

## **Registration Form**

### **Management of Maritime Safety and Risk**

**11 - 12 April 2011**

Registration Fee: SGDS800.00 nett

Name: Dr/Mr/Mrs/Ms: (Attach your name card, if any)

\_\_\_\_\_

Designation: \_\_\_\_\_

Name of Organisation: \_\_\_\_\_

\_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Contact Person: \_\_\_\_\_

Email: \_\_\_\_\_

Tel No (O): \_\_\_\_\_ Fax No: \_\_\_\_\_

Dietary Preference: No Pork No Lard / Vegetarian

NUS Alumni Membership (if any) # \_\_\_\_\_

#### **Payment mode:**

Cheque / Bank draft No.: \_\_\_\_\_

Payable to "National University of Singapore"

Visa/Master/Amex:

\_\_\_\_\_

Expiry Date: \_\_\_\_\_ Amount (S\$): \_\_\_\_\_

Signature: \_\_\_\_\_

\_\_\_\_\_

#### **Closing Date :**

Please send in your registration form together with your payment by **1 April 2011**

Authorised Signature / Company Stamp

Mailing address: Professional Activities Centre  
NUS, Faculty of Engineering  
3 Engineering Drive 2, Blk E1 #05-15  
Singapore 117578

**Fax : +65 6874 5097**

## **3 Easy Ways to Register MAIL or FAX to:**



Professional Activities Centre  
Faculty of Engineering  
3 Engineering Drive 2  
Blk E1 #05-15 Singapore 117578  
Fax: (65) 6874 5097

## **REGISTER ONLINE**

@ PAC Website:

<http://www.eng.nus.edu.sg/PACentre>

**Enquiries:** Please contact Gabriel ONG for more information at  
Tel: (65) 6516 5113 or e-mail: [gab@nus.edu.sg](mailto:gab@nus.edu.sg)

**Fee:** SGDS800.00 nett

**Payment:** Payment is required prior to the course. Crossed  
Cheque should be made payable to "National  
University of Singapore" and mailed together with the  
registration form to the mentioned address.

**Discount:** Maximum of 10% discount is applicable to:

- NUS Alumni &
- Organizations / Companies sending three or more participants.

#### **Refunds and Cancellations:**

A 50% refund will be made for withdrawals (received in writing) 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.



## **2-day Short Course on MANAGEMENT OF MARITIME SAFETY AND RISK**

*PDU's (Pending Approval)*



### **Speaker:**

**Prof. Vaughan Pomeroy**

MA CEng, FIMarEST, FIMechE, FRINA

Visiting Professor, University of Southampton  
Independent Marine Professional, United Kingdom

**Date: 11 - 12 April 2011**

**Time: 9:00am to 5:00pm**

**Venue: National University of Singapore**

Supported by



## ☞ Course Details ☞

The two day introductory short course is intended to present the background, methodologies and application of safety and risk assessment in a maritime context, with examples drawn from shipping and offshore industries. The short course will introduce some of the challenges faced by users of the approaches described in addressing safety and risk concerns, including within a regulatory context.

### Day One

#### 1. Introduction to Maritime Safety and Risk

The session will provide a general introduction to maritime safety and the use of structured safety and risk assessment methodologies in a maritime context. The session will provide an outline of the development of assessment approaches and identify some of the key issues that face the maritime professional. The often-used terminology will be presented, including 'reasonable practicability', 'not entailing excessive cost' and 'value per fatality', along with the interpretation of these descriptions.

#### 2. Learning from history

The session will provide an introduction to structured analysis of failures, including accidents and disasters, to establish the lessons learned. A methodology will be presented which facilitates the determination of actions that would help to prevent a repetition by dealing with contributory root causes.

#### 3. Methodologies

The session will provide a high level introduction to reliability assessment methods, including fault tree analysis, failure mode and effects analysis, consequence modelling and evaluation of the computed results. A description of methods for eliciting information from operators and users, such as HAZOP studies, will be included. The Safety Case will also be discussed. The session will discuss the ownership of safety and risk, and in particular the Safety Case.

#### 4. Formal Safety Assessment and other approaches at IMO

The session will provide an introduction to the approach adopted by the International Maritime Organisation and its application to the development of regulations. The session will also consider the recent adoption of regulations that require the formal demonstration of equivalence for alternative arrangements. Comparison will be made with safety cases approaches used in other maritime applications. The methods employed for

balancing costs and benefits of risk control options will be described and discussed.

#### 5. Day one summary

### Day Two

#### 6. Imagining the unthinkable

Effective safety assessment and risk evaluation depends on the assumptions made by the analyst, particularly in relation to what could happen and what might happen as a consequence. Whilst historical data will provide some guidance the same history also suggests that many failures and accidents involve events that were not foreseen. The analyst must be able to imagine what could go wrong and develop suitable risk control options, and also be able to assess the risk associated with these events. The session will explore the necessary thinking process through examples.

#### 7. Qualitative and quantitative risk assessment

Structured assessment is generally assumed to be quantitative, producing a decision based on comparison of the computed result with acceptance criteria. In some cases the analysis has become discredited through arguments about the input data whilst in others a satisfactory conclusion has been reached. However, even in the absence of sound data the methods can be used qualitatively to great advantage. The session will look at the limitations of quantitative approaches in the maritime sector and also at the benefits that can still be gained using a qualitative approach.

#### 8. Data

Data is key, even for qualitative approaches. Data collection requires a structured approach and a large population. The challenges of collecting and collating data for maritime applications will be discussed with examples. Data collected for other purposes can inform the analyst but may not provide a satisfactory source for formal quantitative analysis.

#### 9. Human contribution to risk

Many of the basic methodologies were developed for hardware, principally mechanical and electrical, systems. With the acknowledged contribution of people to failures and accidents the session will discuss methods for including the human element in the analysis. The session will touch briefly on issues such as risk perception, risk aversion, fatigue, usability, competence and rogue behaviour.

#### 10. Environmental risks

Environmental considerations form an important part of any safety and risk assessment. The session will consider the

approaches to deal with environmental risks and the quantification of environmental cost where damage occurs.

#### 11. Course summary

### ☞ Target Audience ☞

- **Project managers** who want to know more about managing maritime safety and risk
- **Project engineers** who specialize in a specific area, but need to know about how other technologies interface with their own
- **Engineers** from other disciplines who are moving into the marine & offshore area
- **Newly qualified engineers** who just coming into the marine & offshore industry

### ☞ Profile of Prof. Vaughan Pomeroy ☞



Vaughan Pomeroy works independently with government agencies, industry and universities. He is Visiting Professor at University of Southampton. Until July 2010 he was Technical Director of Lloyd's Register, responsible for External Affairs, Technical Policy and Strategic Research. He joined Lloyd's Register in 1980 after working in the aircraft industry and with mechanical and electrical engineering consultants, initially

to work on engineering research and specialist projects. He has held management positions within Lloyd's Register since 1987, successively responsible for marine machinery, pressure equipment and, from 1992 on appointment as Deputy Chief Engineer Surveyor, all HQ engineering activities. After a short spell managing the marine consultancy business, he took over responsibility for the marine research and development programme and the global naval business development of Lloyd's Register. He is a Chartered Engineer, an Honorary Vice President and Fellow of the Institute of Marine Engineering, Science and Technology, a Fellow of the Institution of Mechanical Engineers, a Fellow of the Royal Institution of Naval Architects and a graduate of the University of Cambridge.