

## About the Course

The primary objective of this short course is to provide conversion or refresher training for science and engineering graduates and experienced draughtsmen who hold active line responsibilities in the design of ships and ship systems and in shipbuilding practice. The course is designed in such a way that at the end of the lectures, the person will have a very broad understanding of the behaviour of ships under a variety of loading and operating conditions.

The syllabus will include: basic definitions of ships, structural components of the hull girder, general arrangement, ships as functional blocks, hydrostatics, hydrodynamics & structural aspects related to the behaviour of ships at sea.

The course is intended for practising engineers and research scientists who need to understand the concepts behind the behaviour of ships & ships system at sea.

## Who Should Attend

Engineers and scientists involved in the design of ships and ship systems. Personnel from ship management companies, oil companies, classification societies and ship builders will benefit from attending this course. The course is innovative in both content & structure with a careful balance of theory & practice.

## PROGRAMME

### Monday 1 October 2012

- 09.00 - 10.30 Lecture 1: Ship geometry and nomenclature I  
*Prof. O. P. Sha*
- 10.30 - 11.00 *Break*
- 11.00 - 12.30 Lecture 2: Ship geometry and nomenclature II  
*Prof. O. P. Sha*
- 12.30 - 13.30 *Lunch*
- 13.30 - 15.00 Lecture 3: Subdivision, general arrangement and maritime regulations I  
*Dr. Vishwanath Nagarajan*
- 15.00 - 15.30 *Break*
- 15.30 - 17.00 Lecture 4: Subdivision, general arrangement and maritime regulations II  
*Dr. Vishwanath Nagarajan*

### Tuesday 2 October 2012

- 09.00 - 10.30 Lecture 5: Ship Resistance  
*Dr. Vishwanath Nagarajan*
- 10.30 - 11.00 *Break*
- 11.00 - 12.30 Lecture 6: Ship Propulsion  
*Dr. Vishwanath Nagarajan*
- 12.30 - 13.30 *Lunch*
- 13.30 - 15.00 Lecture 7: Ship stability I  
*Prof. O. P. Sha*
- 15.00 - 15.30 *Break*
- 15.30 - 17.00 Lecture 8: Ship stability II  
*Prof. O. P. Sha*

### Wednesday 3 October 2012

- 09.00 - 10.30 Lecture 9: Wave theory, spectral analysis and description of ocean waves  
*Prof. D Sen*
- 10.30 - 11.00 *Break*
- 11.00 - 12.30 Lecture 10: Equations of ship motions  
*Prof. D Sen*
- 12.30 - 13.30 *Lunch*
- 13.30 - 15.00 Lecture 11: Still water bending moment  
*Prof. P.K. Das*
- 15.00 - 15.30 *Break*
- 15.30 - 17.00 Lecture 12: Wave induced bending moment  
*Prof. P.K. Das*

### Thursday 4 October 2012

- 09.00 - 10.30 Lecture 13: Seakeeping - ship motions in regular and irregular waves  
*Prof. D Sen*
- 10.30 - 11.00 *Break*
- 11.00 - 12.30 Lecture 14: Ship manoeuvrability and controllability  
*Prof. D Sen*
- 12.30 - 13.30 *Lunch*
- 13.30 - 15.00 Lecture 15: Hull girder response I  
*Prof. P.K. Das*
- 15.00 - 15.30 *Break*
- 15.30 - 17.00 Lecture 16: Hull girder response II (Hands on experience)  
*Prof. P.K. Das*

## REGISTRATION FORM

Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tel. \_\_\_\_\_

Email \_\_\_\_\_

I wish to register for the course at a cost of INR 20,000 including course material, lunches.

I enclose a cheque for INR 20,000

Please invoice me at the above address

Please send me information on local hotels

### Disclaimer

All materials and information supplied during and associated with this course are intended purely for instructional purposes. Whilst every effort is taken to ensure that materials provided are accurate and suitable for training purposes, ASRANet Ltd accepts no responsibility for their accuracy or utility.

### I accept the above.

Signature \_\_\_\_\_

Date \_\_\_\_\_

The completed form should be sent by **14 September 2012 to:**

*ASRANet Ltd.*  
50 Richmond Street, Glasgow G1 1XP

### Cost

The cost of the workshop will be INR 20,000 which includes registration, course material and lunches. You should make your own arrangements for accommodation.

### Payment

ASRANet Ltd. accepts payments by cheque, cash and bank transfer. Please contact for further details.

### RINA

The Royal Institution of Naval Architects certifies that ASRANet Ltd. 'Ships at Sea' training course meets the requirements for Continuing Professional Development of the Royal Institution of Naval Architects.

### Venue

The Senator Hotel  
15 Camac Street  
Kolkata  
Phone:033-2289 3000

### Contact

*ASRANet Ltd.*  
50 Richmond Street  
Glasgow G1 1XP  
Scotland, UK  
W [www.maritime-conferences.com/ASRANet/](http://www.maritime-conferences.com/ASRANet/)  
E [asranet@live.co.uk](mailto:asranet@live.co.uk)  
T +44 (0)141-552-7287/ +44 (0)141-303-8217  
F +44 (0)141-552-3886

# Ships at Sea

**1-4 October 2012**

**Kolkata**

*Organised by*



(A maritime spin-out company of the Universities of Glasgow & Strathclyde)

in collaboration with  
**Department of Ocean Engineering &  
Naval Architecture,  
Indian Institute of Technology,  
Kharagpur, India**

## Brief CVs of Lecturers

**Prof. Purnendu Das**, BE, ME, PhD, C.MarEng, FIMarEST, C.Eng, FRINA, FIStructE is Director of 'ASRANet Ltd' (a maritime spin out company of the Universities of Glasgow and Strathclyde) and Ex-Professor of Marine Structures, University of Strathclyde, Glasgow. Recent EU projects are MARSTRUCT (a network of excellence on Marine Structure) and DIVEST (Dismantling of Vessels with Enhanced Safety and Technology). Industrial projects are with the UK Health and Safety Executive, Subsea-7, the UK and US navies. He has previously been the principal investigator of many EPSRC projects. Before joining the University of Glasgow he worked with British Maritime Technology as principal Structural Engineer (1984-91). He is author of more than 250 publications, including contract reports and more than 60 journal papers. He is a member of the editorial boards of 8 journals which includes 'Journal of Marine Structures', 'Journal of Ship & Offshore Structures', 'Journal of Engineering under Uncertainty: Hazards, Assessment and Mitigation', 'Journal of Ocean and Climate System' and amongst others. His areas of research include ultimate strength & reliability analysis of ship & offshore structures. He has been running various successful CPD courses which have attracted many people from different industries. He is now a member of ISSC Committee (International Ship and Offshore Structure Congress). From 2002, he is organising the international ASRANet Conference (Network for Integrating Structural Analysis, Risk and Reliability), which is held every 2 years and the 6<sup>th</sup> International Asranet Conference will be held in London in July 2012.

**Prof. D Sen**, B.Tech, M.Eng., Ph.D., FRINA, FIE is a Professor and former head of the Department of Ocean Engineering and Naval Architecture, Indian Institute of Technology Kharagpur India. He has completed his graduate studies (master's and Ph.D.) from Memorial University of Newfoundland, Canada during 1982-1988. Since 1988, he is engaged in teaching and research at Indian Institute of Technology Madras (1988-1991) and Indian Institute of Technology Kharagpur (1991 – present). Prior to proceeding for graduate studies, he has worked for about 4 years (1977-1981) in a shipbuilding industry. His main area of expertise is in marine hydrodynamics, with specific applications in wave-structure interactions, sea-keeping and manoeuvrability. He has authored a large number of papers in reputed journals such as Journal of Ship Research, Applied Ocean Research, and also in many well-known international conferences. He is presently in the editorial board of three international journals. He has successfully completed many sponsored research and industrial consultancy projects. Presently he is leading some very large research projects of values in the order of US\$ 1 to 2 millions. He is a member of a large number of national and international committees including the AUV division of ECOR committee. One of his main interest is to disseminate knowledge on practical state-of-art applications of hydrodynamics in marine design.

**Prof OP Sha** received his B.Tech. (Hons.) degree in Naval Architecture from the Indian Institute of Technology, Kharagpur in 1980; M.Sc. in Ship Production Technology from the University of Strathclyde, Scotland, United Kingdom, in 1982; and Ph.D. in Engineering from the Indian Institute of Technology, Kharagpur in 1996. Presently, he is a professor and head in the Department of Ocean

Engineering and Naval Architecture at the Indian Institute of Technology, Kharagpur, India. He teaches a wide variety of subjects at the Institute and his main areas of interest include ship design and production, CAD/CAM and high performance vehicles. He is involved in a number of sponsored research and industrial consultancy projects.

**Dr. Vishwanath Nagarajan**, B. Tech (Honors), IIT Kharagpur, M. Eng., Osaka University, PhD, Osaka University. Presently he is Assistant Professor in the Department of Ocean Engineering and Naval Architecture, IIT Kharagpur. His main area of interests is ship motions modelling and simulation. He is involved in a number of sponsored research and industrial consultancy projects. After graduation, he worked for 9 years in the field of ship design and ship construction supervision. During this time, he interacted with different classification societies, regulatory bodies on various aspect of shipbuilding. He has also supervised ship construction work at different yards in India and South Korea.