



# National Institute of Hydrology, Roorkee

DoWR, RD & GR, MoJS, Govt. of India

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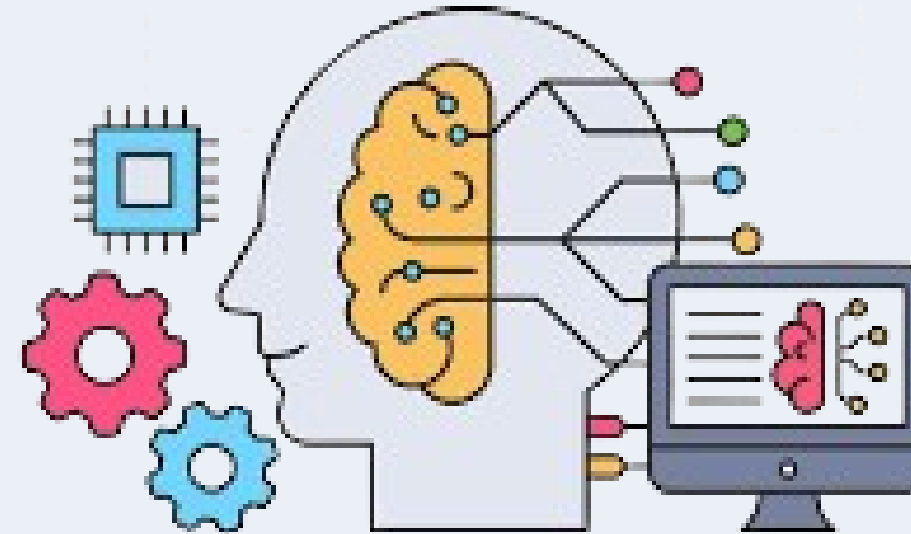
Training Course on

## MACHINE LEARNING

TECHNIQUES FOR SUSTAINABLE WATER RESOURCES MANAGEMENT

DATE: AUGUST 24-28, 2026 (PHYSICAL MODE ONLY)

A development course to set you up for success at work



MACHINE LEARNING

### REGISTRATION FEE

The number of participants for the training program is proposed to be limited to 25 on a first-come, first-served basis. The training course will be a paid program, and the registration fee per participant is as follows:

- Students/Research Scholars: INR 8,000/-
- Govt. organisation/PSUs: INR 11,000/-
- Private/NGOs/Industry: INR 12,000/-

Account Name: NIH PROJECT  
Account No.: 4044 0001 0017 4852  
Bank: PUNJAB NATIONAL BANK (PNB)  
Branch: IIT ROORKEE  
IFSC Code: PUNB0404400

The registration fee includes a registration kit, working lunch, session teas, and a field visit. Accommodation will be provided in the NIH guest house on payment basis. On the successful completion of training, the participants will be awarded with the training certificates

**Registration Link :** [Click here for the registration link](#)

- Interested participants must complete the online registration form by 15th August 2026 using the link provided. Upon acceptance, a confirmation email with payment instructions will be sent. Participation will be confirmed only after the registration fee is received.

### PATRON

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### Course Convenor

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### Course Coordinator

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## INTRODUCTION

Sustainable Water Resources Management (SWRM) aims to ensure the availability, quality, and equitable distribution of water resources for present and future generations while maintaining ecological balance. By employing ML techniques such as Extreme Gradient Boosting (XGBoost), Adaptive Boosting (AdaBoost), Bayesian Network, Support Vector Machines (SVM), Random Forests, Gaussian Process Regression (GPR), and Extra Trees, water resource professionals can address a wide range of issues such as forecasting streamflow and rainfall, predicting groundwater levels, mapping flood and drought risk, monitoring water quality, and optimizing irrigation systems.

## COURSE CONTENT

The broad course content for the five-day training program is given below

- Introduction to Python, different notebooks (e.g., Colab, Jupyter) and key Python libraries
- Accessing open data sources and downloading data using Python techniques
- Introduction to machine learning concepts and applications
- Data preprocessing and preparation for different machine learning models
- Data lagging techniques for time series and sequential data
- Criteria for input feature selection in machine learning models
- Model building using unsupervised machine learning techniques
- Model building using Supervised machine learning techniques
- Data visualization using various tools and techniques
- Evaluation and Assessment criteria for machine learning models
- Explainable Artificial Intelligence (XAI) techniques and their applications

## ABOUT NIH

The National Institute of Hydrology (NIH), established in 1978 and headquartered in Roorkee, Uttarakhand, is a premier R&D organization under the Ministry of Jal Shakti, Government of India. Recognized as a Science and Technology (S&T) organization since 1987, NIH focuses on scientific research in hydrology and water resources management. It is an ISO 9001:2015 certified institute with six scientific divisions, seven regional centres, and state-of-art laboratories. NIH also conducts specialized training programs to build capacity in the water sector. Visit [www.nihroorkee.gov.in](http://www.nihroorkee.gov.in) for more details.

**Organized by**  
**Groundwater Hydrology Division**