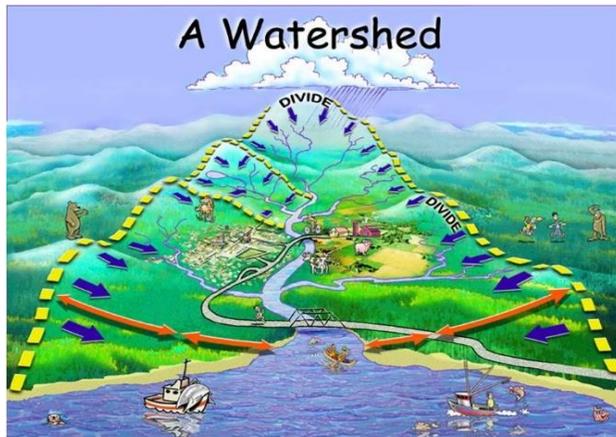


**TRAINING COURSE**  
**on**  
**ADVANCED TOOLS & TECHNIQUES**  
**FOR HYDROLOGICAL**  
**INVESTIGATIONS**

**(February 22 to 26, 2021)**



**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 vital 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 much 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. The accurate and reliable hydrological database is required for the 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 engineers, scientists and professionals working in the field of water resources and hydrology start adopting these techniques to improve their capabilities.

Among the latest techniques, application of environmental isotopes, google earth engine, remote sensing and GIS has increased dramatically. Isotope techniques can be used to measure groundwater recharge, a pattern of sedimentation in

water bodies, track pollution in groundwater, leakage and seepage from water bodies, measurement of hydrogeological parameters, origin and age of groundwater, surface water and groundwater interactions.

**COURSE CONTENTS**

The training course will consist of lectures by experts on advanced tools and techniques used in hydrology and water resources from Scientists and Professors with wide range of experience in the subject. Lectures will be followed by limited hands on sessions and tutorials in virtual mode. The course material would not only be useful for the participants but also serve as a reference for practicing hydrologists and engineers.

Broadly, the course shall be devoted to demonstration of different tools and techniques related to spring hydrology, isotopic analysis and hydrological modelling. Some case studies and a practical demonstration will be delivered through MATLAB, Google Earth Engine, remote sensing and GIS applications. Also, the application of SWAT shall be demonstrated for un-gauged micro-watershed. 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 (Engineers, Scientists, Policymakers & Academicians) of various governments, private organizations actively working in water resources

and agencies concerned with hydrological investigations, water resources planning and management. Masters students and research scholars are encouraged to attend this course.

## REGISTRATION

The registration fee per participant is as follows:

Govt. Employee	= Rs. 2,000/-
NGO's and PSUs	= Rs. 3,000/-
PG Students/Research Scholar	= Rs. 1,000/-

The fee includes the registration, course material and certificate.

It is intended to register only a limited number of participants (35) for this training program on a 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 **18<sup>th</sup> February 2021**. The selected participants are requested to provide the proof of online payment of registration fee. For details about the mode of payment, please contact the course coordinators. An Institute/University identity card should be uploaded while submitting the application. If needed, the intending participants may contact the course coordinators for further information.

## VENUE

The training course will be hosted by National Institute of Hydrology, Roorkee in a virtual mode during February 22 to 26, 2021.

## 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, four Regional Centres located at Belgaum, Jammu, Kakinada and Bhopal and two Centres for Flood Management Studies at Guwahati and Patna. The institute has well equipped laboratories like Remote Sensing Lab, Nuclear Hydrology 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](http://www.nihroorkee.gov.in).

## PATRON

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**All correspondence related to the course should be made with the course coordinators**