



## ABOUT THE INSTITUTE

National Institute of Technology (NIT), Rourkela, was founded as Regional Engineering College, Rourkela, in 1961. It is a prestigious Institute with a reputation for excellence at both undergraduate and postgraduate levels, fostering the spirit of national integration among the students, close interaction with industry and a strong emphasis on basic and applied research. It has been consistently ranked within the TOP 20 engineering institutes for five consecutive years as per MHRD's NIRF Ranking, Govt. of India

Website: [www.nitrkl.ac.in](http://www.nitrkl.ac.in)



## About the Department

The Department of Civil Engineering Started its journey in 1961. Ever since the inception, it has been imparting quality education to undergraduate Students. The department presently Fosters four PG courses. There are about a dozen laboratories with various research and testing facilities. The faculty consists of eminent specialists from diverse fields, and there is a commendable research ambience in the department.

### Patron

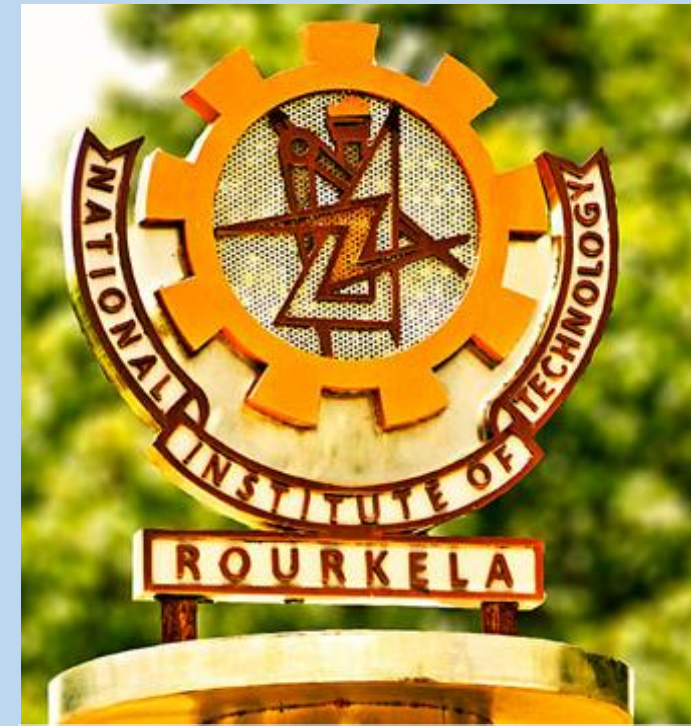
**Prof. K. Umamaheshwar Rao,**  
Director, NIT Rourkela

### Chairperson

**Prof. Suresh Prasad Singh**  
Head, Civil Engineering Department,  
NIT Rourkela

### Convenor

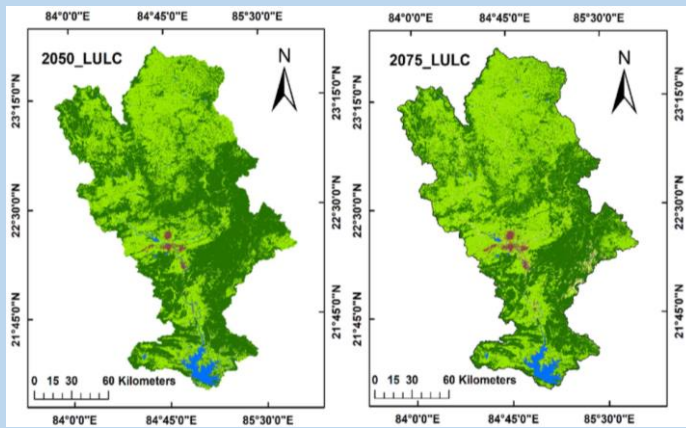
**Dr. Ratnakar Swain**  
Assistant Professor, NIT Rourkela



## A 5-Day Workshop on Hydrological Modelling using Climate Change Data (HMCCD-2025)

(18 - 22 February 2025) (HYBRID MODE)

Department of Civil Engineering,  
National Institute of Technology,  
Rourkela



## ABOUT HMCCD-2025

HMCCD is an excellent platform for students, researchers, faculties, industry persons, professionals, and Hydrologists to gain knowledge on applications of different computational tools in Water Resources Engineering. Only theoretical knowledge is not sufficient to work in real-field problems. Therefore, this workshop/training mainly focuses on hands-on training on different computational tools for field applications related to water resources engineering. Watershed delineation, LULC map preparation, remote sensing application, satellite image processing, Climate Change Projections, Rainfall-runoff simulation, Sediment yield prediction, Non-point source nutrient load estimation, Downscaling and Bias Correction of Climate Change Data, are such areas of Water resources engineering, which require a thorough knowledge of relevant software and their working. Thus, the main objective of the proposed workshop is hands-on training on some of the essential software used in Water Resources Engineering.

### Convenor

Dr. Ratnakar Swain, Asst. Professor

[swainrk@nitrkl.ac.in](mailto:swainrk@nitrkl.ac.in), 96681-20536

Department of Civil Engineering, NIT Rourkela

## COURSE CONTENT

### Day-1: Technical background

- ❖ Keynote Lecture on basics of hydrological modelling using climate change data
- ❖ Technical background of ArcGIS, SWAT, and DYNA-CLUE models.
- ❖ Data downloading and software installation.

### Day-2: Hands-on training on climate change data

- ❖ Climate change data downloading, downscaling and bias correction using **MatLab/R/python**.
- ❖ Selection of **best GCMs** to project climate change data using Compromise programming and Rating metric method.
- ❖ Multimodal ensemble-based approach in climate change projection.

### Day-3: Hands-on training on future LULC

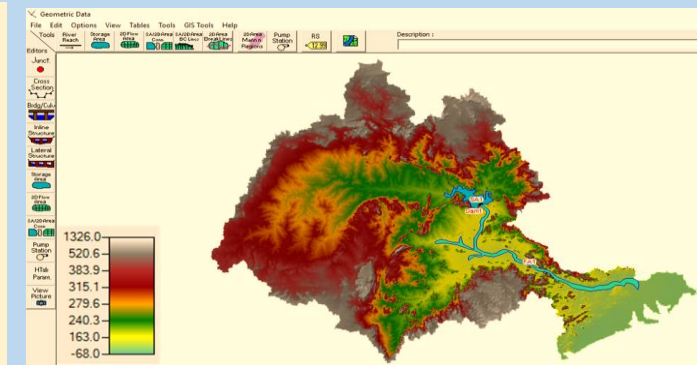
- ❖ Watershed delineation, Shape file preparation, LULC preparation.
- ❖ Future LULC preparation using **DYNA-CLUE** software.

### Day-4: Hands-on training on SWAT Model

- ❖ Input data preparation for **SWAT** modelling (e.g. LULC, Soil Map preparation, DEM).
- ❖ Rainfall-runoff simulation using SWAT.
- ❖ Sediment yield and nutrient load estimation using SWAT.

### Day-5: Hands-on training on SWAT-CUP & BMPs

- ❖ Calibration and Validation of SWAT model using **SWAT-CUP**.
- ❖ Evaluation of Best Management Practices (**BMPs**) mitigating the nonpoint source pollution using SWAT Model.



## REGISTRATION

The participant can register in the google form <https://forms.gle/FNNMkPeFrzE1pxoE7>

### Registration Fee (Including 18% GST)

Student (Online)	3000/-
Student (Offline)	5000/-
Industry/ Working Professional (Online)	5000/-
Industry/ Working Professional (Offline)	8000/-

Registration fee includes kit, study material, certificate, working lunch and refreshment.

## ACCOMMODATION

Accommodation on payment basis will be available in NIT Guest House as per the availability.

*Registration fee can be paid online via NEFT/RTGS/IMPS using the following information:*

**Name: CONTINUING EDUCATION NIT ROURKELA**  
**A/C No.: 101 389 517 84**  
**Bank: State Bank of India**  
**Branch: NIT Campus Rourkela**  
**IFSC Code: SBIN0002109**

## IMPORTANT DATES

Last date for registration	Feb 12, 2025
Confirmation mail	Feb 15, 2025
Workshop dates	Feb 18-22, 2025

*For more Information, visit*

<https://sites.google.com/view/hmccd-2025/home>