Analysis and Design of Coastal Structures

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Overview

Safe and cost effective design of marine structures such as breakwaters, submarine pipelines, seawater intakes, coastal protection structures, scour protection structures etc is a challenge. Significant scientific developments and innovations have taken place in the recent years, which has resulted in the better understanding and design of such marine structures. The design of marine structures involves many uncertainties and risks starting from right judgment of design marine conditions. Recently, many innovative marine structures were invented such as floating breakwaters and wave energy dissipation structures with the aim of cost reduction, improving its functions, fast fabrication and field installation, better appearance etc. An exposure to these innovations will help the Engineers to do optimized and elegant coastal structure design. India invests many million dollars every year on construction of different types of coastal structures. A better understanding in this field will help for the economy of India. The knowledge and experiences accumulated in the design and development of different marine structures will be transferred to the participants by lectures, discussions, tutorials and continuous interactions.

The primary objectives of the course are as follows:

- Challenges in the optimal design of coastal structures
- Coastal hydrodynamics and forces on different coastal structures
- Estimation of extreme waves and winds
- Design principles of breakwaters, shore protection structures, scour protection structures, submarine pipelines
- Recent innovations in coastal structures such as floating breakwaters and water wave energy dissipating structures
- Some case studies on Siltation in marina; Sedimentation in sea water intake structure; Ingression of jelly fish in sea water intake and optimum burial depth of submarine pipelines in the coastal area
- Prepare participants for safe and optimal design of different types of coastal structures

The course is planned and offered as per the norms set by IIT Kharagpur for GIAN programme.

Module	• **Analysis and Design of Coastal Structures** Duration: 10 -14, December, 2018 Number of participants for the course will be limited to fifty.
You Should Attend If…	This course is designed for B.Tech / M.Tech / Ph. D. students of Ocean Engineering and Naval Architecture, Mechanical Engineering, Civil Engineering, Mathematics and Physics, who will benefit by learning contemporary techniques in the design of coastal structures. Moreover, executives, engineers and researchers from coastal / marine / ocean industries, service and government organizations including R&D laboratories are welcome to register for this course.
Fees	**Registration fees are waived for the internal candidates** **Participants from abroad**: US $400 **Industry/ Research Organizations:** Rs. 10000/- **Academic Institutions:** College/University Teachers:Rs. 5000/- Students:Rs. 3000/- The above fees include all instructional materials, computer use for tutorials, 24 hr free internet facility. The participants will be provided with single bedded accommodation on payment basis.

The Faculty

Dr. S. Neelamani is currently a Senior Research Scientist, Coastal Management Program, Kuwait Institute for Scientific Research, Kuwait. He was the recipient of the Alexander von Humboldt Post-Doctoral Research Fellowship, Germany during 1996 to 1998. He has more than 300 scientific papers published in the reputed international and National Journals and conferences. He has coordinated about 50 research projects, 50 consultancy projects and 35 scientific training programs in the area of coastal engineering. His specialization is Physical modelling on Coastal and Ocean structures, Ocean Energy and marine environmental issues. He was bestowed with the Scientific Achievement Award by Kuwait Institute for Scientific Research since 2009 for his distinguished scientific contribution and achievements. He also got two US patents as lead inventor during 2016 and many recognitions from around the world for these inventions. These two patents won Gold and Silver medals in the international innovation exhibition in Kuwait, Switzerland and Germany. He works on wave forces on marine structures, floating breakwaters, submarine pipelines, new type of wave barriers, extreme winds and waves, beach nourishment etc.

Professor Trilochan Sahoo is a Professor in the Department of Ocean Engineering and Naval Architecture, Indian Institute of Technology Kharagpur. He has made seminal contributions to wave-structure interaction problems arising in Ocean Engineering. His expertise includes both analytical and numerical methods for dealing with varieties of problems in Hydroelasticity and Coastal hydrodynamics. He has published 145 scientific papers in reputed international and National Journals and conferences.

Dr.A. Sarkar is an Assistant Professor in the Department of Ocean Engineering and Naval Architecture, Indian Institute of Technology Kharagpur. His research interest lies in the field of Offshore Structures, Subsea Structures, Marine Operations, and Offshore Wind Turbines.

Course Co-ordinator

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