Hydrodynamics of Riverbed Erosion andScour at Structures

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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 ofthe 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 facultieshaving 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.

odules	**Duration of the Course : December 7–18, 2015** **Number of participants for the course will be limited to fifty only**
You Should Attend If…	▪ This course is designed for BTech (thirdand fourth years) / MTech / MSc / PhD students of Civil Engineering, Water ResourcesEngineering, 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 willalso provide an excellent opportunity to the professionals/engineers to comprehensively learn the erosion and scour processesincluding 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. RobertoGaudio is currently a Professor, Dipartimento di IngegneriaCivile, Universitàdella 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 flowsand coherent motion of turbulence.

Prof. T Gangadharaiahhas retired from the Department of Civil Engineering, Indian Institute of TechnologyKanpur in 2003.He is presently working as anEmeritus 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 studiesand the mathematical modeling on fluvial processes, coastalprocesses, dredging of alluvial channels, protection of marinestructures, etc. Over thirty two years, he is associated with thedevelopment and the management of the navigational channelsin the River Hooghli.

Prof. SubhasishDeyis 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, ActaGeophysica, 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.

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Course Coordinator

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