DON'T MISS THIS GREAT OPPORTUNITY
A comprehensive coverage on the Design of Floating Offshore Structures by
an eminent marine structures expert!
An overwhelming response in the last run in 2003.

SECOND RUN (2004)

FLOATING OFFSHORE STRUCTURES

By Torgeir Moan
Professor, Department of Marine Technology
Norwegian University of Science & Technology &
Keppel Professor, National University of Singapore

21 PDUs accredited by the Professional Engineers Board, Singapore

Date: 30 Nov – 2 Dec, 2004    Time: 9.00 am – 5.00 pm daily
Venue: National University of Singapore

Organized by:
- Professional Activities Centre,
  Faculty of Engineering
- Centre for Offshore Research & Engineering,
  Faculty of Engineering

Supported by:
- Keppel Offshore & Marine Ltd
Design of Floating Offshore Structures

Overview
- Design criteria
- Life cycle cost

Functional requirements (specified by owner)
- mobile, drilling units
- production platforms

Safety requirements (specified by authorities)
- Types of criteria for the structure
  - Stability: demand & capacity
  - Structural strength: demand & capacity
  - soil strength
- Quantitative measure of demand & capacity
- Other safety issues
  - direct effect of fires & explosions to personnel
  - evacuation and rescue system and operation

Overview of analysis methodology
- Methods for determining loads
  - functional loads (permanent loads, payloads, hydrostatic pressure, tank pressure)
  - hydrodynamic loads, briefly about modelling of ocean waves, Morison’s equation (for calculating loads on slender structures), overview of methods based on potential theory (for large volume structures), nonlinear effects
  - accidental loads, such as explosions and fires, ship impacts, etc
- Structural response analysis methods for determining
  - global response (functional and hydrodynamic loads)
  - local response
  - response due to accidental loads (briefly)
- Analysis for fulfilling
  - stability criteria
    - mainly wind loads (for floaters)
    - hydrostatic resistance
  - structural strength criteria (ultimate strength, fatigue, accidental collapse)
    - loads
    - load effects
    - resistance for
      - steel: MS vs HTS
      - other materials?

Design of floating structures
- Types of structures and their basic features
  (semi-sub, TLP, buoys, ship-shape, jack-ups in transit mode...)
- Conceptual design of floating structures
  - Example: mobile drilling rig (semi-submersible).
    - Brief description of implication of drilling operation and mobility on functional requirements to the platform.
    - Systematic treatment of the synthesis of relevant functional and safety requirements for semi-submersible drilling platforms and their influence on shape and dimensions of the various major structural components

Course Objective
- floating production platforms
  - focus on relevant functional and safety requirements
  - overview of concepts
    (Semi-submersible, Spar, TLP, FPSO, ...)
    General discussion of hull concept, positioning, riser, well head concept etc
  - presentation of particular features of the individual concepts, in view of: type of hull and positioning system. Alternative layouts within a given type of platform concept
  - steel/titanium rigid vs flexible risers, riser configurations
  - positioning system (steel catenary/synthetic rope mooring, Dynamic Positioning)
- selection of platform concept for field development

Lecturer’s Credentials

Torgeir Moan
Professor
Department of Marine Technology
Norwegian University of Science & Technology & Keppel Professor, National University of Singapore

Torgeir Moan has been Professor of Marine Structures in Norwegian University of Science & Technology (NTNU) since 1977. His main research interest is structural analysis and design of all kinds of marine structures. He has authored more than 250 scientific papers, and delivered more than 10 keynote, plenary lectures in international conferences and award lectures. He has educated 40 and is currently supervising 10 doctoral students and has hosted 25 foreign postdoctoral candidates and visiting professors. He has been a visiting professor at MIT for one year and UC Berkeley (two years). He has contributed in the development of various structural design standards for offshore structures, ships and floating bridges in Norway and internationally. Most recently he was responsible for the most modern standard for analysis of loads and load effects for offshore structures (NORSOK N-003) that will serve as basis for ISO standard for floating platforms. He has also been engaged in accident inquiries. Since 1976 he has been involved in ISSC, was the main responsible for ISSC in 1994-97 and currently as Standing Committee member. He is editor of J. Marine Structures and serves on the editorial board of 6 other journals. Moan has been elected member of 3 Norwegian academies and a Fellow of the Royal Academy of Engineering in UK, as well as elected Fellow of several international professional societies like ASCE and IABSE. In 1998, he received the Statoil research prize. Professor Moan has been Dean of Faculty of Marine Technology, NTH (NTNU) and served as project manager in several research projects in SINTEF. Since 2002 he has been director of the Centre of Excellence for Ships and Ocean Structures at NTNU. He was appointed the first Keppel Professor in National University of Singapore in December 2002.
**2 Ways to Register!**

**ENQUIRIES**
Please contact Anna Robinson for more information at
Tel: +65 6874 5113 / +65 6778 2314
Email: engannar@nus.edu.sg

**FEE**
Participants from Singapore: SGD900.00 + SGD45.00 (5% GST)
Overseas participants: SGD900.00 (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;

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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 unforeseen circumstances warrant it. Every effort will be made to inform participants of any changes.

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**PLEASE REGISTER ME: FLOATING OFF-SHORE STRUCTURES, 30 NOV – 2 DEC 2004**  
(VENUE TO BE ADVISED)

**Workshop Fee:**

- Participants from Singapore: **SGD900.00 + SGD45.00 (5% GST)**
- Overseas participants: **SGD900.00 (GST Exempted)**

**Participant’s details**

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