Outreach & Dissemination Services Office

CSIR – Central Building Research Institute

Roorkee – 247667 (UK)

Training Program on

'Mastering Numerical Modeling of Geotechnical Problems Using FELA in OPTUM GX Software'

10th December, 2025

Organized under the aegis of CSIR Integrated Skill Initiative

The **CSIR–Central Building Research Institute (CBRI), Roorkee**, organized a one-day Skill Development Training Programme on ***Mastering Numerical Modeling of Geotechnical Problems Using FELA in OPTUM GX Software*** **on 10 December 2025** under the CSIR Integrated Skill Initiative. The programme aimed to strengthen participants' understanding of computational geotechnics and enhance their capability to analyze soil behavior and stability problems using advanced numerical modeling tools.

OPTUM GX is a state-of-the-art geotechnical analysis platform that employs Finite Element Limit Analysis (FELA) to evaluate slope stability, foundation performance, retaining structures, and complex geotechnical failure mechanisms. The training provided participants with practical exposure to model setup, mesh handling, boundary condition configuration, and interpretation of upper- and lower-bound limit analysis results. Around **30 participants** from different academic institutes and organizations took part in the training and benefitted from the comprehensive technical sessions and hands-on exercises.

The programme was coordinated by **Dr. Anindya Pain, Sr. Principal Scientist, CSIR-CBRI**. The inaugural session was led by **Er. Ashish Pippal, Principal Scientist**, who welcomed the participants and emphasized the growing importance of skill-based training in emerging computational technologies. Dr. Pain introduced the OPTUM GX platform, elaborating on its core features, modeling workflow, and its significance in modern geotechnical engineering practice. **Prof. R. Pradeep Kumar, Director, CSIR-CBRI**, encouraged participants to enhance their technical skills, embrace innovation, and explore computational tools for efficient and sustainable geotechnical solutions.

Dr. D. P. Kanungo, Chief Scientist, addressed the gathering and highlighted the increasing need for reliable numerical tools in geotechnical analysis. He motivated participants to strengthen their analytical abilities and adopt scientifically robust design approaches. **Dr. Tabish Alam, Principal Scientist**, also extended his support, contributing to the effective conduct of the technical sessions. Er. Pippal welcomed **Mr. Anubhav Tyagi, Director, Optum CE India**, who provided an overview of the software's practical strengths, application domains, and the value of hands-on learning. He also expressed gratitude to CSIR-CBRI for facilitating the collaborative training initiative.

The technical sessions were conducted by the expert team **Mr. Jay Joshi**, **Dr. Lagudu S Avinash**, **Mr. Shekhar Sharma** and **Dr. Ankita Dhar** from **Optum CE India**, who provided in-depth demonstrations and guided hands-on exercises for the participants. **The training covered: Introduction to FELA-Based Numerical Modeling, Software Interface and Model Setup, Mesh Generation and Boundary Conditions, Solving and Interpreting Limit Analysis Results** The experts presented sample case studies involving slope failures, bearing capacity problems, and earth-retaining systems, helping participants connect modeling concepts with field applications.

Through these structured sessions, the participants gained hands-on experience and developed confidence in **using OPTUM GX to analyze geotechnical stability concerns effectively**. The interactive demonstrations enabled them to visualize soil response under different loading and boundary conditions, strengthening both conceptual and practical understanding. The programme concluded with an open discussion session and encouraging feedback from the participants, reaffirming CSIR-CBRI's commitment to fostering technical excellence, computational proficiency, and practical skill development under the CSIR Integrated Skill Initiative.


Tutorial

Participants List

Sr. No.	Participant Name	Institute Name
1	Mr. S Vishal Gupta	CSIR- CBRI, Roorkee
2	Mr. Sakthivel G	CSIR- CBRI, Roorkee
3	Dr. Monica Joseph	CSIR- CBRI, Roorkee
4	Mr. Sarath Rajeev	CSIR- CBRI, Roorkee
5	Mr. Dhirendra Kumar Kori	CSIR- CBRI, Roorkee
6	Mr. Devagya Raman	CSIR- CBRI, Roorkee
7	Mr. M Fahim Iqbal	IIT Roorkee
8	Mr. Sagar Jaiswal	IIT Roorkee
9	Mr. Anas Ansari	CSIR- CBRI, Roorkee
10	Mr. Amit K S	CSIR- CBRI, Roorkee
11	Mr. MD Nafees Khan	CSIR- CBRI, Roorkee
12	Mr. Ravi Ranjan	IIT Roorkee
13	Mr. Bibek Kumar Shah	IIT Roorkee
14	Mr. Aman Garg	IIT Roorkee
15	Mr. Prashant Kumar Bhard	IIT Roorkee
16	Mr. Piyush Raj	CSIR- CBRI, Roorkee
17	Mr. Sushant Rahul	IIT Roorkee
18	Mr. Ravi Mishra	IIT Roorkee
19	Mr. Sudhanshu Gupta	IIT Roorkee
20	Mr. Rahul Parihar	IIT Roorkee
21	Abhishek Kumar	IIT Roorkee
22	Mr. Ajay Dwivedi	CSIR- CBRI, Roorkee
23	Mr. Akash Tyagi	CSIR- CBRI, Roorkee
24	Ms. Vaishnavi Agarwal	CSIR- CBRI, Roorkee
25	Mr. Rohit Kumar	CSIR- CBRI, Roorkee
26.	Mr. Sunil Kumar	CSIR- CBRI, Roorkee
27.	Mr. Kailash Rawat	CSIR- CBRI, Roorkee
28.	Mr. Rohit Rana	CSIR- CBRI, Roorkee
29.	Mr. Mohit Saini	CSIR- CBRI, Roorkee
30.	Mr. Rajan Pratap	CSIR- CBRI, Roorkee