

Design of Concrete Structures - Eurocodes versus British Standards

INTRODUCTION

Since 1 April 2015, all structural plans submission have to be based on Eurocode (EC) design standards. EC was developed over the last 30 years by experts from the European Union and is considered as one of the world's most advanced and established building codes. This move is part of BCA's ongoing efforts in raising the standards of structural building design.

To prepare engineers for the adoption of EC in the design of reinforced concrete structures, this workshop will approach the design of concrete structures using EC in comparison with BS 8110. The workshop will contain lectures as well as hands-on tutorial sessions to provide participants with practical design experience.

This workshop is jointly organised by BCA Academy and Protective Technology Research Centre of Nanyang Technological University.

OBJECTIVES

The workshop aims to prepare the participants to:

- Appreciate the design approach based on the EC;
- Appreciate the essential differences between EC2 and BS 8110 in:
 - Basis of structural design and action on structures;
 - Design procedures and results for beams, slabs and columns;
 - Detailing rules of columns, walls, beams and slabs to EC2

CONTENTS

DAY 1

1. A summary of essential differences between EC2 and BS8110
2. Basis of structural design using EN 1990:2002 and EN 1991-1.1:2002
3. Load combinations to BS EN 1990:2002 & National Annex
4. Selecting suitable structural analysis and suitable elements to conform to EC2 design
5. Treating second order effects and imperfections in EC2
6. Flexural design of beams to EC2

DAY 2

7. Flexural design of slabs to EC2
8. Shear design of beams to EC2
9. Punching shear design of slabs to EC2
10. Design of stocky columns to EC2
11. Detailing rules of columns, walls, beams and slabs to EC2

LECTURER

PROFESSOR TAN KANG HAI obtained his BSc(Eng) and PhD from the University of Manchester, UK. He is a Professor at the School of Civil & Environmental Engineering, and also the Director of Protective Technology Research Centre (PTRC) at Nanyang Technological University.

Prior to joining NTU, he worked as a graduate engineer in Ove Arup & Partners, UK. He won the UK Institution of Structural Engineering Henry Adams Award in May 1989 for his original research work in structural sandwich panels subjected to lateral loading. This award was based on his PhD work. He is a registered Professional Engineer in Singapore. He has been involved in several fire engineering consultancy works including analysis and design of steel structures in clean room facilities, storage racks, A&A works on structural fire resistance aspect at Changi Terminal 1 and consultancy to HDB on the upgrading of SECAD computer system to EC for structural concrete. He served as Chairman of a few task force groups on EC relating to structural fire applications. He also worked with Ministry of Home Affairs and Defence Science and Technology Agency on mitigating progressive collapse of building structures due to blast.

He has written close to 120 Science Citation Index (SCI) top tier international journal paper publications and 160 international conference articles on steel and concrete structures. His research topics include behaviour and modelling of steel, concrete and composite structures under fire conditions, strut and tie modelling of reinforced concrete structures, and progressive collapse resistance and numerical simulations of structures subjected to extreme loading conditions.



DETAILS

23rd Run: To be advised
 Duration: 2 days
 Time: 9.00am to 5.30pm
 Venue: BCA Academy
 Fee (incl of GST): S\$690.00
Refreshments will be provided.

In keeping with our green and sustainable practices, course notes will be available in e-format.

NOTE: You may be eligible for funding from Employment and Employability Institute (e2i). The grant amount of S\$255.00 will be refunded to successful applicants after successful completion of course. Full course fee of S\$690.00 must be paid prior to the start of the course. Eligibility for funding: i) Singaporean (ii) Meet attendance requirement and pass the course.

Interested participants may fill in the grant application form accessible from the Online Storefront. Funding is subject to terms and conditions of e2i and BCA Academy.

AWARD

Certificate of Attendance (COA) will be awarded to participants who meet the attendance requirement.

CPD POINTS

PEB: Pending
 IES-ACES (REs/RTOs): Pending

TARGET AUDIENCE

Structural Practising Engineers, Design Consultants, Precast Concrete Designers, Resident Engineers, Resident Technical Officers, Concrete Specialists, Academia

REGISTRATION

To register, log on to our Online StoreFront (OSF) at: <https://eservices.bcaa.edu.sg/registration/#/login> or scan QRcode and search for course code **78015**

