The Institution of Engineers, Malaysia

The Institution of Structural Engineers
Malaysia Regional Group
Session 2025-26

Organised by :
Civil & Structural Engineering Technical Division & The Insititution of Structural Engineers Malaysia Regional Group Session 2025 - 2026

2-DAY PREPARATORY COURSE ON ADVANCED STRUCTURAL ENGINEERING

with particular reference to the Chartered Membership Examination (CME) of the Institution of Structural Engineers, United Kingdom

12 - 13 November 2026
8:30 am - 5:30 pm
C&S / TUSTD Room, Wisma IEM, Petaling Jaya

Rajavel Inbarajan
BE(Madras), MSc(London), DIC, MIStructE
Chartered Structural Engineer



Registration fee (Subject to 8% SST)

GRADE	FEE
IEM / IStructE Student Member	RM 200
IEM / IStructE Graduate Member	RM 500
IEM / IStructE Member	RM 800
Non IEM / IStructE Member	RM 1200

BEM Approved CPD: 13
Ref. No.: IEM26/HQ/491/C

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SYNOPSIS

This 2-day preparatory course for the Chartered Membership Examination (CME) of the IStructE is aimed at aspiring senior and young engineers who wish to refresh and enhance their skills in the structural, analytical and conceptual design of structures. The format is devised as an examination-preparation workshop for the world-renowned 7-hour CME of the Institution of Structural Engineers, United Kingdom, and is conducted in line with the new CME format introduced in January 2024. A prime objective of the examination is to test the technical competency and skilfulness of candidates in executing their daily work with respect to the art and science of structural engineering.

In this respect, the course illustrates the required structural design skills, the ability to conceptualise distinct and viable structural schemes, and the production of annotated sketches and drawings for a given task — based on past CME questions, which are normally derived from real projects around the world.

WHO SHOULD ATTEND

The course is organised not only for those intending to take the CME, but also for those who wish to improve, inter alia, their skills in the conceptual design of structures in general. It is therefore well suited to:

–Practising civil and structural engineers
–Academic staff teaching conceptual design
–Young engineers in their formative years

Participants are advised to bring calculators, as design exercises will be carried out during the workshop.

SPEAKER'S BIODATA

Rajavel Inbarajan studied Civil Engineering at the Vellore Institute of Technology (formerly Vellore Engineering College) and obtained his BE First Class with Distinction from the University of Madras, India, in 1988. He subsequently obtained his MSc and DIC in Concrete Structures from the University of London and Imperial College London, UK, in 1997. He became a Corporate Member of the Institution of Structural Engineers (IStructE), UK, after passing the Chartered Membership Examination (CME) held in April 2004 at his first attempt. The IStructE appointed him as an Examiner for the CME in 2008, and he served as one of the Chief Examiners for the CME held in January 2019, January 2020, March 2022, February 2023 and January 2024.

He has more than 35 years of quality and varied experience in the conceptual design, detailed design and project management of very large structural and civil engineering projects in international and cross-cultural settings. He has worked with reputable international consultants and contractors on very large engineering projects with increasing responsibilities in Qatar, the United Arab Emirates, Saudi Arabia, Oman, Singapore, Sri Lanka and India since 1988. His experience broadly covers the design and construction of low and high rise buildings, airports, bridges, underground and above ground metro stations and mega water retaining structures / reservoirs, as well as the investigation and rectification of very large marine structures.

He conducts capacity development courses on Advanced Structural Engineering, Water Retaining Structures, and the Investigation and Strengthening of Concrete Structures at the invitation of professional bodies and private institutions. He has been conducting CME preparation courses since 2009 in Malaysia, Sri Lanka, Qatar and the UK, and has provided possible solutions to past CME questions for publication on the IStructE examination-preparation CD and website. This workshop will, inter alia, cover one such possible solution produced by Inban for a past CME question.

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TENTATIVE PROGRAMME - DAY 1

Time	Description
8:30am – 8:50am	**Registration & Light Refreshment**
8:50am – 9:00am	**Welcoming Address**
9:00am – 10:00am	**An Examiner's Perspective of the Chartered Membership Examination of IStructE and his/her expectations on:** • Functional framing, load transfer, serviceability, stability and sustainability aspects of 2 schemes that are distinct, viable and sustainable • Review and critical appraisal of schemes using sustainability as a criterion • Communication with the Client (in an email format) • Design of principal structural elements and their Embodied Carbon calculation (A1 to A3) • Drawings for estimation purpose • Method Statement
10:00am – 11:00am	**Section 1a — Scheme Design** • Aim of structural design / sustainability / embodied carbon • Understanding & appreciation of conceptual design
11:00am – 11:15am	**Morning Tea Break**
11:15am – 12:00pm	**Section 1a — Scheme Design (contd.)** Structural systems for concrete and steel structures: • Floor systems • Shear wall and bracing arrangements • Rules of thumb in structural engineering
12:00pm – 1:00pm	**Section 1a — Scheme Design (contd.)** Foundation & retaining wall systems: • Shallow foundations • Ground improvement techniques • Deep foundations • Earth Retaining and Stabilising Structures (ERSS)
1:00pm – 2:00pm	**Lunch**
2:00pm – 2:30pm	**Section 1b — Communication with the Client** Reduce material usage through possible changes to the brief without impinging the functional requirements of the facility
2:30pm – 3:00pm	**Section 2d — Drawing Requirements for Estimation Purpose** • General arrangement plans • Section / elevation • Critical details
3:00pm – 3:30pm	**Section 2e — Method Statement** • Safety aspects • Mobilisation • Construction methods and sequence of the selected scheme
3:30pm – 3:45pm	**Afternoon Tea / Coffee Break**
3:45pm – 4:15pm	**Guide to Robustness and Disproportionate Collapse** • Class 1 Buildings • Class 2A & 2B Buildings (Approach to Class 3 Buildings will be highlighted)
4:15pm – 5:00pm	**Water Retaining / Basement / Underground Structures** • Watertight design — crack width (per EC2: Part 3) • Basement grades (per BS 8102:2022) • Waterproofing protection types (per BS 8102:2022)
5:00m – 5:15pm	**Q&A Session**

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TENTATIVE PROGRAMME - DAY 2

Time	Description
8:30am – 9:00am	**Registration & Light Refreshment**
9:00am – 11:00am	**Section 2c — Detailed Design** Analytical and design tools: • Approximate analysis methods • Principal elements design • Embodied Carbon calculation (A1–A3)
11:00am – 11:15am	**Morning Tea Break**
11:15am – 1:00pm	**Possible Solutions for Past CM Exam Questions** • Q5 / CME Apr 1996 — City Centre Office Building • Q1 / CME Apr 1987 — Nuclear Laboratory • Q5 / CME Jan 2016 — Emergency Generator Building
1:00pm – 2:00pm	**Lunch**
2:00pm – 3:30pm	**Workshop — Hands-on Session by Candidates** • Q1 / CME Jul 2026 — Mixed-Use City Centre Development • Q4 / CME Apr 2004 — Flood Alleviation Tank
3:30pm – 3:45pm	**Afternoon Tea / Coffee Break**
3:45pm – 5:00pm	**Workshop — Hands-on Session by Candidates** • Q1 / CME Jan 2026 — Manufacturing Building • Q4 / CME Mar 2022 — Peace Dialogue Station
5:00m – 5:15pm	**Q&A Session**

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REGISTRATION FORM

No	Name (s)	M'Ship Number	IC No.	Fee (RM)
			SUB TOTAL	
			ADD SST @8%	
			TOTAL PAYABLE	

***Fees MUST be fully paid BEFORE the CLOSING DATE. Seats could only be confirmed upon payment. Enclosed herewith a crossed cheque No: _____for the sum of RM _____ issued in favour of "The Institution of Engineers, Malaysia" and crossed 'A/C payee only'. I/We understand that the fee is not refundable if I/We withdraw after my/our application is accepted by the Organising Committee as stated in the cancellation term. If I/We fail to attend the seminar, the paid registration fee will not be refunded.**

Name_____ Designation: _____
Adress:
_____
_____
_____
Tel No:_____ Email: _____

_____ _____
Signature & Stamp Date

CANCELLATION POLICY
IEM reserves the right to postpone, reschedule, allocate or cancel the event. Full refund if cancellation is received in writing more than 7 days before start date of the event. No cancellation will be accepted prior to the date of the event. However, replacement or substitute may be made at any time with prior notification and substitute will be charged according to membership status.

PERSONAL DATA PROTECTION ACT
I have read and understood the IEM's Personal Data Protection Notice published on IEM's website at http://www.myiem.org.my and I agree to IEM's use and processing of my personal data as set out in the said notice.