gravity

To construct a building with the ability to withstand breaking, hold together under a load, including its own weight, without breaking and deforming.

- Hyatt Regency Hotel Walkways, Kansas, 1981
- Hotel New World, Singapore, 1986
- Sampoong Department Store, Seoul, 1995

Theme 2: Computers and Modelling

Combine knowledge of geometry, design and materials. Encourage a more reflective approach among designers.

- Hartford Civic Centre, Connecticut, 1978
- Compassvale Primary School, Singapore 1999

Theme 3: Wind

Wind load on structure

- John Hancock Tower, Boston, 1972
- Citicorp Centre, New York, 1978

Theme 4: Maintenance

Untrained maintenance personnel

- Antioch school, California, 1980
- Piper’s Row, Wolverhampton, 1997

Theme 5: Construction

- Bailey’s Crossroads Condominium, Virginia, 1973
- Cocoa Beach Condominium, Florida, 1981
- General Recommendations

Theme 6: Blast and Fire

Different construction materials response to heat

- Ronan Point, London, 1968
- Alfred Murrah Building, Oklahoma, 1995
- World Trade Centre, New York, 2001
- The Pentagon, Virginia, 2001

Theme 7: Miscellaneous Failures

- Kemper Arena, Kansas, 1979
- Burnaby Supermarket, Burnaby, Canada, 1988



CV of Trainer

Er Dr. Niall MacAlevey

is currently an independent consultant specializing in the analysis and design of reinforced and prestressed concrete structures, forensic engineering and the strengthening of concrete structures. He is the founder of the firm “Shamrock Consultants”, is a member of the Institution of Engineers of Ireland and is a registered Professional Engineer in Singapore.

He graduated from University College Dublin, Ireland in 1987, and completed his M.Sc. degree in “Concrete Structures” at Imperial College, London. He completed his Ph.D degree at the Nanyang Technological University in 1997 on “The Strengthening of Concrete Structures” and later joined the academic staff there. He obtained a PGDipTHE (Post-Graduate Diploma in Teaching in Higher Education) from the National Institute of Education in 2001. He has worked for a number of consulting engineering firms and specialist prestressing subcontractors in London, Cambridge, Hong Kong and Singapore. He is the author of the book "Structural Engineering Failures: lessons for design".

Structural Engineering Failures (14th Run) - 18 February 2020

Duration - 1 Day (7 HRS)

TIME	DESCRIPTION
8.30am - 9.00am	Registration
9.00am - 10.30am	Introduction Theme 1: Gravity
10.30am - 10.45am	Break
10.45am - 12.15pm	Theme 2: Computers & Modelling Theme 3: Wind
12.15pm-1pm	Lunch
1pm – 2.45pm	Theme 4: Maintenance Theme 5: Construction
2.45pm – 3pm	Break
3pm – 5.15pm	Theme 6: Blast & Fire Theme 7: Miscellaneous Conclusions

Registration Form

1 – Day Short Course on Structural Engineering Failures (14th Run)			
Date	:	18 February 2020 (Tuesday)	
Duration	:	1 day	
Time	:	9.00am – 5.15p.m.	
CPD Programme	:	7 PDU / 6 STU (Structural)	
Venue	:	IES Academy@Jurong East, 80 Jurong East St 21 #04-10 Devan Nair Institute S(609607)	
Course Fee	:	\$299.60 (IES Members); \$353.10 (Non- members)	
Course Coordinator	:	Joyce Foo Tel: 6461 1238 Email: joyce.foo@iesnet.org.sg	
Last Date of Registration	:	10 February 2020 till class fully booked (whichever comes first)	
Participant's Details			
Name	:		NRIC/FIN No :
Company	:		Designation :
Address	:		
		Postal Code	:
Office No	:	Mobile	:
			Gender : Male / Female
Email	:		
Please indicate		<input type="checkbox"/> IES Member No:	<input type="checkbox"/> Non-Member
		<input type="checkbox"/> Sponsored by Company	<input type="checkbox"/> RTO/RE/PE No:
		<input type="checkbox"/> Special Meal Request – Vegetarian	
Contact Person (HR/Accounts Department)			
Name	:		Designation :
Office No	:	Fax	:
			Email :
Payment		Nets/Cheque:	Amount:
<ul style="list-style-type: none"> • Cheque to be made payable to 'ENGINEERS SINGAPORE PTE LTD' • Written Notice via email is required for Cancellation or Withdrawal of course, 7 working days prior to course date • Course fee inclusive of 7% GST, course materials and one tea break (Halal caterer) • Certificate of Attendance will be issued to participants with 100% Attendance 			
Acceptance of Terms & Conditions for Registration of IES Academy Courses / Events			
I agree to abide to the Terms & Conditions for Registration of IES Academy courses and events			
Name:			
Signature:			
Date:			

TERMS & CONDITIONS COURSE REGISTRATION

Registration

Any registration, whether on-line or fax will be on a ***first-come-first-served basis*** and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd unless otherwise invoice to company. All registrations must be submitted with duly completed registration form.

Closing Date & Payment

The closing date of the event will be 1 week prior to event commencement date or earlier. Cheques should be crossed 'A/C payee only' and made payable to **'Engineers Singapore Pte Ltd'**, with the ***Title of The Event indicated clearly written on the back of the cheques***, and submitted with the duly completed registration forms to:

Attn: Joyce Foo
IES Academy@Jurong East, 80 Jurong East Street 21 #04-10
Devan Nair Institute for Employment & Employability
Singapore 609607

Confirmation of Registration

Confirmation of registration will be given at least 1 week before the commencement date via email. ***If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.*** IESA reserves the right to allow only confirmed registrants to attend the Event.

Withdrawals/Refunds of Fees

Written notice at least 1 week in advance before the commencement of the event

Full course fee shall be refunded subjected to 4.5% transaction charge.

➤ **NO** refund otherwise.

No show of participant would not be accepted as a valid reason for withdrawal/refund.

One time replacement is allowed only if written notice is received by us at least 1 week before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

Cancellation/Postponement

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

UTAP (Union Training Assistance Programme) is an individual skills upgrading account especially for NTUC members. As a member, you enjoy UTAP funding at 50% of the unfunded course fee capped at \$250 every year.

SkillsFuture Credit (SFC) "All Singaporeans aged 25 and above can use their \$500 SkillsFuture Credit from the government to pay for a wide range of approved skills-related courses. Visit the SkillsFuture Credit website (www.skillsfuture.sg/credit) to choose from the courses available on the SkillsFuture Credit course directory."

Please visit [HERE](#) for more information on SFC & UTAP claim.

PERSONAL DATA PROTECTION ACT I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to [here](#).

Enquiries : For further enquiries, please contact IESA general office at Tel: 6463 9211.