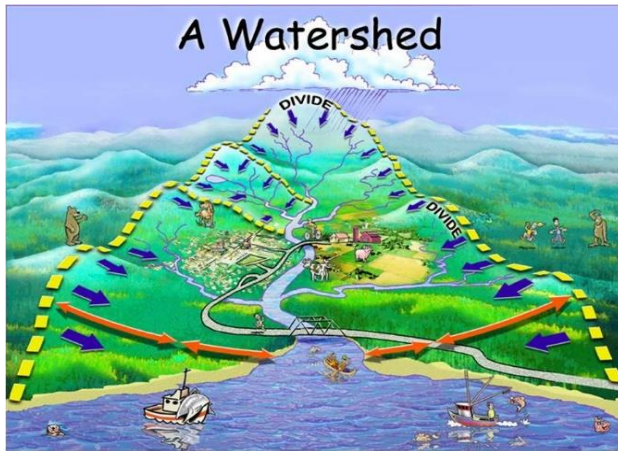


TRAINING COURSE

on

TOOLS & TECHNIQUES FOR HYDROLOGICAL INVESTIGATIONS

(March 11 to 15, 2024)



Organized by

**NATIONAL INSTITUTE OF HYDROLOGY
JAL VIGYAN BHAWAN,
ROORKEE -247 667,
UTTARAKHAND, INDIA**

INTRODUCTION

Water, which covers approximately 70% of the Earth's surface, sustains plant and animal life, plays a key role in the formation of weather, and helps to shape the surface of the planet through erosion and other processes.

India is one of the fastest growing economies in the World. The developmental activities are putting lot of pressure on all the natural resources of the country. Water is no exception. There is a competition for utilization of water for power, irrigation, municipal, industrial, recreation, aesthetic and other uses. The overall impact is apparat in water conflicts. Accurate and reliable hydrological database is required for development of management plans. Further, changing LULC and climatic conditions are affecting both the quality and quantity of water.

Hydrological Investigations are fundamental for assessing water resources and understanding the hydrological processes. Because, the hydrologic cycle is so diverse, hydrologic measurement and analysis methods span many disciplines: including soils, oceanography, atmospheric science, geology, geophysics and limnology, and so on.

Apart from the conventional techniques, now many new and advance techniques and instruments are available for hydrological investigations worldwide. It is high time that the Field Engineers, Scientists, Professionals, Academicians and Research Scholars working in the field of water resources and hydrology start adopting these techniques to improve their capabilities.

Among the advanced techniques, application of google earth engine and machine learning techniques, environmental isotopes and remote sensing & GIS, and use of various advanced instruments have

increased dramatically for hydrological investigations. Isotope techniques can be used to measure groundwater recharge, pattern of sedimentation in water bodies, track pollution in groundwater, leakage and seepage from water bodies, measurement of hydro-geological parameters, origin and age of groundwater, surface water-groundwater interactions etc.

COURSE CONTENT

The training course will consist of lectures by the Experts from the National Institute of Hydrology (NIH), Roorkee and IIT Roorkee on tools and techniques for hydrological investigations used in hydrology and water resources.

This course will cover the theoretical and practical aspects, Case Studies, Tutorials, Hands-On Sessions on computers, Laboratory and Field Investigation. Broadly, the course shall be devoted to demonstration of different tools and techniques related with spring hydrology, isotopic analysis groundwater potential mapping and rainwater harvesting techniques. The field investigations for geological variations and topographic survey using Earth Resistivity Tomography (ERT) and Differential Global Positioning Systems (DGPS) survey will be covered. Some case studies and practical demonstration will be delivered through remote sensing and GIS applications. Also, the application of Soil and Water Assessment Tool (SWAT) shall be demonstrated for un-gauged watersheds. This course is intended to be interactive so that problems being experienced by the field organizations could be shared and discussed.

WHO CAN PARTICIPANT?

The course is intended for Professionals (Field Engineers, Scientists, Academicians and Research

Scholars) of various governments, private organizations actively working in water resources and agencies concerned with hydrological investigations, water resources planning and management. Master's students and research scholars are encouraged to attend this course.

REGISTRATION

The registration fee per participant (in INR) is as follows:

- Govt. Employee/NGO/PSUs = ₹ 10,000/-
- PG Student/Research Scholar = ₹ 7,000/-

The fee includes the registration, course material, working lunch on all working days, tea during sessions, and one course dinner. The stay arrangements on sharing basis will be made in NIH guest house on payment basis as per Institute rates. The participants will have to arrange for TA/DA from their own organization. A certificate will be given to all participants.

It is intended to register only a limited number of participants (25) for this training on first come first served basis after the registration fees have been paid. The interested participants are required to fill in the registration form online ([Click Here](#)) latest by **March 1st 2024**. The selected participants are requested to provide the proof of online payment of registration fee. An Institute/University identity card should be uploaded while submitting the application. For details about the mode of payment and further information, please contact the course coordinators.

VENUE

The training course is proposed to be held at the NIH, Roorkee.

ABOUT NIH

National Institute of Hydrology (NIH) is a premier Research and Development organization under the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. It was established as an autonomous society in 1978 with its headquarters at Roorkee, Uttarakhand. The main objectives of NIH are to undertake, aid, promote and coordinate systematic and scientific work in all aspects of hydrology and water resources management. The Institute was declared a Science and Technology (S&T) organization in 1987.

The Institute is an ISO 9001:2015 Certificated organization. Over the years, the Institute has grown as a centre of excellence for pursuing research activities in hydrology and water resources with emphasis on technology transfer and demand driven, user-defined, strategic research. The research in the Institute has been carried out under six scientific divisions at the headquarters at Roorkee, seven Regional Centres located at Belagavi, Bhopal, Jammu, Kakinada, Guwahati, Patna and Jodhpur. The institute has well equipped laboratories like Nuclear Hydrology Lab, Hydrological Instrumentation lab, Remote Sensing Lab and Water Quality Laboratories with state-of-the-art equipment. The institute pursues capacity development by way of organizing specialized training courses. For more information about NIH, please visit www.nihroorkee.gov.in.

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All correspondence related to the course should be made with the course coordinator