

Design of coastal structures including extreme events

Overview

India has a coastline of about 7500km, in order to protect the coasts from severe erosion, flooding as well as to create calm conditions for berthing of vessels, various coastal structures have been build. Wave overtopping is one important parameter for the design of coastal and flood protection structures. The knowledge on wave overtopping has been significantly improved within the last years based on a number of national and international projects. However, this was not felt in Indian Coastal structure design. Therefore, it was important to extend and adapt existing guidelines and recommendations. Environmental Agency (UK), Rijkswaterstaat (NL) and Kuratorium für Forschung im Küsteningenieurwesen (D) have a European overtopping manual. The course will highlight the international design standards on the coastal structures. New techniques to predict wave overtopping at seawalls, flood embankments, breakwaters and other shoreline structures will be highlighted through case studies and example calculations. It intends to assist coastal engineers to analyse overtopping performance of most types of sea defence, particularly the present design criteria found around Europe. The methods that can be used for current performance assessments and for longer-term design calculations will be discussed. Further, for different types of structure, guidance on interpretation of the results on overtopping will be discussed. A Lecture on hazards gives guidance on tolerable discharges and overtopping processes, including videos on overtopping discharges. Further lectures, identifies the different methods available for assessing overtopping, such as empirical, physical and numerical techniques. An online Calculation Tool that has been developed as part of Eurotop Manual to assist the user through a series of steps to establish overtopping predictions for: embankments and dikes; rubble mound structures; and vertical structures will be discussed. In addition, new research on wave run-up and wave overtopping will be presented.

Course participants will learn these topics through lectures. Also case studies and assignments will be shared to stimulate research motivation of participants.

Course Dates	16th October 2019 – 22nd October 2019 Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none"> ▪ you are an Ocean engineer/Coastal Engineer or research scientist interested in designing coastal structures. ▪ you are Engineer and/or R&D professional from industries and/or R&D professional from government R&D labs interested to learn the development in the design of coastal structures. ▪ you are a student (M.Tech/MS/PhD or senior level B.Tech) or faculty from academic institution interested in learning how to do research on coastal Engineering.
Fees	<p>The participation fees for taking the course is as follows:</p> <p>Participants from abroad : US \$500</p> <p>Students: INR 1000</p> <p>Industry/ Research Organizations: INR 15000</p> <p>Academic Institutions: INR 5000</p> <p>Payment:</p> <p>Account Name: CCE IIT Madras</p> <p>Acc. No: 36401111110; Branch: SBI, IIT Madras Branch, Chennai</p> <p>IFSC Code: SBIN0001055; Swift Code: SBININBB453</p> <p>The above fee includes all instructional materials and assignments. The participants will be provided with accommodation on payment basis depending upon the availability.</p>

The Faculty



Prof. Holger Schuettrumpf is in the faculty of Civil Engineering, RWTH Aachen, Germany. He is the head of the Institute of Hydraulic Engineering and Water Resources Management. His research interests include Flood protection, Flood risk management, Coastal engineering and Maritime waterway engineering, Groundwater dynamics and Water well construction, Reservoirs and Hydro power, Nature-orientated hydraulic engineering and Eco hydraulics, Sediment transport and Morphodynamics.



Prof. V. Sundar is an Emeritus Professor at Indian Institute of Technology, Madras. His research interest includes Coastal Engineering, wave –structure interactions, coastal protections, Port and Harbour structures, Tsunamis.



Dr. V. Sriram is an Associate Professor at Indian Institute of Technology, Madras. His research interest is numerical modelling of nonlinear wave-structure interactions; Particle method; Hybrid modelling; violent wave – elastic structure interactions; Experimental modelling of wave impacts with structures; Long wave modeling.

Course Coordinator

Contact:

Dr. V. Sriram

**Department of Ocean Engineering,
IIT Madras, Chennai, India**

Phone: +91 (0) 44 – 2257 - 4813

E-mail: vsriram@itm.ac.in

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