Overview

Groundwater is an important natural resource that is extensively used for various industrial, agricultural, and domestic purposes. In a large part of the country, groundwater is the only source of water for human consumption. Groundwater can become contaminated from point source pollution that comes from a single source, such as a wastewater treatment plant. Also, our country mostly depends on agricultural and industrial sectors to serve the population and enhance the overall quality of life. High yields from agricultural sectors are often accompanied by a host of environmental problems in the form of increased use of fertilizers and pesticides in agriculture, or generation of harmful byproducts in industrial operations. Sometimes, leaching of wastes from landfills or discharge of industrial wastes into the soil without treatment also affects groundwater quality.

The wastewater infiltrates through the vadose zone and upon reaching the water table, continues to travel for large distances through the subsurface environment. Hence, understanding and analyzing the subsurface flow and contaminants as they move from source to receptor locations are needed to design effective abatement strategies, remediation plans, and the use of modeling techniques for groundwater resources protection. Our understanding is derived from various mathematical models to describe the flow and contaminant transport processes that influence contaminant behavior through subsurface media.

Objectives

The primary objectives of the course are as follows:

1. To provide fundamentals of flow and contaminant transport through subsurface media.
2. To train participants in conducting flow and solute transport analysis using mathematical and numerical methods for different types of flow and contaminant transport models.
3. To demonstrate the efficacy of modeling groundwater flow and contaminant transport while highlighting the strengths and limitations of different numerical techniques through examples.

You should attend, if

- you are a civil engineer or research scientist interested in groundwater flow and contaminant transport through subsurface porous media.
- you are a student of B.Tech. or M.Tech. or Ph.D. pursuing from academic institutions interested in higher studies in the field of groundwater hydrology and want to learn flow and contaminant transport through subsurface media.
- you are a faculty from an academic institution interested in learning how to do research on flow and contaminant transport through subsurface porous media.

GIAN Course on Flow and Contaminant Transport through Subsurface

February 20-24, 2023

GLOBAL INITIATIVE OF ACADEMIC NETWORKS

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

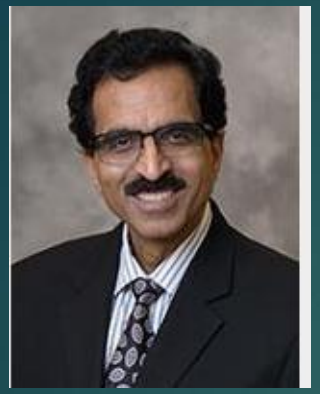
Under the aegis of
Global Initiative of Academic Networks (GIAN)

Organized by
Department of Civil Engineering
IIT Roorkee

An initiative of

Ministry of Education
Government of India

Course Instructor



Dr. Rao S. Govindaraju is a Professor at Purdue University West Lafayette USA. His research interests include watershed hydrology, stochastic and statistical hydrology, spatial variability, modeling surface and subsurface water movement, fate and transport of contaminants.

Course Coordinator

Dr. Pramod Kumar Sharma is an Associate Professor at the Indian Institute of Technology, Roorkee. His research interests are groundwater hydrology and hydraulics, mathematical and numerical modeling, and flow and contaminant transport.

Course Coordinator

Dr. K. S. Hari Prasad is a Professor at the Indian Institute of Technology, Roorkee. His research interests are parameter estimation, stochastic hydrology, irrigation engineering, groundwater modeling, and hydraulics modeling studies.

Modules

- Groundwater, surface, and subsurface water interaction,
- Governing flow equations for sub-surface flow
- Hydraulic conductivity, Contaminant transport,
- Leaky and Multi-layer Aquifers, Pumping Test Analysis,
- Saline Water Intrusion and Modeling flow through the root zone.

How to apply?

This course will be conducted in person at IIT Roorkee. Candidates can register themselves by submitting the registration form. The registration form can be filled out at the following link.

https://gian.iitkgp.ac.in/ccourses/approvecourses3

Registration Fees

The participation fees for taking the course are as follows:

Academic Institutions: Rupees 3500 for students and Rupees 6500 for faculty.

Industry/ Research Organizations: Rupees 10000

Participants from abroad: US $100

Last date to register: January 25, 2023

Lodging and boarding

Lodging and boarding will be provided on request, made in advance at an additional cost.

Please note that the accommodation will be provided in guesthouses or hostels depending on the availability of the rooms.

Event Venue

Indian Institute of Technology Roorkee, Roorkee - 247667, Uttarakhand