

Hands on Training on Mastering 3D Finite Element Analysis in Urban Excavation and Tunnels Engineering for Resilient Urban Infrastructure

12-13 August 2025, (Tuesday & Wednesday), CBIP, New Delhi



Organized by

in association with



Tunnelling Association of India



Central Board of Irrigation & Power



INTRODUCTION

Underground geotechnical engineering deals with analysis and design of structures of soil and rock foundations built below ground's surface such as tunnels, shafts, basements and underground metro stations. Due to complex nonlinear behaviour of soils and rocks and their interaction with underground structures, numerical analysis particularly through Finite Element Method (FEM) has become an indispensable tool in modern geotechnical engineer's toolkit.

Numerical analysis is a critical tool in tunnel and excavation engineering, especially in complex urban metro and road transit projects. It allows engineers to simulate, predict, and optimize the behaviour of soil, rock, and underground structures during and after excavation. This is especially important in congested cities where ground conditions are variable, and risks are high. 3D Numerical modelling is not optional – it's a technical necessity for safe, efficient, and sustainable tunnel and excavation engineering in transport infrastructure projects. In a high-risk, high-density urban environment, it allows engineers to simulate the unseen, control the uncertain, and deliver infrastructure with confidence.

We're pleased to announce that CBIP in proud association with MIDAS India is organizing a dedicated 2-days hands-on training on 3D numerical analysis of geotechnical and geo-structural problems pertaining to tunnels and underground excavations. This training program provides hands-on experience on MIDAS GTS-NX software to easily tackle complex 3D numerical modelling and FEM analysis of deep underground excavation and tunnel intersection problems by simulating nonlinear soil and rock behaviour, create 3D geometries, meshing, support conditions and creating construction stages sequence for detailed analysis. This training will equip the participants to understand key details required to interpret analysis results for optimized designs for a safe and resilient infrastructure.

KEY TAKEAWAYS FROM TRAINING PROGRAM

- Understanding problem statements on deep underground excavations and tunnel systems for detailed FEM analysis.
- Use CAD based commands to draw 3D ground layers, excavation areas, retaining structures, water levels, tunnel systems with rock supports.
- Defining constitutive material models and section properties of soil, rocks and concrete and steel structures which match with real site conditions.
- Leveraging advanced mesh types to generate high quality meshes simulating accuracy and compatibility around critical sections.
- Utilizing soil-structure interaction interface options to simulate nonlinear contact and apply boundary conditions.
- Stage analysis of excavation sequences and tunnel construction.
- Interpretation of FEM analysis results at each construction stage (including in-situ and post construction effects); deformations, forces, stresses on ground, structures and tunnel support systems. Employing contours, tables and graphical tools for smart extraction of desired results.
- Generation of high quality and intuitive 3D PDF results report.

WHO CAN ATTEND

- Geotechnical and Tunnel Engineers, Professionals, Consultants from private and public sector.
- Post graduate students, research scholars from Civil, Tunnel, Geotechnical related fields.
- Faculties from Civil Engineering Department

GIVEAWAY

- Certificate of Participation issued by MIDAS and CBIP
- MIDAS GTS-NX Software Trial License for 15 days
- MIDAS GTS-NX Software tutorial prints on 3D excavation and tunnel analysis
- Steep learning through technical interaction on geotechnical challenges and live hands-on training on designated problem statements.
- Networking opportunity with Industry experts

PRODUCT DETAILS

MIDAS GTS-NX Website: <https://www.midasuser.com/en/product/gts-nx>

Software Catalogue: <https://midasuser.in/email/Brochure/GTS-NX-Catalog-Web.pdf>

Software Setup Download Link: https://patch.midasit.com/00_MODS/en/01_program/GTS_NX/01_Installation/2024_v1.1/GTSNX_2024_v1.1_250124.zip

Software Installation Guide: <https://www.dropbox.com/scl/fi/8patjopp2ekolhm34do21/MIDAS-GTS-NX-Software-Installation.mp4?rlkey=aorvvs7u7zae9733gv4tjekby&e=1&st=7ne8lw3w&dl=0>

DATES & VENUE

The Hands on Training on will be held on 12-13 August 2025, (Tuesday & Wednesday) at CBIP Conference Hall, (1st Floor), CBIP Building, Malcha Marg, Chanakyapuri, New Delhi

OFFICIAL LANGUAGE

The official language of the Training will be English.

REGISTRATION FEE*

All those who wish to participate in the training including authors of papers are expected to register in advance by sending the registration form through email to the conference secretariat alongwith payment of registration fees.

The registration fee for participation - Delegate - Rs. 12,000/- per participant

The discounted registration fee for Members of TAI, ISRM, INCOLD & CBIP - Rs. 10,000/- per participants

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. at New Delhi. Registration fee once paid will not be refunded.

Participants are requested to bring their own laptop while attending the class.

PAYMENT

Kindly arrange to remit the payment by cheque to be drawn in favour of "Adhering Committee of International Tunnelling Association (India)" or by bank transfer to the following account:

- Name of Bank: Canara Bank, Delhi Diplomatic Enclave, 7/48, Malcha Marg, Chanakyapuri, New Delhi 110021
- Account No. 0157101031496
- MICR Code No. 110015007
- Account Holder Name: "ADHERING COMM OF ITA"
- IFSC Code: CNRB0000157
- Swift Code: CNRBINBDFS

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

Last date of receipt of nominations is 5th August 2025. Spot registration facility will also be available provided prior information is received.

SPONSORSHIP

Scope exists for organizations to be the Platinum Sponsor, Golden Sponsor or Silver Sponsor on lumpsum 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 in the training• Company logo on main banner• Circulation of Company Literature• Announcement - Thanking sponsor• Speaking Opportunity• Table Space to display• Invitation to the key person of the organisation as special invitee.• Complimentary Advertisement in the Key Journal Published immediately after the event covering report of the event.• One year complementary Institutional membership of TAI to Platinum sponsor besides other privileges	<ul style="list-style-type: none">• 05 delegate passes for participation in the training• Company logo on main banner• Circulation of Company Literature• Announcement -Thanking sponsor• Speaking Opportunity• Table Space to display• Invitation to the key person of the organisation as special invitee.• 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 in the training• Company logo on main Banner• Announcement - Thanking sponsor

SECRETARIAT

All correspondence relating to the training should be addressed to:

Shri A.K. Dinkar, Secretary, CBIP & Secretary General, TAI

Shri K.K. Singh, Director (WR), CBIP & Treasurer, TAI, 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; Website: www.tai.org.in

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

Shri Puneet Khairal, TAI Secretariat, M: 9953976775, E-mail: contact@tai.org.in

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REGISTRATION FORM

(sent to contact@tai.org.in)

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 Training.

Place: _____

Date : _____

(Signature)

SECRETARIAT

Tunnelling Association of India

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

Phone: 91-11-26115984 / 26116567

Contact Person:

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Website : [http// www.tai.org.in](http://www.tai.org.in)