

Design Of Precast Concrete Elements For Hybrid Buildings (3rd Run)



This is a half day course with a given extended worked example of a double-tee long span floor with in-situ topping.

Synopsis:

Hybrid construction mixes precast and in-situ. The first hybrid buildings started to appear in the 1960s. Now the biggest use of precast concrete is in hybrid buildings. Precast concrete is rarely covered at undergraduate level. This course aims to remedy that. The design code used is The Design code used is the SS EN 1992 series of Concrete Structures. Often, the full precast solution, namely precast beams, slabs, columns and walls, may be felt to be inappropriate for a particular building project. Luckily, it is not necessary to use precast frames in conjunction with individual precast elements; the benefits of precast (speed, quality and prestressing) and in-situ (cheap and robust) can be availed-of by combining the two. The combination of precast and in-situ concrete is termed 'hybrid' to distinguish it from 'composite' which usually implies steel plus in-situ concrete.. It usually involves either precast vertical structure and in-situ horizontal structure, or in-situ vertical and precast horizontal.

Course Objective

The course explains how to design pretensioned prestressed elements suitable for hybrid (precast + insitu) concrete construction.

Course Contents

- Introduction** Hybrid construction; Brief review of precast technology; Introduction to connection design
- Lecture 1** Brief review of prestressed concrete; Design of pre-tensioned elements for flexure and shear; Design to achieve composite action with in-situ topping, beam-end design.
- Lecture 2** Design of precast vertical elements: columns and walls. Lifting from the mould; Pitching; Temporary Stability; Ultimate considerations. Braced and Unbraced construction. Types of precast wall and their design.
In addition, an extended worked example of a double-tee long-span floor with in-situ topping is given

Programme Details

Date: 10 December 2019 (Tuesday)

Time: 2.00pm – 5.15pm

Course Venue: IES Academy@Jurong East, 80 Jurong East Street 21 #04-10 S(609607)

Course fees: \$149.80 (IES Member) / \$176.55 (Non Member)

*** Certificate of Attendance will be issued to participant with 100% attendance.**

*** Course fees inclusive of 7% GST, course materials, one tea break (by Halal caterer)**

Funding Support: UTAP Funding for NTUC Union Members (T&C apply)

Lecturer's Profile



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.

After graduating from University College Dublin, Ireland in 1987 with a B.E (Civil) degree, he then obtained his M.Sc. degree in "Concrete Structures" at Imperial College, London in 1988. 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 four books "Structural Engineering Failures: lessons for design", Preliminary Design of High-Rise Buildings in Non-Seismic Regions, Design of Reinforced Buildings to Resist Blast and Prestressed Concrete in Buildings. All books are available from Amazon.com

Registration Form

Design Of Precast Concrete Element For Hybrid Buildings (3rd Run)										
Date	:	10 December 2019, Tuesday								
Duration	:	3 hrs (½ day)								
Time	:	2.00pm – 5.15pm								
CPD Programme	:	PDU / 3 STU (Structural) – To be confirmed								
Venue	:	IES Academy@Jurong East, 80 Jurong East St 21 #04-10 Devan Nair Institute S(609607)								
Course Fee	:	\$149.80 (IES Members); \$176.55 (Non- members)								
Course Coordinator	:	Jessie Tan Tel: 6461 1250 Email: jessie.tan@iesnet.org.sg								
Last Date of Registration	:	3 December 2019 or 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"/> 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	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 light refreshments for 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 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: Jessie Tan
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.

Please visit <https://www.ies.org.sg/ies/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.

Enquiries

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