FORMWORK DESIGN AND SAFETY WITH CODE OF PRACTICE SS580:2012

(*Revision-please refer to details below)

Supported by: Union Training Assistance Programme (UTAP) and SkillsFuture Credit

OBJECTIVE

Formwork structures have always been a highly hazardous item in the construction industry. Continuing failures of formworks in Singapore have raised considerable alarm in the industry, the government and the public.

To address these concerns, and to update an outdated Code of Practice for formwork, a Workgroup was formed in 2012 to develop a new Code of Practice, SS580.

This one-day course on formwork design and safety to revised standards and EuroCode aims to accomplish the following:

- Provide background material to and useful information on improved standards in this area for this critical topic in workplace safety;
- Present the basics of safe design of formwork structures and essential design requirements of SS580;
- Describe significant parts of the new Code of Practice for Formwork SS580:2012 to facilitate its use by designers and constructors;
- Review a number of failure of formworks in Singapore and abroad to convey an understanding of causes;
- Discuss techniques to identify and evaluate the hazards, and manage the risks; and,
- Offer practical guidelines for good practice in formwork design, erection, use, dismantling, inspection, and supervision.

The focus will be on basic concepts and procedures currently in use for formwork in the construction industry.

PROGRAMME DETAILS

Date	: 27 FEB 2019 (Wednesday)
Duration	: 1 Day
Time	: 9.00 am – 5.30 pm
Venue	: **IES Academy @ Jurong East** Devan Nair Institute for Employment and Employability (e2i), 80 Jurong East Street 21, #04-10 S(609607) (Confirmed)
CPD	: 4 STU(Structural) / 2 STU (Safety)/ 6 SDU /
Programme	7 PDU –All to be Confirmed
Course Fees *	: $246.10 (IES Members) $288.90 (Non- Members)

*Fees inclusive of 7% GST, course materials, Lunch and Refreshments.

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

Objectives will include identification of principal contributory factors to formwork failures and their underlying root causes, and discussing how the new Code can eliminate or alleviate the problems.

FOR WHOM

The course will be useful to engineers, developers, builders, contractors, and occupational health and safety professionals who wish to learn or review the design and safety considerations of formwork structures (often simply referred to as 'formwork') – which would cover both the actual formwork to receive the wet concrete and its supporting falsework.

It will be useful to fresh engineering graduates as an introduction to the real world of formwork safety and design implementation in the workplace. Management cadre may also do well to understand the implications of formwork design and safety, because it may help in reducing the consequent costs of accidents and other losses to the company and improve the safety culture in their organizations.

COURSE CONTENT *(Short Summary of Changes)

The course will aim to inform and educate professionals unfamiliar with formwork design and safety, as well as to up-date the relevant standards background of practitioners who may be already familiar with the problems, towards improving their safety culture.

The new Formwork Code of Practice SS580:2012 incorporates two new features: Increased load safety factor of 2, and application of EuroCode to steel formwork design. The course will highlight and explain these features in detail.

The revised seven hour format will cover a design segment of about of four hours will be devoted to generic concepts of structural behaviour and principles of design according to the formwork code SS580, with worked examples. The safety segments of about three hours will focus on hazards, risks and their control, illustrated with case studies of failures and accidents.

The course content will be delivered over seven-hours, divided into four sessions of 1 hour and 45 minutes, spaced with two coffee breaks of 20 mins, and one lunch break of 50 minutes, totalling to eight and a half hours, from 9 am to 5.30 pm, as listed in the following table:

Session	Hours	Topic
1	***9.00 – 10.45 am***	Formwork structures, types & characteristics Structural behaviour of formwork structures Generic design example of formwork structure
2	***11.05 am – 12.50 pm***	Introduction to SS580:2012 Design according to SS580:2012 Safety aspects related to formwork structure
3	**1.40 – 2.10 pm**	MOM recommendations for formwork structure
	2.10 – 3.25 pm	Common hazards in formwork Investigations and findings
4	***3.45 – 5.30 pm***	Safety in SS580:2012 Good practice in erection and dismantling Case studies of formwork failures
The first seven topics will pertain to formwork structure (4 hours) and the second five topics will pertain to formwork safety (3 hours)		

SPEAKER'S PROFILE

Professor N. Krishnamurthy

B.Sc., B.E.(Civil), M.S.(CE), Ph.D.
F.ASCE, F.SSSS, F.IE(India)
M.ASSE, M.ASEE, M.SRA, M.IE(Singapore), M.MES

Professor Krishnamurthy is currently Safety Consultant and Trainer in Singapore. He was an Accredited Trainer and Consultant of the Singapore Ministry of Manpower to teach certain modules of workplace safety and risk management, and served as Chief Facilitator for safety-related workshops conducted by MOM and Singapore Contractors Association Limited (SCAL). He has also consuled for MOM, WSHC and WSHI, and teaches safety-related subjects at local universities and academies.

He has more than five and a half decades of teaching, research, and consultancy experience, including teaching short courses for practicing engineers, in U.S.A., Singapore, India, and Hong Kong.

In U.S.A. he held civil engineering professorial positions in three American universities, in the last of which he was Department Chairman. He has also held senior positions in the National University of Singapore, and the Mysore University in India. He teaches at the University of Newcastle in Australia at their Singapore campus.

His research interests have been in structural engineering and computer applications to civil engineering. He has written three books including the latest, *"Introduction to Enterprise Risk Management"*, co-authored a resource book on structural welding and other publications, and published over ninety papers.

Over the last many years Professor Krishnamurthy has been teaching courses related to the safety, design, and erection of temporary structures such as scaffolding, formwork and falsework, construction productivity and working safely at height. He is deeply involved in workplace safety and risk management, as well as failure investigations of temporary structures and workplace accidents.

Relevant credentials for Prof Krishna to teach this course will be the following:

- Taught 'Safety and Design of Temporary Structures' to practising engineers in Singapore and HongKong;
- Taught 'Formwork Safety Course for Supervisors' for many years at SC2 and SCAL Academy;
- Wrote a Guidebook on Formwork for SCAL Academy;
- Involved in investigation of formwork and scaffold failures and accidents, and serving as expert witness for these accidents; and,
- While serving as a member of Workgroup for SS580 – Code of Practice for Formwork, was entrusted with the responsibility of developing the draft for the design section of the Code, and participated in the development of the safety section of the Code.

Registration Form

FORMWORK DESIGN AND SAFETY WITH CODE OF PRACTICE SS580:2012 (36TH RUN)

Date:	27 FEB 2019 (Wednesday)
Duration:	7 Hours
Time:	9am – 5.30pm
CPD Programme:	4 STU (Structural)/ 2 STU (Safety)/ 6 SDU / 7 PDU – All to be Confirmed
Venue:	IES Academy @ Jurong East
Course Fee:	$246.10 (IES Member) / $288.90 (Non-member)
Course Coordinator:	Verline Chiam 64604241 verline.chiam@iesnet.org.sg
Last Date of Registration:	19 FEB 2019

Participant Details

*Name (as per NRIC): _____ *NRIC/FIN No: _____

*Designation: _____ RE/RTO/PE No: _____

Company: _____

*Address: _____

_____

*Email: _____ Postal Code: _____

*Contact No: _____ Fax: _____

Please Indicate: □ IES Member No: _____

□ Non-member □ **Vegetarian**

Contact Person (HR or Finance if sponsored by company or if applicable)

Name: _____

Tel: _____ Fax: _____

Email: _____

Address: _____

_____

Payment Details

Nets / Cheque No: _____ Amount: _____

□ Sponsored by company

- *All fees inclusive of 7% GST*
- ***Cheques should be made payable to "Engineers Singapore Pte Ltd"***

Name:_____ **Signature** _____

TERMS & CONDITIONS COURSE REGISTRATION

Registration

Any registration, whether on-line or fax will be 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 or earlier. Cheques should be crossed 'A/C payee only' and made payable to '**Engineers Singapore Pte Ltd'**, with the ***Title of The Event indicated clearly written on the back of the cheques,*** and submitted with the duly completed registration forms to:

Att: Verline Chiam
IES Academy@Jurong East
Devan Nair Institute for Employment and Employability,
80 Jurong East Street 21, #04-10
Singapore 609607

Confirmation of Registration

Confirmation of registration will be given at least 1 week before the commencement date via email. ***If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.***

IESA reserves the right to allow only confirmed 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% transection 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. IES 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 HERE for more information on SFC & UTAP claim

PERSONAL DATA PROTECTION ACT

I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I 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: HERE

Enquiries

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