

Hydrodynamics of Riverbed Erosion and Scour at Structures

Overview

About the course

The phenomenon of lowering the riverbed level due to sediment removal is called riverbed erosion. The sediment removal also takes place locally at a structure with the formation of a local scour hole. This course will provide a comprehensive understanding on riverbed erosion, scour within channel contractions, scour downstream of structures, scour below horizontal pipelines, scour at bridge piers and abutments. Further, the scour countermeasures are of paramount importance. This issue will also be covered. The purpose of the present course is to describe the analytical derivations, empirical/semiempirical formulations and mathematical modelling of the problems related to riverbed erosion and local scour at structures. This course will present a good overview of the fundamentals as well as latest developments of the subject. The lectures will be delivered by the international and national faculties having enormous expertise in the field of riverbed erosion and scour. Therefore, students/participants can learn various aspects of the subject from the world renowned experts of the subject.

Syllabus

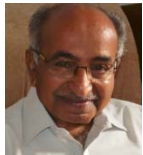
Sediment dynamics, river processes, scour within channel contraction, scour at grade control structures, scour at sills, scour downstream of sluice opening, scour at bridge piers and abutments, scour countermeasures, dynamic similitude for fluvial systems, immobile bed model and mobile bed model.

Modules	Duration of the Course : December 7–18, 2015 Number of participants for the course will be limited to fifty only
You Should Attend If...	<ul style="list-style-type: none">▪ This course is designed for BTech (third and fourth years) / MTech / MSc / PhD students of Civil Engineering, Water Resources Engineering, Geology and Geophysics, Agricultural Engineering, Ocean Engineering and Naval Architecture who will be benefited in learning the experimental, analytical and computational aspects of erosion of riverbeds and scour at structures.▪ This course will also provide an excellent opportunity to the professionals/engineers to comprehensively learn the erosion and scour processes including scour countermeasures to pursue with the field applications more effectively.
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$500 Industry/ Research Organizations: Rs 20000 Academic Institutions: Rs 5000 The fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, and 24 hours free internet facility. The participants will be provided accommodation on payment basis.

The Faculty



Prof. Roberto Gaudio is currently a Professor, Dipartimento di Ingegneria Civile, Università della Calabria, Rende, Italy, where he teaches river hydraulics, hydraulic modelling etc. His general areas of research interests encompass analytical hydrodynamics, sediment transport, scour, open-channel flows and coherent motion of turbulence.



Prof. T Gangadharaiiah has retired from the Department of Civil Engineering, Indian Institute of Technology Kanpur in 2003. He is presently working as an Emeritus Professor of Civil Engineering, Siddaganga Institute of Technology, Tumkur, Karnataka. His research interests are hydrodynamics, sediment transport and scour.



Er. Bikash Chaudhuri is currently the Chief Hydraulic Engineer, Kolkata Port Trust. He has huge experience in the field studies and the mathematical modeling on fluvial processes, coastal processes, dredging of alluvial channels, protection of marine structures, etc. Over thirty two years, he is associated with the development and the management of the navigational channels in the River Hooghli.



Prof. Subhasish Dey is a Professor and Head of the Department of Civil Engineering, Indian Institute of Technology Kharagpur. He is an Associate Editor of the Journal of Hydraulic Engineering (ASCE), Journal of Hydraulic Research (IAHR), Sedimentology, Acta Geophysica, International Journal of Sediment Research and Journal of Hydro-Environment Research. His research interests include analytical hydrodynamics, turbulence, sediment transport and scour. He is the author of a book titled "Fluvial Hydrodynamics" published by Springer-Verlag.

Course Coordinator

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