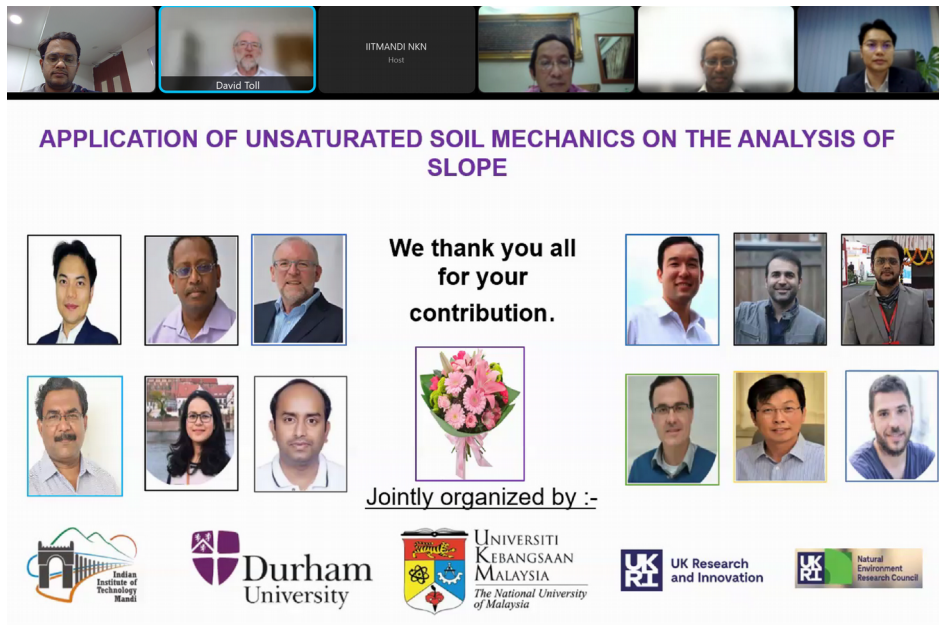


**Report on Two days short training course (Hybrid mode)
on
APPLICATION OF UNSATURATED SOIL MECHANICS ON THE ANALYSIS OF
SLOPES**

February 24- 25, 2022

A two-day short-term training course on the theme “Application of unsaturated soil mechanics on the analysis of slopes” was organized by IIT Mandi in collaboration with Durham University UK and Universiti Kebangsaan Malaysia. The short training course was organized as a part of the project “Understanding Landslide Susceptibility and Adaptability in South East Asia (SEAL)” funded by UKRI-NERC grant. More than 400 participants from around 14 countries registered for the course and attended by more than 250 participants. The event had witnessed the knowledge sharing sessions by renowned speakers and an overwhelming presence of UG/PG students, PhD research scholars, faculties and practitioner engineers from India, UK, Malaysia, Thailand, Australia, USA and many other countries. The event was coordinated by Dr. Ashutosh Kumar from IIT Mandi and speakers were introduced by Aditi Rana, MS student from school of engineering IIT Mandi.

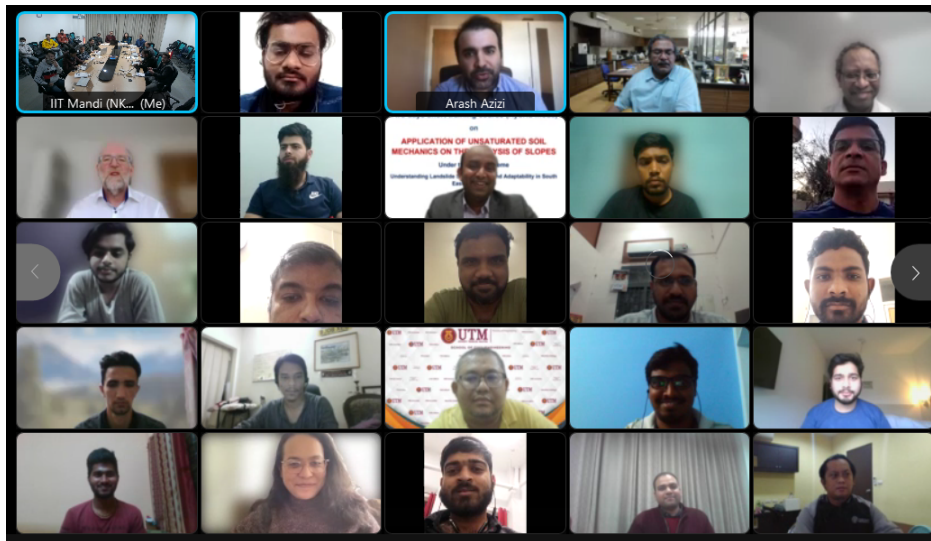


Speakers during the closing ceremony

Event started with the welcome address by Prof. G. L. Sivakumar Babu from IISc Bangalore, India. Professor Babu highlighted the importance of unsaturated soil understanding in landslide hazard mitigation. Later, brief update on the SEAL project was shared by Prof. Ashraf Osman from Durham University, UK. Prof. Osman outlined

the need for actions agreed during the COP-26 (UNFCCC) Glasgow UK for the adaptation and resilience measures in Southeast Asia. He also briefed on the similar projects such as CACTUS, iModel and Japan e-ASIA.

Prof. David Toll from Durham University, UK explained the basic concepts such as application of SWRC, permeability function of unsaturated soils required for slope analysis. He also introduced the SWRC apparatus for continuous and direct measurement of suction and water content using high capacity tensiometer (capacity 2MPa) developed by Durham university. Afterwards, Dr. Arash Azizi from University of Portsmouth, UK presented the research work on coupled flow deformation behaviour of unsaturated soils and its application to real engineering problems such as railway infrastructure under the climate change scenario causing environmental loading. Later, Dr. Samprada Pradhan from Durham University, UK presented the site-specific investigation of shallow rainfall induced landslides in Nepal. Dr. Ashutosh Kumar from IIT Mandi discussed the effect of environmental load on cyclic behaviour of compacted subgrade soil. The drying and wetting cycles on the compacted subgrade soil material during laboratory testing using high capacity tensiometer was presented. Last session of the first day was presented by Prof. D.N. Singh, IIT Bombay, India. Prof. DN Singh from IIT Bombay discussed the importance of suction measurement for application in environmental geotechnics context. The behaviour and application of multi-phase geomaterials was outlined and the need of future research in understanding the advance unsaturated geomaterial parameters such as SFCC, SCCC and Cryo-suction simply amazed the participants including the experts in the area.



Speakers and participants during an online session.

Second day started with the session on some experience on field monitoring of unsaturated soil slopes in Thailand by Dr. Apiniti Jotisankasa from Kasetsart University, Thailand. This session was followed by a presentation by Dr. Arash Azizi from University of Portsmouth UK and later continued by Mr. Faris from Universiti Kebangsaan Malaysia, speakers highlighted the challenges in field monitoring in tropical climate for

unsaturated soils slope. The lecture was followed by a presentation by Dr. Uday Kala from IIT Mandi. Dr. Kala presented the current state of research work at IIT Mandi under his supervision and discussed the multi scale approaches for landslide monitoring which are currently employed in the region by his research group in partnership with district disaster management authorities. The following sessions further brought some highly relevant and advanced concepts and practices which includes: (i) Mechanical and water retention behaviour in unsaturated soils by Dr. Marti-Lloret Cabot from Durham University, UK (ii) Effect of climate change on rainfall Induced failures for embankment slopes in Timor-Leste by Dr. Geoff Chao from AIT Bangkok, Thailand (iii) Hydro-mechanically couple FE analysis for soil-atmosphere interaction in geotechnical engineering by Dr. Alexandros Petalas from Durham University, UK and (iv) Numerical modelling of unsaturated slope behaviour by Dr. Aizat Mohd Taib from Universiti Kebangsaan Malaysia.

On successful completion of this training course, Prof. Ashraf Osman from Durham University, UK and Prof. Raihan Taha, Universiti Kebangsaan Malaysia thanked the participants for their overwhelming participation.

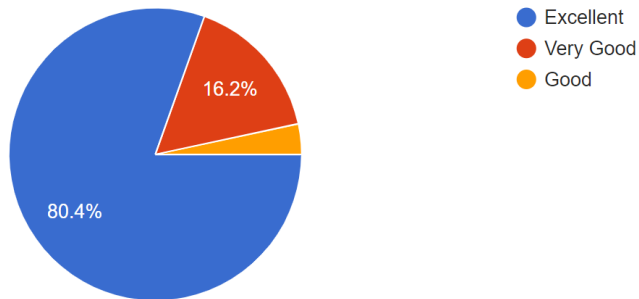


Participants attending the sessions in offline mode at IIT Mandi.

Feedback:

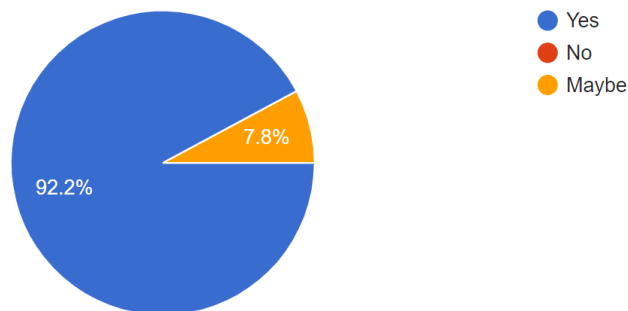
How would you rate our Speakers ?

179 responses



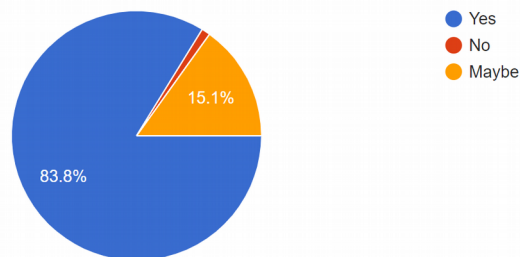
Did you find this short course useful for your profession benefits ?

179 responses



Do you think that the techniques you have learned during the course you will be able to implement them during your research or practice?

179 responses



Thank you to the organiser for facilitating such an informative sharing and discussion session. If possible, I would like to request that the organiser provide and share the video recorded during the speaker presentation session (2-day course) as a reference and in case there are any further or additional questions for a certain speaker in the future. The video can undoubtedly be of assistance. I am grateful to the organisers for providing me with the opportunity to participate in such an inspiring and impactful course as a new academic and researcher. Thank you so much, and I wish you all the best in your current and future research.

Indeed this kind of courses, which demonstrate the real time problems are needed to widen the research interests of young researchers. I thank the organizers for that. I also thank for providing the lectures in youtube platform.