

TechXchange 2025-27

(Series of Knowledge Sharing Sessions)

Hands-on-Training Programme on
**Mastering Rock Tunnel Design and Analysis
with Advanced Geotechnical Software Tools
from Rocscience**

Date : 14-15 January 2025 (Tuesday – Wednesday)
Venue: At CBIP, Malcha Marg, Chankyapuri New Delhi



Organized by



Central Board of Irrigation & Power



ISRM (India)

in Association with



INTRODUCTION

Rock tunnels are critical components of infrastructure development, requiring precision in design and analysis to ensure safety, efficiency, and long-term stability. As geotechnical challenges grow in complexity, advanced software tools have become indispensable in addressing these needs.

This two-day Hands-on Training Programme is designed to equip engineers, geotechnical professionals, and researchers with the expertise to master the design and analysis of rock tunnels using cutting-edge geotechnical software tools from Rocscience. Participants will gain practical experience in applying these tools to real-world scenarios, enhancing their ability to deliver robust and efficient solutions.

Led by industry experts, this programme provides a unique opportunity to explore best practices, learn advanced techniques, and deepen your understanding of geotechnical software applications in rock tunnel engineering. Whether you're involved in planning, design, or execution, this training will empower you to tackle complex tunnelling challenges with confidence.

KEY HIGHLIGHTS

- Hands-on training sessions with Rocscience software, including RocTunnel3, RS2, RS3, RocSupport, UnWedge and RSData
- Real-world case studies to bridge the gap between theory and practice.
- Expert-led tutorials and interactive problem-solving exercises.
- Comprehensive coverage of critical topics, including stability analysis, support design, and excavation modelling.

WHO SHOULD ATTEND?

This training programme is ideal for:

- Civil and geotechnical engineers as well as engineering geologists involved in tunnel design and construction.
- Researchers and academicians in geotechnical engineering and rock mechanics
- Project managers and consultants working on underground infrastructure projects.
- Professionals interested in advancing their skills in geotechnical software applications.

TENTATIVE SCHEDULE

The Training Programme is designed to provide participants with practical experience in utilising state-of-the-art geotechnical software for rock tunnel projects. This comprehensive two-day course will cover the following software tools:

- **RocTunnel3** : A 3D rock stability analysis tool for underground excavations, enabling staged block stability evaluation and support design in complex geological settings.
- **RS2** : A 2D finite element program for soil and rock applications, used for excavation design, slope stability, and more.
- **RS3** : A complete 3D geotechnical finite element software package for rock and soil, applicable in excavation and tunnel design.
- **RocSupport** : A tool for estimating deformation in circular or near-circular excavations in weak rock, visualizing tunnel interaction with various support systems.
- **UnWedge**: A 3D stability analysis and visualization software for underground excavations in rock containing intersecting structural discontinuities.
- **RSData** : A versatile toolkit for analyzing rock and soil strength data, determining strength envelopes and other physical parameters.

TENTATIVE SCHEDULE

Day 1

- **Morning Session:**
 - Introduction to Rock Tunnel Design and Analysis: Overview of geotechnical considerations in rock tunnelling.
 - Hands-on with RocTunnel3: Building 3D models, conducting block stability analysis, and designing support systems.
- **Afternoon Session:**
 - Stability Analysis using UnWedge: Assessing wedge stability in underground excavations with intersecting discontinuities.
 - Estimating Deformations with RocSupport: Utilising ground reaction curves for deformation estimation in weak rock.

Day 2

- **Morning Session:**
 - RS2 for Tunnel Applications: 2D finite element modelling for excavation design and stability assessment.
 - RS3 in Tunnel Design: Transitioning from 2D to 3D analysis for comprehensive geotechnical evaluation.
- **Afternoon Session:**
 - Material Strength Analysis with RSData: Analysing rock and soil strength data to determine strength envelopes.
 - Integrated Case Studies: Applying multiple software tools to real-world tunnel design scenarios.

This training program aims to equip engineers and geotechnical professionals with the skills necessary to effectively utilise advanced software tools in rock tunnel design and analysis, enhancing both safety and efficiency in their projects.

DATES & VENUE

The date for the event is 14 - 15 Jan. 2025 (Tuesday - Wednesday) at CBIP Hall, (1st Floor), CBIP Building, Malcha Marg, Chanakyapuri, New Delhi

OFFICIAL LANGUAGE

The official language for the event is English.

REGISTRATION FEE*

- The registration fee for participation is Rs.12,000/- per participant.
- There would be discounted fee of Rs.10,000/- per participant, applicable for Members of CBIP & ISRM.
- 50% discount in the fee will be applicable for Young Participants (upto 35 years of age)

*GST 18% will be charged extra on Registration fee.

The registration fee includes registration kit, working lunch, tea/ coffee during the event only. The participants will have to make their own arrangement for boarding and lodging, transport, etc.

- The registration fee includes temporary licenses (full version) of these software for 15 days
- The participants must bring their laptops.

Spot registration facility will also be available provided prior Information is received.

PAYMENTS

The payment related to the event is to be remitted either through cheque in favour of ISRM or through bank transfer to the following account:

Name of Bank : Canara Bank Address : Delhi Diplomatic Enclave, 7/48, Malcha Marg, Chanakyapuri, New Delhi 21
Account No. : 0157101031512, MICR Code No. 110015007 Account Holder's Name THE COMMITTEE OF THE ISRM
IFSC Code CNRB0000157, Swift Code CNRBINBDBFS

Bank charges if any, must be borne by the participants and should not be deducted from the amount remitted.

Once the payment is done, please share the screen short along with registration form.

OPPORTUNITIES FOR SPONSORSHIP

Scope exists for organizations to be the Sponsor on lump sum payment with following attendant benefits:

Platinum Sponsor : Rs. 3,00,000/-	Gold Sponsor : Rs. 2,00,000/-	Silver sponsor : Rs. 1,00,000/-
<ul style="list-style-type: none">• 10 delegate passes for participation• Company logo on main banner• Announcement - Thanking sponsor• Circulation of Company Literature• Speaking Opportunity• Complimentary Advertisement in the Key Journal Published immediately after the event covering report of the event• Special Invite to the head of organization.	<ul style="list-style-type: none">• 05 delegate passes for participation• Company logo on main banner• Announcement -Thanking sponsor• Circulation of Company Literature• Speaking Opportunity• Complimentary Advertisement in the Key Journal Published immediately after the event covering report of the event	<ul style="list-style-type: none">• 03 delegate passes for participation• Company logo on main Banner• Announcement - Thanking sponsor• Circulation of Company Literature

OPPORTUNITIES FOR TABLE TOP DISPLAY

Limited Slots are available @ Rs. 50,000/- Plus GST, for display of products, services & Innovations.

SECRETARIAT

All correspondence relating to the event should be addressed to:

Shri A.K. Dinkar, Secretary, CBIP & Member Secretary, ISRM

Shri K.K. Singh, Director (WR), CBIP and Treasurer, ISRM, E-mail: kksingh@cbip.org

C/o CBIP, Plot No. 4, Institutional Area, Malcha Marg, Chanakyapuri, New Delhi-110 021

Phone: 91-11-26115984 / 26116567; Fax: 91-11-26116347, Website: www.cbip.org

Contact Person: Shri Vishan Dutt, Adviser, CBIP, M: 9811431554, E-mail: vishandutt@cbip.org

Shri Akshay Dewan, Manager (Energy) CBIP, M: 9810291211, E-mail: akshay@cbip.org

Ms. Meenakshi, CBIP Secretariat, M:, E-mail: meenakshi@cbip.org



TRAINING PROGRAMME INSTRUCTOR



Dr. Manoj Verman

Tunnelling and Rock Engineering Expert

Dr Manoj Verman is a renowned expert in tunnelling and rock engineering, with decades of experience in the geotechnical field. A former Vice President of the International Society for Rock Mechanics (ISRM) and a past President of the Indian National Group of ISRM, Dr Verman has played a pivotal role in advancing rock mechanics and tunnelling practices in India and internationally. He is currently on the International Advisory Forum of ISRM.

As a consultant and trainer, Dr Verman has contributed to several prestigious infrastructure projects. He has also been instrumental in promoting the use of cutting-edge geotechnical software in tunnel and slope engineering, helping engineers and organisations optimise their designs and enhance project outcomes.

Dr Verman's engaging teaching style, combined with his practical insights and extensive technical knowledge, ensures that participants leave with valuable skills and actionable insights to excel in their geotechnical careers.

REGISTRATION FORM

1. Name _____
(First Name) (Middle Name) (Surname)
2. Position _____
3. Organization _____
Address _____
5. City _____ PIN _____
6. Mobile No. _____
7. E-mail ID _____
8. Bank Draft No./ Online Bank Transaction ID _____ dated _____
_____ for Rs. _____ is enclosed.
9. I intend to participate in the deliberations of the event.

(Signature)

Place: _____

Date : _____

SECRETARIAT

CBIP, Plot No. 4, Institutional Area, Malcha Marg, Chanakyapuri, New Delhi-110 021
Phone: 91-11-26115984 / 26116567