AMITY UNIVERSITY

YEARS OF IIT ROORKEE Estd 1847

HANDS-ON TRAINING PROGRAMME ON TOOLS & TECHNIQUES OF EXPERIMENTAL HYDROLOGY

Organized by:

Department of Hydrology, IIT Roorkee

MAY 24 – 30, 2022 | REGISTER: https://bit.ly/3vnhWti
(Last date to apply: 17th May 2022)

SPONSORED By

सत्यमेव जयते

विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Under

SYNERGISTIC TRAINING PROGRAM UTILIZING THE SCIENTIFIC & TECHNOLOGICAL INFRASTRUCTURE (STUTI)

Registration QR | For More Information

+919289394650 | dststuti@amity.edu

PATRON

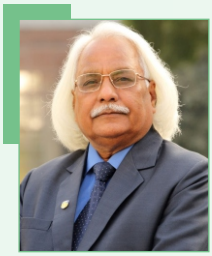
Prof. Ajit K. Chaturvedi
Director,
Indian Institute of Technology Roorkee
Roorkee

Dr. W. Selvamurthy
D.Sc., FAMS, FABMS, FIMSA, FIANS, FIAY
President - Amity Science, Technology & Innovation Foundation (ASTIF),
Director General - Amity Directorate of Science & Innovation
Chancellor, Amity University Chhattisgarh,
& Chair Professor for Life Sciences

ADVISORY BOARD

Prof. (Dr.) Ramesh Chandra
Professor & Head, Institute Instrumentation Centre Head, DST SAIF (EPMA) Facility,
Adjunct Faculty Centre of Nanotechnology
Indian Institute of Technology Roorkee,
Roorkee

Prof. (Dr.) Himanshu Joshi
FIE, MIAH, MIWRS, MIAEM, MIWA Fulbright Fellow (USA), Endeavour Executive Fellow (Australia),
Former Regional Coordinator (Asia),
Wetland Group, International Water Association,
Professor and Former Head, Department of Hydrology,
Indian Institute of Technology Roorkee, Roorkee



Prof. P. B. Sharma
FIE, FAeroS, FWAPS
Vice Chancellor
Amity University Gurgaon,
Haryana

Dr. V. K. Jain
Distinguished Scientist & Professor
Chairman, FRC (Sc. &Tech.)
Vice-President, Amity Science, Technology & Innovation Foundation (ASTIF)
Amity Institute of Advanced Research & Studies (Materials & Devices)
Amity Institute of Renewable and Alternative Energy

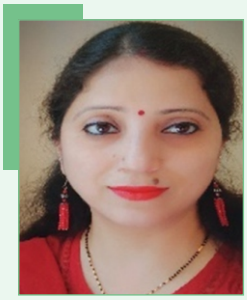
ORGANIZING
CHAIRPERSON

Dr. Brijesh Kumar Yadav
Professor and Head
Department of Hydrology, Indian Institute of Technology Roorkee, Roorkee

DoH
Department of Hydrology
1972-2022
Indian Institute of Technology, Roorkee

ORGANIZING
CO-CHAIRPERSONS

Prof. (Dr.) M. K. Jain
Professor
Department of Hydrology,
Indian Institute of Technology Roorkee



Dr. Renu Dhupper
Associate Professor
Amity Institute of Environmental Science,
Amity University, Noida

Dr. Shailendra Kumar Jain
Assistant Professor -III
Department of Civil Engineering,
Amity University Noida

ORGANIZING *COMMITTEE*

Dr. Shashi Ranjan
Project Associate
Department of Hydrology,
Indian Institute of Technology Roorkee,
Roorkee

Dr. Moushumi Hazra
Post-doctoral Fellow
Department of Hydrology,
Indian Institute of Technology Roorkee,
Roorkee

Sunil Yadav
Research Scholar
Department of Hydrology,
Indian Institute of Technology Roorkee,
Roorkee

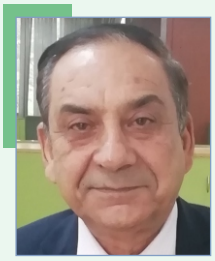
Nikunj Mangukiya
Research Scholar
Department of Hydrology, Indian Institute
of Technology Roorkee, Roorkee

Sana Dhamija
Research Scholar
Department of Hydrology, Indian Institute
of Technology Roorkee, Roorkee

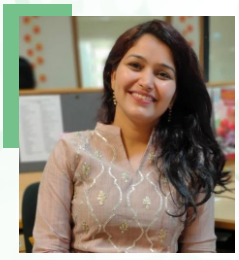
Abhishek Kumar
Research Scholar
Department of Hydrology, Indian Institute
of Technology Roorkee, Roorkee

Denzil Daniel
Research Scholar
Department of Hydrology, Indian Institute
of Technology Roorkee, Roorkee

AMITY - STUTI *COORDINATOR*

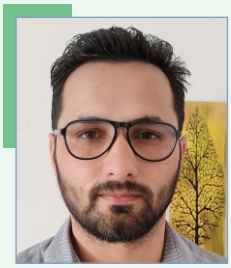


Brig. R K Sharma
Director
Amity Institute of Training
& Development



Shafali Kashyap
Assistant Director
Amity Foundation for Science Technology
and Innovation Alliances
Research Associate

AMITY PMU- *PROJECT TEAM*



Avinash Chauhan
Research Associate

Harjinder Kaur
Project Assistant

Digvijay Upraity
Project Staff

ORGANIZERS

IIT ROORKEE PARTNER INSTITUTION

IIT Roorkee became the seventh IIT of the country when 21 September 2001 the prestigious. University of Roorkee was converted into an IIT. Founded as Thomason College of Civil Engineering in 1847, this temple of learning, the oldest engineering institution in Asia and the first one in the then British Empire, is now 175 years old. The Institute offers 11 undergraduate courses in Engineering and Architecture and 51 postgraduate courses in different disciplines of Engineering, Architecture, Management and Sciences along with 5 Integrated Dual Degree, 3 Integrated M.Tech. & 3 Integrated M.Sc. programs. Ph.D. programs are conducted in all disciplines. IIT Roorkee possesses a unique environment congenial for research and development activities and the faculty has expertise in almost all the major fields of engineering and sciences. The Institute has 18 academic departments, one academic centre and 3 centres of excellence. Modern centralized facilities exist at the Institute, including a Computer Centre, Information Super-Highway Centre and Instrumentation Centre. The Institute's Central Library and the libraries of several national institutes located at Roorkee provide priceless technical literature, seldom available at any other engineering centre in the country.

AMITY UNIVERSITY PROJECT MANAGEMENT UNIT

RESEARCH AND INNOVATION-DRIVEN UNIVERSITY

Amity University Uttar Pradesh (AUUP) has been awarded the STUTI program as a Project Management Unit (PMU) by the Department of Science & Technology (DST) to conduct 07 days of residential hands-on training on the state-of-the-art equipment, fully sponsored by DST.

Amity Education Group is India's largest education group having 12 Indian Universities and 14 international campuses with a strong focus on research & innovation in the diverse areas of Science & Technology. Amity University aims to become the ideal platform for scientists, researchers, and academicians to transform their ideas into success and develop their potential. Bringing together this vast community of scholars for cutting-edge research, Amity University is committed to impacting the development and global image of India in research and innovation.

Amity education group has more than 3000 strong distinguished faculty members trained in reputed National & International research Institutes. We have more than 30 brilliant Scientists from diverse places across the globe who have received various prestigious fellowships like DBT/India Alliance Wellcome Trust Early Career Fellowship, DBT Ramalingaswami Fellowship, SERB-Ramanujan Fellowship, DST-Inspire Faculty Fellowship to name a few. These highly qualified Bright Brains are mentoring more than 100 blooming brains who are pursuing their Ph.D. with prestigious fellowships.

Amity research ecosystem includes world-class research infrastructures with high computing facilities and Scanning Electron Microscope, FT-IR, High-Performance Liquid Chromatograph, Gas Chromatograph, Fermenter, etc. funded by various national and international grants. Centres of Excellence have been established in niche areas of Science & Technology. In addition, more than 12 research clusters in areas of great national and international importance are effectively functioning to act as a force multiplier in the Amity Group.

DST – STUTI SCHEME

The Scheme 'Synergistic Training program Utilizing the Scientific and Technological Infrastructure' (STUTI) is intended to build human resource and knowledge capacity through open access to S&T Infrastructure across the country. As a complement to the various schemes of DST funding for expansion of R&D Infrastructure at academic institutions, the STUTI scheme envisions a hands-on training program and sensitization of the state-of-the-art equipment as well as towards sharing, while ensuring transparent access to S&T facilities.

HIGHLIGHTS *OF THE PROGRAMME*

Skills and knowledge of the high-end instruments are the prerequisites of the quality research. The training programme under the DST scheme "STUTI" is intended to build knowledge capacity through effective training modules and sensitization towards the sophisticated facilities developed at Department of Hydrology at IIT Roorkee. The emphasis of this training is to impart an in-depth understanding of the fundamental of the various techniques and instruments used in the different facets of hydrology. This training will provide the participants to get acquaintance with the operation of high-end instruments and their proper handling and maintenance. This training programme is tailor-made for researchers and professionals working in the area of water resources with proper classroom sessions and hands-on training on the instruments. The programme is designed to bridge the knowledge gap and to provide exposure to the young researchers/faculty for on high-end research infrastructure.

OBJECTIVE OF PROGRAMME

- To build human resources and its knowledge capacity through open access to S & T Infrastructure across the country through hands-on training programs by:
- Enhancing awareness of the use and application of state-of-the-art equipment.
- Sharing while ensuring transparent access to S&T facilities funded by DST

WHO SHOULD ATTEND?

The training is organized to enhance the practical skills of Post Graduate students, Research Scholars, Faculty Members from Universities/Colleges, Scientists, and Post-Doctoral Researchers who are working in multidisciplinary/ transdisciplinary and translational research in various organizations.

Eligibility:

- Person of Indian Origin
- Min. Qualification should be Post Graduate (Science) or B.Tech.(Technology)
- Professor /Scientist / Post-Doctoral Fellows / Phd. Fellow / Industry person who are actively involved in R&D

WHY SHOULD YOU ATTEND?

Discover the state-of-the-art R&D infrastructure and facilities funded by DST and held by various R&D institutions / Universities in the country.

- Gain hands-on experience in research through the latest S&T equipment and facilities.
- Design experiments by selecting appropriate/ alternate equipment for the various experiments.
- Connect with the R&D Organisations / Universities / Private Sector facilities / Start-ups/ MSMEs involved in research & development.

LEARNING OUTCOMES OF THE PROGRAM

The Training course aims to equip the participants with knowledge and skills required to support high quality research in their respective domains. Increased theoretical and practical knowledge through sophisticated high-end research infrastructure.

COST OF THE PROGRAM

- This training is sponsored by the DST STUTI program.
- For domestic travel of participants and faculty, the reimbursement for the **A/C train ticket or Deluxe Bus (only for outstation candidates/faculty) will be provided.**
- Accommodation will be provided as per the availability in the hostel. Accommodation requests should be made at least **5 days before the commencement of the training program.**

ABOUT DEPARTMENT OF HYDROLOGY

The Department of Hydrology is one among the 21 academic departments of the Indian Institute of Technology Roorkee. The Department came into existence with the inception of the International Post Graduate Course in Hydrology in 1972, being the first such a programme in a developing country. The Department has various laboratories covering all the aspects of hydrology, includes environmental hydrology laboratory, Advance membrane research laboratory, ground water laboratory, geophysical investigation laboratory, watershed hydrology laboratory and hydro-meteorological observatory. The environmental hydrology laboratory in-house water quality instruments like UV-VIS and Atomic absorption spectrometer, GC-MS, Ion Chromatograph, Total Organic Carbon analyser, Microwave digester, Fluorescence microscopy and FTIR for research and teaching. The groundwater and geophysical investigation laboratories are having instruments like Permeameter, Multi-dimensional sand tanks for transport studies and terrameter, for groundwater qualitative and quantitative studies. The watershed hydrology laboratory in-house pressure plate apparatus and tilting flow channel to study the behaviour of flow in an open channel. The department of hydrology has its own hydro-meteorological observatory to record all the weather data continuously for research purpose. During the training the participants will have the access to following sophisticated instruments:

1. Atomic Absorption Spectrophotometer (AAS):

AAS is a common technique for quantifying metals in a wide variety of samples. As an analytical technique, it uses electromagnetic wavelengths, coming from a light source. Distinct elements will absorb these wavelengths differently. It gives a picture of what concentrations of a specific element there is in whatever material, or liquid, is being tested.

Learning out comes

1) Understanding the theory and working principle of.
2) Learning the operational procedure to use AAS.
3) Gaining knowledge to prepare samples for AAS and measuring concentration in aqueous samples.

2. Ion Chromatograph

Ion chromatography systems separate charged particles from a liquid and measure their concentration. IC systems can analyse particles such as anions, cations, organic salts, and proteins.

Learning out comes

1. Understanding the theory and working principle of IC.
2. Learning about how to use IC for analytical purposes.
3. Gaining knowledge to use IC in research and quality control.

3.Total Organic Carbon Analyzer (TOC):

A total organic carbon measures the amount of total organic carbon present in a liquid or water sample.

Learning out comes

1. Understanding the theory and working principle of Total Organic Carbon Analyzer.
2. Learning the standard operating procedures to operate the TOC.
3. Learning the application of TOC in different area of hydrology.

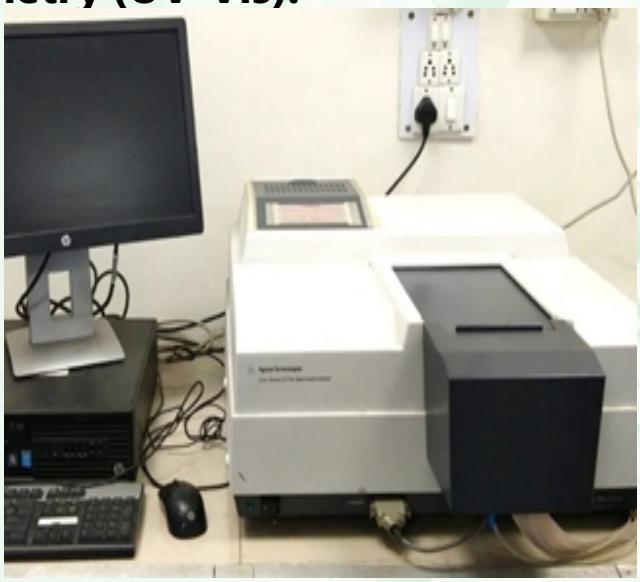
4. Fluorescence Microscopy:

Used to resolve the detailed structure of specific objects within the cell. It has a wide scope in cancer biology and pathology

Learning out comes

1. Understanding the theory and working principle of fluorescence microscope.
2. Learning the operational procedure to use fluorescence microscope.
3. Gaining knowledge to use fluorescence microscope in the emerging fields of biochemical and biological sciences.

5. Ultraviolet-visible Spectrophotometry (UV-Vis):



UV-Vis spectrophotometry is a technique used to measure light absorbance across the ultraviolet and visible ranges of the electromagnetic spectrum. UV-Vis spectrophotometers are able to determine the concentration of specific analytes in a microvolume by controlling the analysis wavelengths and the pathlength.

Learning out comes

1. Understanding the theory and working principle of Ultraviolet-visible Spectrophotometry.
2. Learning the operational procedure to prepare standard curves and measuring concentration of unknown samples.

6. Tilting Flow Channel:

The equipment is designed to study the various phenomenon of flow with the help of various types of blocks, gates, weirs, and other many types of accessories.

Learning out comes

1. Understanding the application of flow channel in hydrology.
2. Learning the operational procedure to determine the flow characteristics of open channel and also to study the hydraulic jump.

7. Pressure Plate Apparatus:

Used to prepare the soil moisture retention curve. The curves relate the soil suction, at which moisture is held by the soil to its moisture content. This relationship is important in studies of soil moisture movement and of quantity and availability of soil moisture for plant growth.

Learning out comes

1. Understanding the application pressure plate apparatus in soil physics.
2. Learning the operational procedure to determine the soil moisture retention curve and its application in soil moisture movement and irrigation.

7. Terrameter :

ABEM Terrameter is a state-of-the-art data acquisition system for resistivity and time-domain induced polarization (IP). The electrical sounding infers variation of resistivity with depth from a given point on the ground for near-horizontal layers of formation below. The method is useful for determining loose horizontal overburden thickness over hard rocks in river valleys and groundwater projects.

Learning out comes

1. Understanding the theory and working principle of terrameter and its application in Vertical Electrical Sounding.
2. Learning the operational procedure of terrameter for groundwater prospecting.

REGISTRATION/APPLICATION

Participants are required to apply for the training program online at **https://bit.ly/3vnhWti** or scan the QR code provided at the end.

The application deadline is **May 17, 2022.**

SELECTION OF THE PARTICIPANTS

The applications will be scrutinized by the STUTI training program selection committee and the decision of the committee will be final. Selected candidates will be informed through e-mail. The seats in the training program are limited.

TRAINING PROGRAM SCHEDULE

Day	Time		Programme
	Start	End	
24-May-22 Tuesday DAY I	09:00AM	10:00AM	Inauguration of the training programme
	10:00AM	11:30 AM	Introduction of Participant & Interactive Session
	11:30 AM	11:45 AM	Networking Tea
	Hydrometeorology Observatory		
	11:45AM	12:45PM	Classroom session on Hydrometeorology Observatory
	12:45PM	12:00PM	Interactive Session
	01:00PM	02:00PM	Lunch
	02:00PM	03:15 PM	Visit to the Hydrometeorology Observatory
	03:15PM	03:30PM	Networking Tea
	03:30 PM	05:00PM	Classroom session on different parameters of Hydrometeorology Observatory
Environmental Hydrology Laboratory			
25-May-22 Wednesday DAY II	09:00AM	10:00AM	Classroom session for Environmental Hydrology Lab.
	10:00AM	10:15AM	Interactive Session
	10:15AM	11:15AM	Hands-on Training on UV-Vis spectrophotometer
	11:15AM	11:30AM	Interactive Session
	11:30AM	11:45AM	Networking Tea
	11:45AM	12:45PM	Hands-on Training on Ion Chromatograph equipment
	12:45PM	01:00PM	Interactive Session
	01:00PM	02:00PM	Lunch
	02:00PM	03:00PM	Hands-on Training on Total Organic Carbon analyser
	03:00PM	03:15PM	Interactive Session
	03:15PM	04: 30 PM	Hands-on Training on Microwave digester /Fluorescence microscopy
	04: 30 PM	04: 45 PM	Networking Tea
	04: 45 PM	05:30PM	Classroom session for Environmental Hydrology Lab
	05:30PM	06:00PM	Interactive Session
Groundwater Laboratory			
26-May-22 Thursday DAY III	09:00AM	10:00AM	Classroom Session on Groundwater Laboratory
	10:00AM	10:15AM	Interactive Session
	10:15AM	11:15AM	Hands on training on atomic absorption spectroscopy
	11:15AM	11:30AM	Interactive Session
	11:30AM	11:45AM	Networking Tea
	11:45AM	12:45PM	Hands-on training on Permeameter
	12:45PM	12:00PM	Interactive Session
	01:00PM	02:00PM	Lunch
	02:00PM	03:00PM	Hands-on Training on multi-dimensional sand tanks and columns
	03:00PM	03:15PM	Interactive Session
	03:15PM	04:15PM	Hands-on Training on sieve Shaker
	04:15PM	04:30PM	Networking Tea
	04:30PM	05:30PM	Classroom Session on Groundwater Laboratory
	05:30PM	06:00PM	Interactive Session

Day	Time		Programme
	Start	End	
Geophysical Investigation Laboratory			
27-May-22 Friday DAY IV	09:00AM	10:00AM	Classroom Session on Geophysical Investigation
	10:00AM	10:15AM	Interactive Session
	10:15AM	11:15AM	Classroom Session on Vertical electrical Sounding
	11:15AM	11:30AM	Interactive Session
	11:30AM	11:45AM	Networking Tea
	11:45AM	12:45PM	Demonstration on Vertical Electrical Sounding
	12:45PM	12:00PM	Interactive Session
	01:00PM	02:00PM	Lunch
	02:00PM	03:00PM	Classroom Session on Well Test
	03:00PM	03:15PM	Interactive Session
	03:15PM	04:15PM	Classroom Session on Geophysical Investigation
	04:15PM	04:30PM	Networking Tea
	04:30PM	05:30PM	Visit to Institute Instrumentation Centre
	05:30PM	06:00PM	Interactive Session
Field Visit			
28-May-22 Saturday DAY V	09:00AM	10:00AM	Briefing on field visit
	10:00AM	10:15AM	Interactive Session
	10:15AM	06:00PM	Field Visit
Watershed Hydrology Laboratory			
29-May-22 Sunday DAY VI	09:00AM	10:00AM	Classroom Session on Watershed hydrology Lab.
	10:00AM	10:15AM	Interactive Session
	10:15AM	11:15AM	Soil Infiltration Testing
	11:15AM	11:30AM	Interactive Session
	11:30AM	11:45AM	Networking Tea
	11:45AM	12:45PM	Demonstration on Pressure Plate Apparatus
	12:45PM	12:00PM	Interactive Session
	01:00PM	02:00PM	Lunch
	02:00PM	03:00PM	Hydraulic Jump - Tilting Flow Channel
	03:00PM	03:15PM	Interactive Session
	03:15PM	04:15PM	Flow Coefficients, States and Characteristics in Venturi Flume
	04:15PM	04:30PM	Networking Tea
	04:30PM	06:00PM	Career/ Research Counselling
Advance Membrane Research Laboratory			
30-May-22 Monday DAY VII	09:00AM	10:00AM	Demonstration and training on Electro -spinner
	10:00AM	10:15AM	Interactive Session
	10:15AM	11:15AM	Demonstration on Hollow Fibre Membrane Casting Unit
	11:15AM	11:30AM	Interactive Session
	11:30AM	01:30PM	Test and Feedback
	01:30PM	02:30PM	Lunch
	02:30PM	03:30PM	Assessment and mentoring
	03:30PM	06:00PM	Valedictory & Certificate Distribution

AMITY UNIVERSITY

Registration QR

For More details:

HOD Office, Department of Hydrology, IIT Roorkee
Email: *head@hy.iitr.ac.in* | **Mob:** *+91-1332-285236*

For More Information

For More details and Queries about the STUTI Program

Contact Number: *+919289394650* | **Email Id:** *dststuti@amity.edu*