

# Design of Offshore Foundations

## Overview

Structures at offshore locations are very much different from onshore due to expensive site investigation, unusual soil condition and installation difficulties. Offshore foundations withstand complex aerodynamic and hydrodynamic loads from wind and wave. The load acting on a structure is dependent not only on the environment and location (for example wind, wave, temperature and unknowns related to climate change) but also on unpredictable natural hazards (for example Tsunamis and earthquake and its associated effects such as subsurface liquefaction). Hence may affect the reliability and serviceability of the structure and its foundation during its operational condition, which need to be taken into account in offshore design. The short course will provide the state of the art and state of the practice of offshore geo-mechanics and geo-engineering related to design of foundations of offshore structures with an emphasis on wind turbines and oil and gas platforms. This course is highly specialized and is aimed at faculty members with limited experience in foundation design, motivated undergraduate and post graduate students in civil engineering. Practicing civil engineers will also find this course very helpful and refreshing. Course participants will learn these topics through lectures, hands-on tutorials and case studies. Internationally acclaimed academic professional will deliver lectures and discuss cases in the course. The course will be planned and offered as per the norms set by IIT Bhubaneswar.

This course is organized in ten small segments broadly put into two modules. Each segment will have two theory lectures and one tutorial after each of those lectures. It is hoped that this will create enthusiasm in the participants to apply the advanced theories into practical problems.

<b>Modules</b>	<p><b>A: General Overview, Importance and Applications of offshore foundations and Design Considerations</b></p> <p style="text-align: center;"><b>July 18 – July 19, 2016</b></p> <p><b>B: Numerical Modeling, Load Calculation, Specific field applications and Case Studies</b></p> <p style="text-align: center;"><b>July 20 – July 22, 2016</b></p> <p><b>Number of participants for the course will be limited to fifty.</b></p>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"><li>▪ you are a civil engineer or architect or engineer working in offshore structure problems.</li><li>▪ you are a student or faculty from academic institution interested in learning offshore foundation and its modeling for field applications.</li></ul>
<b>Fees</b>	<p>The participation fees for taking the course is as follows:</p> <p><b>Participants from abroad : US \$200</b> <b>Industry/Research Organizations: Rs. 5000/-</b> <b>Faculty members from academic Institutions: Rs. 2000/-</b> <b>Students (UG or PG): Rs. 500/-</b></p> <p>The above fee include all instructional materials, tutorials and assignments, laboratory equipment usage charges, free internet facility. The accommodation for the participants can be arranged in nearby hotels on payment basis, if requested well in advance.</p> <p>The participants are requested to bring their own laptop for tutorial classes.</p>

# The Faculty



**Prof. Suby Bhattacharya**

Chair Professor in Geomechanics  
University of Surrey  
United Kingdom

[http://www.surrey.ac.uk/cee/people/professor\\_suby\\_bhattacharya/](http://www.surrey.ac.uk/cee/people/professor_suby_bhattacharya/)

Professor Subhamoy Bhattacharya (Suby) holds the chair in Geomechanics at the University of Surrey since October 2012. He is also an Adjunct Professor at Zhejiang University (China) also a visiting fellow at the University of Bristol. He previously held the position of Senior Lecturer in Dynamics at University of Bristol, Departmental Lecturer in Engineering Science at the University of Oxford, Junior Research Fellow at Somerville College (Oxford). Professor Bhattacharya earned his doctorate from the University of Cambridge investigating failure mechanisms of piles in seismically liquefiable soils. Professor Bhattacharya had many happy years working in the Civil/Offshore Engineering consultancy. His research interests include response of pipelines and piles in seismic areas including liquefiable soils, study of soil liquefaction using element tests, offshore foundations, Physical modelling of geotechnical problems including soil-structure interaction with particular emphasis to off-shore wind turbines.



**Dr. Sumanta Haldar**

Associate Professor in Civil Engineering  
School of Infrastructure  
IIT Bhubaneswar  
<http://www.iitbbs.ac.in/profile.php/sumanta/>

Dr. Haldar is a geotechnical engineer, having done his PhD from IISc. Bangalore on pile foundation in liquefiable soils. His research area includes energy geotechnics, soil-structure interaction, probabilistic geotechnics, dynamics of soil and foundation, computational geomechanics and experimental geotechnics.



**Dr. Suresh R Dash**

Assistant Professor in Civil Engineering  
School of Infrastructure  
IIT Bhubaneswar  
<http://www.iitbbs.ac.in/profile.php/srdash/>

Dr. Dash is a structural engineer, having done PhD from the University of Oxford on Lateral Soil-Pile Interaction in Liquefiable Soils. His research interest includes structural dynamics & earthquake engineering, soil-structure interaction for pipelines and pile foundations, seismic design of bridges.

## Venue:

School of Infrastructure  
IIT Bhubaneswar, Samantapuri,  
Bhubaneswar – 751013, Odisha

## Course Coordinators

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Register for the course at:

<http://www.gian.iitkgp.ac.in/GREGN>

## **Bank details for online payment of course fee:**

A/C Name: CEP, IIT Bhubaneswar  
A/C No: 24282010001960  
IFSC Code: SYN0002428  
Bank Name: Syndicate Bank Branch  
Address: IIT, Bhubaneswar

**Last date of Registration:  
5<sup>th</sup> July 2016**