



## 1-DAY SHORT COURSE ON STRUCTURAL ENGINEERING FAILURES

13<sup>TH</sup> RUN – 1 MARCH 2019

### Course Objectives

Collapse is every engineer's worst nightmare. Fortunately, not every engineer must go through the experience of a collapse firsthand 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. It will also cover the relevant areas of SS EN 1992 series on Design of Concrete Structures, with reference to structural engineering failures

### Target Audience

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



IES Academy

**“Those who cannot remember the past are condemned to repeat it”**

*George Santayana, the Philosopher (1863-1952)*

### **CPD PROGRAMME -**

7 PDU / 6 STU  
(STRUCTURAL) –  
TO BE CONFIRMED

### **SKILLSFUTURE CREDIT SUPPORTED**

(Terms & conditions apply)

### **UTAP SUPPORTED**

(FOR NTUC UNION MEMBERS – UP TO 50% )

### **COURSE DETAILS**

#### Fees

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

#### Date & Time

1 Mar 2019  
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

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

### Theme 1: Gravity

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

### Theme 2: Computers and Modelling

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

### Theme 3: Wind

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

### Theme 4: Maintenance

- 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

- 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".

## Registration Form

1-Day Short Course on Structural Engineering Failures (13th Run)									
Date	:	1 Mar 2019							
Duration	:	1 Day							
Time	:	9.00am – 5.15pm							
CPD Programme	:	7 PDU, 6 STU (Structural) –To Be Confirmed							
Venue	:	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	:	Lee Woon IES Academy@Jurong East 80 Jurong East Street 21 #04-10 Devan Nair Institute for Employment & Employability Singapore 609608 Tel: 6461 1250 Email: <a href="mailto:hon.lw@iesnet.org.sg">hon.lw@iesnet.org.sg</a>							
Last Date of Registration	:	21 Feb 2019 or till class fully booked (whichever comes first)							
Participant's Details									
Name	:				NRIC/Fin No	:			
Company	:				Designation	:			
Address	:								
					Postal	:			
Office No	:		Mobile	:		Fax	:		
Email	:								
Please indicate		<input type="checkbox"/> IES Member No:		<input type="checkbox"/> Non-Member		<input type="checkbox"/> RTO/RE/PE No:			
		<input type="checkbox"/> Sponsored by Company		<input type="checkbox"/> Special Meal Request – Vegetarian					
Contact Person (HR/Accounts Department)									
Name	:				Designation	:			
Office No	:		Fax	:		Email	:		
Payment	Cash/Nets/Cheque:					Amount:			
<ul style="list-style-type: none"> <li>• Cheque to be made payable to 'ENGINEERS SINGAPORE PTE LTD'</li> <li>• Written Notice via email is required for Cancellation or Withdrawal of course, 7 working days prior to course date</li> <li>• Course fee inclusive of 7% GST, course materials, lunch and tea-breaks</li> <li>• Certificate of Attendance will be issued to paid participants with 100% Attendance</li> </ul>									
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 online, fax or by email, will be based 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. Cheques should be crossed 'A/C payee only' and made payable to 'ENGINEERS SINGAPORE PTE LTD', with the Date of event, Title of The Event and participants' name indicated clearly on the back of the cheque, and post to:

Attn: Lee Woon  
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 one week before the commencement date of event via email. If you do not receive the said confirmation email, you are required to contact IES Academy at general admin immediately at 6463 9211 (office).

IESA reserves the right to allow only confirmed and paid 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. IESA 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](http://www.skillsfuture.sg/credit)) to choose from the courses available on the SkillsFuture Credit course directory."

Please visit [https://www.ies.org.sg/ies/ia/Skillsfuture\\_&\\_UTAP.pdf](https://www.ies.org.sg/ies/ia/Skillsfuture_&_UTAP.pdf) for more information on SFC & UTAP claim.

### **Personal Data Protection Act**

By registration, you consent to the processing by Institution of Engineers, Singapore of personal data, including your sensitive personal data as defined in the Data Protection Act 2014 for the proper purposes of Institution of Engineers, Singapore (IES). You undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data you may hold and process as a Members of Institution of Engineers, Singapore, and you 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: [www.ies.org.sg/PDPA](http://www.ies.org.sg/PDPA).

### **Enquiries**

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