One-Day Course on Timber Engineering

Organiser: IES/IStructE Joint Committee
Date: Friday, 26 February 2016
Time: 9.00 am to 5.30 pm
Venue: Emerald Ballroom 1
PARKROYAL on Kitchener Road
181 Kitchener Road, Singapore 208533

Fees:
- $450 (IES and/or IStructE Corporate Members)
- $350 (Retired IStructE Members, Unemployed IStructE Members and IStructE Graduate Members)
- $550 (non-members)
- $250 (Full-time students from NUS/NTU/Student Members of IES and/or IStructE)

Fees are inclusive of 7% GST. Course notes in PDF format. Lunch and light refreshments will be provided to the participants.

Introduction
Timber has different properties along and across the grain. This can be discouraging for engineers familiar with using steel, an isotropic material. However, with knowledge of its structure and methods to control and accommodate its behaviour, designers should be able to use wood as easily as other materials.

This course will give a basic engineering understanding of wood and its properties. It will examine various types of wood product (sawn wood, laminated wood and cross-laminated wood), how they are used and the preliminary design principles.

Learning Outcomes
On the completion of this course, delegates will have a basic understanding of the structural design process in relation to timber structures.

Skills
An understanding of the possibilities associated with timber elements and structural systems within buildings and the issues specific to design in the use of timber.

Content
Six hours of lectures on:

The course is aimed at structural engineers, contractors, academics, graduate students, researchers, building regulators and architects who need a basic introduction to timber engineering and the design of timber structures using Eurocode.

**Programme**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
</tr>
</thead>
</table>
| 0815 – 0900 | Registration @ Emerald Ballroom 1  
PARKROYAL on Kitchener Road |
| 0900 – 0905 | Opening Address by  
Professor Wang Chien Ming, Chairman, IES/IStructE Joint Committee |
| 0905 – 1045 | **Lecture 1**  
The structure of wood; Anomalies and defects; Principles of grading |
| 1045 – 1100 | Morning Tea / Coffee Break |
| 1100 – 1200 | **Lecture 2**  
Bending; Compression; Tension. An introduction to Eurocode design methods |
| 1200 – 1300 | **Lecture 3**  
Connections. Types and an introduction to Eurocode design methods |
| 1300 – 1400 | Lunch @ Spice Brasserie at Level 2 |
| 1400 – 1530 | **Lecture 4**  
Modern engineered timber products and their uses. Glued Laminated wood (glulam); wood panels; Cross Laminated Timber (CLT). Using tropical hardwood for glulam |
| 1530 – 1545 | Morning Tea / Coffee Break |
| 1545 – 1630 | **Lecture 5**  
Fire and durability - The principles of designing for fire resistance. The principles of designing to avoid insect attack and decay |
| 1630 – 1715 | **Lecture 6**  
Case Studies. Examples of the use of timber in construction |
| 1715 – 1730 | Closing Remarks |
| 1730       | Close |
Richard Harris is Professor of Timber Engineering in the Department of Architecture & Civil Engineering.

Before joining the University of Bath in 2009, Richard was a Technical Director with Buro Happold Consulting Engineers. In his twenty-five years with Buro Happold he led structural engineering design teams, working on a range of structures in various sectors and using many construction methods and materials.

With Buro Happold, Richard led a team of engineers in the design of structures. In his specialist field of Timber Engineering, he was responsible for a wide range of timber engineering projects, several of which won awards. These include:

- The Globe Theatre (Carpenters Award 1998)
- The Downland Gridshell, (The Wood Awards Gold Award 2003)
- The Savill Building (The Wood Awards Gold Award 2006)
- The Institution of Structural Engineers Supreme Award 2007 (for the Savill Building).

Richard has chaired the European network COST Action FP1004, which brought together researchers from institutions in twenty-six European countries as well as Canada, Australia and New Zealand. The objectives related to enhancing the mechanical properties of timber, engineered wood products and timber structures, which were achieved through meetings, seminars, conferences and publications.

His current and recent research include:

1. Tall timber buildings – the response of tall timber buildings under wind load
2. Structural properties of UK timber – Characterisation of the relationship between wood anatomy and structural properties for Douglas-fir grown in S W England
3. Traditional joints in timber – the engineering properties of traditional joints
4. Timber: Concrete composites – The structural behaviour of thin-topping timber/cementitious’ topping composites
5. FRP dowels in connection is timber - metal-free connections for timber
**TERMS & CONDITIONS FOR COURSE REGISTRATION**

**Registration**
Any registration, whether by fax or post will be on a first-come-first-served basis and will only be confirmed upon receipt of full payment by the IStructE Singapore unless otherwise invoice to company.

All registration must be submitted with duly completed registration form.

**Closing Date & Payment**
The closing date for registering for the course shall be **Friday, 19 February 2016**. Cheques should be crossed and made payable to “IStructE Singapore”, with the Title of The Event indicated clearly written on the back of the cheques and submit with the duly completed registration forms to:

Engineering Science Programme  
Faculty of Engineering  
National University of Singapore  
Blk EA #06-10, 9 Engineering Drive 1  
Singapore 117575  
Attn: Ms. Angela Loke

**Confirmation of Registration**
Confirmation of registration will be given 5 working days prior to the course via email, and you are required to acknowledge it. If you do not receive the said confirmation email, you are required to contact **Ms. Angela Loke immediately at +(65) 6516 5408**.

We reserve the right to allow only confirmed registrants to attend the event.

**Refunds and Cancellations**
No refunds will be made for withdrawals. Replacement will be allowed only if written notice is received by us at least 3 working days before the course. Replacement is allowed but restricted to once only. However, when an IStructE or an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees at least 3 days before the course.

**Cancellation/Postponement**
Changes in venues, dates, time and speakers for the Events can occur due to unforeseen circumstances. IStructE Singapore 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 the Event is cancelled by IStructE Singapore.

**Enquiries**
Please contact Ms. Angela Loke for more information at Tel: +(65) 6516 5408, Fax: +(65) 6775 4710 or E-mail: esplmh@nus.edu.sg
REGISTRATION FORM

One-Day Course on Timber Engineering
Friday, 26 February 2016, PARKROYAL on Kitchener Road

I would like to register for the Course on Timber Engineering on 26 February 2016. My particulars are as follows:

Name: Mr / Ms / Dr / Prof / Er. __________________________________________________________

NRIC: ___________________________ Designation: ________________________________

Company: _________________________________________________________

Address: _________________________________________________________________

Tel: ___________________________ Fax: _________________________________

Email: _________________________________________________________________

Dietary Preference: Chinese / Muslim / Vegetarian (please delete accordingly)

Please tick accordingly:

☐ $450 (IES and/or IStructE Corporate Members) IES/IStructE M’ship No. : ______________________

☐ $350 (Retired IStructE Members, Unemployed IStructE Members and IStructE Graduate Members)
IStructE Graduate Membership No. : ______________________

☐ $550 (non-members)

☐ $250 (Full-time students from NUS/NTU/Student Members of IES and/or IStructE)
Membership No. : ______________________

☐ Sponsored by Company  (Please send an invoice to my company)

PE No : ______________________ (if applicable) STU : RE / RTO : ______________________ (if applicable)

Payment Mode: Cheque No.: ________________ Amount (S$): ______________________

Crossed cheques should be made payable to “IStructE Singapore” and mail together with the Registration Form to:

Engineering Science Programme
Faculty of Engineering
National University of Singapore
Blk EA #06-10, 9 Engineering Drive 1
Singapore 117575
Nearest MRT – Farrer Park Station