

Prestressed Concrete In Buildings (16th Run)



This is an intensive one-day course on the design of beams and slabs for use in buildings. Both pre-tensioning and post-tensioning are discussed.

Synopsis:

In design practice today it is usual to carry out the detailed design of members of conventional reinforced concrete, structural steelwork or prestressed concrete using computer software. Although much time is saved, this may have the unfortunate consequence that the much of the “feel” for the design is lost. This is particularly true in prestressed concrete, especially when indeterminate members are involved. Indeed the topic may be less well understood as many undergraduate courses neglect the teaching of the subject almost entirely. Thus the design of prestressed concrete members, in buildings particularly, is often left to specialist contractors.

The focus of the course is to provide a conceptual understanding of the topic. The approach taken is design-based rather than a more rigorously analytical one. Hand-based methods are emphasized where relevant.

Numerous worked examples are presented as well as an extended example on a flat plate floor to illustrate the points made. The codes used are the European Code EC2 (SS EN 1992 series on Design of Concrete Structures) and the Concrete Society Technical Report TR43, while, for comparison, reference is sometimes made to other codes, e.g., the American Code ACI-318.

Target Audience

The course is suitable for beginners, and although some background in the topic would be helpful, it is not essential.

Course Objective

The objective of the course is to equip engineers with the knowledge to carry out preliminary design, detailed design and checking of designs in this important field.

Programme Details

Date	: 05 Nov 2019, Tuesday
Time	: 9.00am – 5.15pm
Venue	: IES Academy@Jurong East
CPD	: 7 PDU / 6 STU (Structural)
Course Fee	: \$299.60 (IES Members) \$353.10 (Non-Members)

- * Fee inclusive of 7% GST, course materials
Halal lunch and tea-breaks.
- * Certificate of Attendance will be issued to participants with 100% attendance

**UTAP & SKILLSFUTURE
CREDIT SUPPORTED**
(Terms & Conditions Apply)

Topics:

- **Introduction to prestressed concrete**

Principle of prestressing; History; Basic Terminology; Design Guidance; Advantages; Disadvantages; Losses; Bonded vs. Unbonded; Review of Hardware.

- **Flexural Stresses at Service and Transfer**

Calculation of Stresses; Allowable Stresses; Classes of Construction.

- **Flexural Strength**

Load Factors; Calculation Method (bonded tendons).

- **Continuous Members in Flexure**

Description; Analysis Using Equivalent Load Approach; Secondary Moments.

- **Design using Load Balancing**

Basic Design of Simply Supported Beam and Continuous Beam. Preliminary and Final Designs.

- **Floor Systems**

One-way Systems; Two-way Systems; Analysis; Punching of flat slab/plate; Deflections of flat plate/slab.

- **Learning from failures of PSC structures**

Progressive Collapse; Restraint; Case Studies (6).

- **Design Example: Flat Slab; Footbridge**

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" 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" from 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 Concrete Buildings to Resist Blast and Prestressed Concrete in Buildings. All books are available from Amazon.com.



REGISTRATION FORM

Prestressed Concrete in Buildings – 16th Run

Date of Course : 05 November 2019, Tuesday
Course Time : 9.00am – 5.15pm
Venue : IES Academy@Jurong East
80 Jurong East Street 21
#04-10 Devan Nair Institute (e2i) S(609607)
Course Fee : \$299.60 (IES Members); \$353.10 (Non Members)
CPD Programme : 7 PDU / 6STU (Structural)
Course Coordinator : Jessie Tan
Tel: 6461 1250
Email: jessie.tan@iesnet.org.sg
Closing Date : 25 October 2019 or till class is full (whichever comes first)

Participant's Details:

Name (as in NRIC) : _____ NRIC/FIN No : _____
Company : _____ Designation : _____
Address : _____
Postal Code : _____

Mobile : _____ Office : _____ Gender : Male / Female
Email : _____

Please indicate: IES Member No: _____ PE / RE No: _____
(where applicable) Non Members Company Sponsored Meal Request - Vegetarian

Contact Person's Details (HR/Accounts Department)

Name : _____ Designation : _____
Mobile : _____ Office : _____ Fax : _____
Email : _____

Payment Details:

Cheque/Nets _____ Amount: _____

*All course fees are inclusive of 7% GST.

*Cheque to be made payable to 'ENGINEERS SINGAPORE PTE LTD'

* Full payment is required to secure seat in class.

* WRITTEN NOTICE via email is required for Withdrawal/Cancellation of course; 7 working days before Course Date.

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

Acceptance of Terms & Conditions for Registration of IES Academy's 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.

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 <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.