GLOBAL INITIATIVE FOR ACADEMIC NETWORKS

Ministry of Human Resource Development
Government of India

सत्यमेव जयते

GLOBAL INITIATIVE FOR ACADEMIC NETWORKS

National Coordinating Institute
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

www.gian.iitkgp.ac.in

RECENT ADVANCEMENTS IN GROUNDWATER CONTAMINATION MODELING

Overview

Groundwater contamination is a serious issue worldwide and particularly in emerging economies like India. Groundwater supplies nearly 90% of the water for agriculture and sustains large cities. Groundwater contamination not only impacts aquifers and subsurface environments but can also have grave implications on surface water bodies, atmosphere, indoor air and ecosystems. As such, understanding the long-term implications of groundwater contamination on water resources of a region as well as on human health and the environment must be properly understood.

In recent years, awareness on new types of contaminants have come to fore. The increased usage of personal and pharmaceutical care products (PPCPs), nano-materials (NM) and other organic compounds, such as perfluoro organic acids (PFOA) has resulted in their detections in groundwater environments. The harmful effects of being exposed to these chemical classes over the long-term are largely unknown. In addition, these chemicals due to their unique chemical and molecular structure behave differently than most other traditional organic and inorganic contaminants that are commonly regulated in drinking water. Mathematical modeling tools and techniques, combined with field and experimental studies are used to describe the movement of chemicals in groundwater environments. These modeling studies are crucial to assess exposure points to humans and ecological receptors and identify potential risks to human health and the environment. The focus of the course will be to expose the students to fundamentals of groundwater transport modeling and discuss recent advancements in modeling especially to determine the fate and transport of emerging contaminant classes.

The primary objectives of the course are to impart to participants the fundamentals of fate and transport processes in sub-surface environments, to expose them to emerging contaminant classes and their fate in subsurface environments, to provide hands-on exercises and practice in developing fate and transport models for simulating the transport of pollutants in subsurface environments, to enhance the capability of the participants to identify the challenges and opportunities in quantifying the exposure of emerging contaminants to humans and other ecological receptors and to identify suitable treatment technologies for removal and abatement of emerging groundwater contaminants.

Modules

A: Duration — **May 01 - May 14, 2018**

B: Venue — **School of Water Resources, Indian Institute of Technology Kharagpur, Kharagpur, India - 721302**

Number of participants for the course will be limited to fifty.

You Should Attend If...

- you are an Executives, engineers and researchers from academia industry and government organizations including R&D laboratories.
- you are a Student students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.

Fees

The participation fees for taking the course is as follows:

Participants from abroad :	**$ 500**
Industry/ Research Organizations:	**₹ 15000**
Academic Institutions :	**₹ 5000**
Students :	**NIL**

The above fees (exclusive of GST) and includes the use of all instructional materials assigned for the course and access to 24 h free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Prof. Venkatesh Uddameri, Ph.D., P.E. is a Professor in the Department of Civil, Environmental and Construction Engineering at Texas Tech University where he also serves as the Director of the Texas Tech University Water Resources Center. His research interests broadly cover sustainable water resources management with a particular emphasis on groundwater systems. He has published extensively in the areas of groundwater modeling and management and has authored or co-authored over 100 journal articles, book chapters, technical reports, conference proceedings and abstracts and two books. He received the American Petroleum Institute/National Ground Water Association (API-NGWA) scholarship during his doctoral studies. He currently serves as the editor-in-chief of the Journal of American Water Resources Association.

Dr. Ashok Kumar Gupta is a Professor in the Environmental Engineering Division of the Civil Engineering Department and Head, School of Water Resources, Indian Institute of Technology Kharagpur and is actively involved in teaching, research and consultancy. His research interests are primarily focused on water treatment, wastewater treatment and reuse, environmental impact assessment, monitoring and modelling of air and water pollution, geogenic pollutant scavenging etc. He has more than 75 publications in top-ranking International journals and is credited with more than 3000 citations in Scopus. Dr. Gupta is a renowned technical consultant in the arena of environmental engineering having more than 30 completed/ongoing projects of national and international importance to his credit. He has served as the guest editor of the International Journal of Ecology and Development for the Special issue in 2006 and was in the Editorial Advisory Board of Recent Patents on Chemical Engineering in 2008.

Course Co-ordinators

Professor A. K. Gupta
Phone: 03222-283428
E-mail: agupta@civil.iitkgp.ernet.in

Registration Process

Registration for GIAN courses is not automatic because of the constraints on maximum number of participants allowed to register for a course. In Order to register for one or multiple non-overlapping courses, you have to apply online using the following steps:

1. **Create login and password at www.cep.iitkgp.ac.in/gian**
2. **Login and complete the registration form.**
3. **Select courses**
4. **Confirm your application and payment information.**
5. **Pay ₹500 (non-refundable) through online payment gateway.**

The course coordinators of the selected courses will go through your application and confirm your selection as a participant one month before the starting date of the courses. Once you are selected you will be informed and requested to pay the full fees through online payment gateway service.