

HYDROLOGIC DESIGN IN A CHANGING CLIMATE

Category 1: Nil
(Enclose Certificate that your institute is approved by **TEQIP-II**)

Category 2: ₹ 10,000[#] / ₹ 25,000^{}**
([#]Govt./other organizations and faculty members from non-TEQIP institution)
(^{**}for a group of three participants from the same organization)

Category 3: ₹ 2000[#] / ₹ 5000^{}**
([#]Students from non-TEQIP institution)
(^{**}for a group of three participants from the same institute)

Payment should be made via demand draft drawn in favour of **“CEP-STC, IIT Kharagpur”**, payable at Kharagpur

DEMAND DRAFT DETAILS

Amount ₹	
Bank Name	
Place	
Branch Code	
DD No. & Date	

Declaration

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the course and shall attend the course for the entire duration without any failure.

Place _____

Date _____

Signature of applicant _____

Please complete the details above and mail alongwith registration fee to:

Prof. Rajib Maity
Associate Professor, Department of Civil Engineering
IIT Kharagpur - 721302
E-mail: rajib@civil.iitkgp.ernet.in

About IIT Kharagpur

History

First in the chain of IITs to be set up by the Government of India, Indian Institute of Technology, Kharagpur started in 1951 in the erstwhile Hijli Detention Camp. It has now blossomed into one of the finest technical institutions in the world, with 585 faculty members in 19 Departments, 9 Centres, and 12 Schools offering 6 M.Sc. programmes, 5 Joint M.Sc. -Ph.D. programmes, 15 B.Tech (Hons.) programmes, 49 joint M.Tech. - Ph.D programmes, 2 M.Tech. programmes (in video-conferencing mode), 1 Master of City Planning programme, 1 Master of Medical Science and Technology programme, 1 LL.B. in Intellectual Property Rights programme, 34 Dual-Degree (both B.Tech and M.Tech) programmes, and 2 Management programmes. It also has MS, Ph.D, and D.Sc. programmes.

Location

Kharagpur is known world over for two landmarks. One, the longest railway platform, and the other, the Indian Institute of Technology, more commonly known as IIT. Situated about 120 km west of Kolkata, Kharagpur can be reached in about 2 hours by train from Howrah railway station of Kolkata or 3 hours by car from Kolkata Airport. Kharagpur is also connected by direct train services to most major cities of the country. The Institute is about 10 minutes drive (5 km) from the Kharagpur railway station. Private taxi, auto-rickshaw or cycle-rickshaw can be hired to reach the Institute.

Weather

Winter (October to February) is moderate and pleasant (10 to 25°C) in Kharagpur. Summer (March to June) is hot (25 to 40°C) and sometimes humid. Rains are normally confined to the months of June to September.

Introduction

Intergovernmental Panel on Climate Change (IPCC) has undoubtedly indicated the seriousness of global climate change impacts on different facets of society including water resources and environment. Thus, the natural variability and uncertainty associated with the hydrologic variables is of great concern to the community in the recent scenario of climate change. Societies are becoming more independent, and their vulnerability to extreme events like floods and droughts is changing. It is important to develop resilient and adaptive measures on the face of water related disasters. This course focuses on the hydrologic design concepts in a changing climate. Hydrologic impacts of climate change in different water resources related problems will also be discussed. The participants from industries as well as academia will be benefited by learning necessary measures to handle the water resources and environmental problems owing to climate change effects.

Course Objectives

- To make the participants aware of the climate change and its impact on water resources.
- To introduce the participants to the very recent modeling of hydrologic variables, such as rainfall, stream flow and soil moisture.
- To make the participants understand the concepts of design storm, design flood in the context of changing climate.
- To train the participants in hydrologic design related to flood protection and prevention of river erosion.
- To introduce the hydroclimatic analysis of drought and mitigation.

Important Dates

May 30 - 31, 2015

Venue

IIT Kharagpur and its extension centers at Bhubaneswar and Kolkata through online video lecture. All video-conferencing enabled classrooms at Kharagpur, Kolkata and Bhubaneswar are equipped with high definition video-conferencing system. Each of these acoustic treated air-conditioned video enabled classrooms with multiple HD cameras, document viewers and large display monitors permit teachers to conduct LIVE interactive sessions from Kharagpur with multiple remote classrooms at Kolkata and Bhubaneswar. 8 Mbps leased line connectivity of Kolkata and Bhubaneswar centers with Kharagpur ensure uninterrupted bi-directional lossless audio video transmission.

Who may Benefit

Faculty members and research students of different research organization are expected to be benefited in their research programs. Officers/Engineers working in city municipalities, city development authorities, government organizations, consulting companies, research organizations engaged in the analysis of hydrological sciences and water resources planning and management would also benefit from the proposed program.

Lecture Notes

Course material will be provided to the participants at the end of the course in the form of both soft and hard copies.

Accommodation

On-campus accommodation may be arranged on payment basis. Please contact course co-ordinator before hand. Accommodations are limited. Help in the arrangement of the accommodation will be provided on a **first-register-first-serve basis after receipt of registration fees.**



Course Contents

The course provides a wide coverage in the subject area.

The course is divided into five different modules as follows:

- Introduction to climate change and its impact on water resources.
- Hydroclimatic association between climate variables and rainfall, stream flow and soil moisture with examples from Indian river basins.
- Methodologies for hydrologic / hydraulic design along with the concepts of design storm and design flood.
- Design concepts of flood protection structures and prevention of river erosion, and
- Hydroclimatic analysis of drought and mitigation.

Class Schedule

Tentative class schedule is as follows:

Day – 1

Class -1: 11:00 am to 01:00 am

Lunch Break: 1:00 pm to 3:00 pm

Class -2: 3:00 pm to 5:00 pm

Day – 2

Class -3: 11:00 am to 1:00 am

Lunch Break: 1:00 pm to 3:00 pm

Class -4: 3:00 pm to 5:00 pm

Class -5: 5:00 pm to 7:00 pm

The Faculty



Dr. Rajib Maity is Associate Professor of Department of Civil Engineering, Indian Institute of Technology, Kharagpur, India. His research area includes hydroclimatology, stochastic hydrology, climate impacts on water resources, hydrologic time series analyses and forecasting etc. He has published one book on

'Hydroclimatic Teleconnection: Indian Perspective' and about 60 research articles in different peer reviewed journals and conferences and chapters in books. His research work has been funded by various agencies such as DST, ISRO, MoES, MHRD, AISRF and IBM. Some of his professional recognitions include Prof. R. J. Garde Research Award, ASCE 2011 Outstanding Reviewer (USA), Emerging Leaders Fellowship (Australia), BOYSCAST Fellowship, IEI Young Engineers Award, DAAD fellowship for IIT faculty (Germany), International ICE WaRM Fellowship (Australia), Prof. N. S. Govinda Rao Memorial Gold Medal, IISc. He is an associate editor of Journal of Earth System Sciences (JESS), Springer. (Home page: <http://www.facweb.iitkgp.ernet.in/~rajibmaity/>).



Dr. Dhrubajyoti Sen is Professor at the Department of Civil Engineering, Indian Institute of Technology Kharagpur, India. His research areas include numerical techniques in hydraulics and hydrology, hydraulic structures, and sensor networking for water resources monitoring. He has authored the e-

learning course on 'Water Resources Engineering' for the National Programme on Technology Enhanced Learning (NPTEL) and has published about 30 research articles in different peer reviewed journals and conferences and chapters in books. His research works have been funded by various agencies such as DST, MoWR, MHRD, and IBM. Presently he is heading the School of Water Resources at Indian Institute of Technology Kharagpur.

Course Fees

The course fees are as follows:

Category 1: Nil (Participants from TEQIP -II Institutions)

Category 2: Participants from Govt./other organizations and faculty members from non-TEQIP institution – ₹ 10,000 (₹ 25,000 for a group of three participants from the same organization). For the participants registering before May 15, 2015, will avail a discount of ₹ 1000 (₹ 1500 for group registrant from the same organization). Accommodation (two nights) included.

Category 3: Students from non-TEQIP institution – ₹ 2,000 (₹ 5,000 for a group of three participants from the same institute). For the participants registering before May 15, 2015, will avail a discount of ₹ 500 (₹ 800 for group registrant from same institution).

The total number of seats are limited (40 at each centre). Registration will close once the maximum number of seats are exhausted. Please send the duly filled-up registration form (overleaf) along with registration fee to: Prof. Rajib Maity, Department of Civil Engineering, IIT Kharagpur – 721302. Also, send an e-mail to rajib@civil.iitkgp.ernet.in or rajibmaity@gmail.com

Course Co-Ordinators

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REGISTRATION FORM

KNOWLEDGE DISSEMINATION PROGRAMME

HYDROLOGIC DESIGN IN A CHANGING CLIMATE

May 30 - 31, 2015

Name

Date of Birth

Gender Male Female

Category Academic Student Professional
(Please enclose a bonafide certificate from your parent institution)

Organization

Address for Correspondence

Preferred location for attending

Phone

E-mail

Highest Academic Qualification

Experience (in years)

Accommodation Required (at IIT Kharagpur) Yes No

