Online (via Zoom) Course on Advanced Design of Ship Structures (Includes probabilistic hull girder bending moment)

15-17 June 2022

ABOUT THE COURSE

This course will deal with the first principle design of ship structures. Advanced analysis procedures for the design of beams and plates (80% of ship structures are made up of plates) will be dealt with. Probabilistic hull girder bending moment calculations are included. The ultimate strength of hull girders will be given based on progressive collapse analysis and also a simplified procedure.

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. Design, assessment and management of a wide range of engineering structures will also benefit from this course.

COST

The registration fee of the workshop will be £595 which includes course notes

PAYMENT

Payments can be made by cheque (made payable to ASRANet Ltd.), cash or bank transfer. Please enquire for details.

CONTACT

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PROGRAMME

Wednesday 15 June 2022

08.00 - 09.30 Lecture 1: Overview of Ship Structure Design.
Prof Purnendu Das

09.30 -09.45 *Break*

09.45- 11.15 Lecture 2: Analysis and Design of Columns and Beam Columns, Design Codes.
Prof Purnendu Das

11.15-11.30 *Break*

11.30-13.00 Lecture 3: Analysis and Design of Unstiffened and Stiffened Steel Plates, Design Codes - I.
Prof Purnendu Das

Thursday 16 June 2022

08.00-09.30 Lecture 4: Analysis and Design of Unstiffened and Stiffened Steel Plates, Design Codes – II.
Prof Purnendu Das

09.30-09.45 *Break*

09.45- 11.15 Lecture 5: Tutorial on Columns and Plated Structures.
Prof Purnendu Das

11.15- 11.30 *Break*

11.30-13.00 Lecture 6: Probabilistic hull girder bending moment
Prof Purnendu Das

Friday 17 June 2022

08.00-09.30 Lecture 7: Hull Girder Strength
Prof Purnendu Das

09.30-09.45 *Break*

09.45- 11.15 Lecture 8: Reliability Based Design & Code Development, Common Structural Rules
Prof Purnendu Das

LECTURE CONTENT

Lecture 1: Deterministic and Probabilistic Design; Working Stress Design (WSD) and Load Resistance Factor Design (LRFD); Load Combination; Safety Check

Lecture 2: Elastic buckling, in elastic Buckling, Johnson's formula, Perry Robertson Formula, Column Curves, DNV Codes.

Lecture 3: Plate buckling under different loadings, Ultimate strength of unstiffened plate, Examples problems, DNV and API Codes.

Lecture 4: Stiffened plates, Inter-frame collapse, DNV & API Codes.

Lecture 5: Tutorial questions to be solved in this class.

Lecture 6: Wave spectrum, RAO's, long term loading and bending moment

Lecture 7: Progressive collapse analysis, simplified method for ultimate strength

Lecture 8: Reliability analysis FORMS and SORMS code development

LECTURER CV

Professor Purnendu Das.

Professor Purnendu Das. BE, ME, PhD, C.Eng, C.MarEng, FRINA, FIStructE, FIMarEST has been the Director of 'ASRANet Ltd' since February 2006. He retired as a Professor of Marine Structures in the Department of Naval Architecture & Marine Engineering at the University of Strathclyde, UK in September 2011. Past EU projects were MARSTRUCT (a network of excellence on Marine Structure) and SHIPDISMANTL (a cost effective and environmentally friendly dismantling of ship structures). Past industrial projects included work from the UK Health and Safety Executive (HSE), MoD UK, Subsea-7 UK, Shell, Woodgroup and US Navies etc. He was the principal investigator of many EPSRC projects. Before joining the University of Glasgow in 1991 he worked with British Maritime Technology as Principal Structural Engineer (1984-91). He is the author of more than 250 publications, including contract reports and more than 60 journal papers and is a member of the editorial boards of the 'Journal of Marine Structures', 'Journal of Ocean and Ship Technology' and 'Journal of Ocean and Climate System' and the Journal of Ship Mechanics amongst others. His areas of research include limit state design and analysis & reliability analysis of ship & offshore structures. Purnendu Das has wide ranging industrial and academic contacts and has advised and supervised 20 PhD students, to his credit. Details of visits and collaborations include his various sabbatical study periods spent at University of California, Berkeley, USA (July – September 1996), at Lloyd's Register of Shipping (August 1997), Kockums Ltd (July 1998) and spent some time at Instituto Superior Técnico (IST), Lisbon (July 2000). He is running about 20 CPD courses which are attracting many people from different industries. These courses are on 'Fatigue & Fracture Analysis', 'Ships at Sea', 'Advanced Analysis and Design of Offshore Structures', 'Offshore Floating System Design', 'Structural Response under Fire and Blast Loading' and 'Design of Pipelines and Risers' amongst others. He was a member of ISSC (International Ship and Offshore Structure Congress) for the periods of 1991-97 and 2003-2006. He was a member of the OMAE (Offshore Mechanics and Arctic Engineering) Organising Committee on 'Safety and Reliability'. He is running about 15 bi-annual international conferences on various themes like Risk, Reliability, Advanced Analysis & Design of Engineering Structures, including marine structures. He was a member of the "Research Committee" of Structural Engineers (IStructE) during 2012-2015. He was a visiting Professor at IST Surabaya, Indonesia from July 2015 for one year. He is now a visiting professor at the university of Montenegro, Montenegro and University of Stavanger, Norway.