J. Wardenier  
Professor  
Faculty of Civil Engineering & Geosciences  
Delft University of Technology, The Netherlands  

&  
Choo Yoo Sang  
Assoc. Professor  
Department of Civil Engineering  
National University of Singapore

STATIC AND FATIGUE DESIGN FOR TUBULAR STRUCTURES  
(Come with a original copy of “Hollow Sections In Structural Applications” by J. Wardenier)  
(21 PDUs)

Don’t Miss This Opportunity!  
18 – 20 February 2003

Organized by:  
- Professional Activities Centre,  
  Faculty of Engineering  
- Centre for Offshore & Maritime Engineering,  
  Department of Civil Engineering  
- Singapore Structural Steel Society

Supported by:  
- Building and Construction Authority
**COURSE OVERVIEW**

The short course will provide the participants with state-of-the-art knowledge on tubular structures. Tubular hollow sections are increasingly used in large-span roofs, multi-storey buildings and offshore structures due to their excellent properties and the associated advances in 3D computer modeling and fabrication technology. The course is design cum applications oriented, and will cover a wide range of topics, including guidance for strength and fatigue design for various types of connections. Advanced analysis techniques for frames and connections will also be introduced to provide a preview to integrated strength analysis of complex frames.

**BRIEF COURSE OUTLINE**

1) Introduction
2) Properties of Hollow Sections
3) Applications
4) Composite Construction
5) Hollow Section Trusses
6) Behaviour of Connections
7) Welded Connections between Circular Hollow Sections
8) Welded Connections between Rectangular Hollow Sections
9) Welded Connections between Hollow Sections and Open Sections
10) Welded I-beam to RHS Column Moment Connections
11) Bolted Connections
12) Fatigue Behaviour of Hollow Section Joints
13) Nonlinear Finite Element Analysis for Connections and Frames
14) Design Examples

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**Lecturer’s Credentials**

Prof. J. Wardenier is currently with Delft University of Technology as a part-time Professor of Steel Structures. Since 1982, he has written many design guides (some translated into many languages) and over 200 publications.

He is a recognised expert in many areas of tubular structures: static strength, fatigue strength, fabrication techniques and overall structural design. He has served as Chairman or member in many international and national committees on steel structures. In recognition of his significant achievements, Professor Wardenier has received many awards and honours which include: ISOPE Award; ISOPE Best Paper Award; ISOPE Osaka Award; Honorary Fellow of Singapore Structural Steel Society; Kurobane Lecturer and Kurobane Award of Sub-Commission XV-E - Tubular Structures of the International Institute of Welding, and Medal of Honour of the Netherlands Institute of Welding.

As an international authority in tubular structures, Professor Wardenier has been involved in many projects, including specialist consulting projects for Underwater Manifold Centre, Topsides for NAM-F3, Amoco-P15, Placid-K12, Maeslant Storm Surge Barrier, London Eye and many bridges. He has also contributed significantly in codes, standards, handbook and design criteria related to tubular structures.

Assoc. Prof. Choo Yoo Sang is currently with the Department of Civil Engineering and is coordinating the R&D efforts of the Centre for Offshore & Maritime Engineering in National University of Singapore. Dr Choo's research interests include strength & fatigue capacity of tubular and plated structures, and knowledge-based system development for applications in the construction and offshore industries. The knowledge-based engineering system (H-LIFT) developed by his research team has been found to be a useful tool for heavy lift planning. Their paper on the H-LIFT system was judged the best paper on offshore technology presented to The Institute of Marine Engineering Science & Technology (UK) and was awarded the Stanley Gray Award in 2001.

Dr Choo has served in many scientific and technical committees for international society and conferences, and two journals. He served in the Board of Directors, International Society of Offshore & Polar Engineers (ISOPE) during 2000-2002. He received two ISOPE Awards (in 1993 and 2002 respectively) for his significant contributions towards the Society and as a leader of the Structures and Materials Committee. He served as President of Singapore Structural Steel Society in 1992 to 1994, and is serving as member of International Institute of Welding Sub-Commission XV-E: Tubular Structures. He has also provided specialist advice to some major offshore projects.
2 Ways to Register!

Professional Activities Centre
Faculty of Engineering
National University of Singapore
Blk EA, #04-10,
9 Engineering Drive 1,
Singapore 117576

+65 6874 5097

ENQUIRIES
Please contact Miss Lilian CHOONG for
more information at
Tel: +65 6874 5113 / +65 6778 2314
Email: engcll@nus.edu.sg

FEE
Participants from Singapore: SGD800.00 + GST
Overseas participants: SGD800.00 (GST Exempted)

DISCOUNT
10% (max.) discount is applicable to:
- Employees of the NUS Technology Associates registered with INTRO (Industry & Technology Relations Office);
- NUS Alumni;
- Organization / Companies sending three or more participants;
- Employees of BCA
- Members of SSSS

REFUND & CANCELLATIONS
A 50% refund will be made for withdrawals (received in writings) ten working days before the commencement of the course. No refunds will be made thereafter. However, a replacement will be accepted upon prior arrangement at no extra cost. Please inform us of the changes, if any, by fax. The Professional Activities Centre reserves the right to cancel the course and fully refund the participants, should foreseen circumstances warrant it. Every effort will be made to inform participants of any changes.

PLEASE REGISTER ME: STATIC AND FATIGUE DESIGN FOR TUBULAR STRUCTURES, 18 – 20 FEB 2003
(VENUE TO BE ADVISED)

Workshop Fee
Participants from Singapore: SGD800.00 + GST
Overseas participants: SGD800.00 (GST Exempted)

Participant’s details
Name: Dr/Mr/Ms: ______________________________ Designation: ______________________________
(Please attached your name card if any)
Name of Organization: ______________________________ Contact Person: ______________________________
Address: ____________________________________________
Email: ______________________________ Tel No (O): ______________________________ Fax No: ______________________________

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Closing Date: Please send in your registration form together with your payment by 11th February 2003
Authorized Signature/Company Stamp