



Dear ITA friends,

The contribution of the tunnelling and underground space sector to the United Nations' sustainability goals is being increasingly acknowledged worldwide, largely thanks to active promotion by the ITA, including in the form of training actions.

In this issue, we'll take a look at training events organized so far this year and those still to come, either through the lunchtime lecture series or through direct collaborations with ITA Member Nations. As you will discover, several of these events have notably focused on sustainable underground space use.

As always, the organization of these events is a joint effort and made possible thanks to our close collaboration with the ITACET Foundation and to the time, effort and expert knowledge of our lecturers, who are essential in ensuring the success of ITA training events! We would like to take this opportunity to sincerely thank all those involved.

In addition to the above-mentioned white-collar training events, the ITA-CET

Committee has pursued its collaboration with industry representatives in order to develop practical training courses for blue-collar workers and after several setbacks, the first edition of a TBM drivers course should be available shortly.

In the academic field, ITA-CET has continued to work with its university network members and hopes to expand this network in the coming months. We invite you to take note of the dates of the next ITA-CET University professors and PhD students conference, which will take place in Zurich on 3rd and 4th June 2024. For more information, see our article on page 4.

Finally, after several years of continued efforts to improve course content and diversify lecturers, the MIT World Peace University in Pune, India, has received ITA endorsement of its Master's in tunnel engineering. You can find out more on page 5.

We look forward to seeing you soon at once of our events!

Robert Galler and Michel Deffayet
ITA-CET Committee Chair and Vice-chair

A successful WTC training course in Athens!

This two-day course on risk management and sustainable underground solutions attracted 100 participants (page 2)

Lunchtime lecture series: satisfying the appetite for knowledge!

We take a look at the sessions organized so far this year and those in the pipeline for 2024 (page 3)

Professors and PhD students conference: call for abstracts

Our next university network event will take place on 3rd-4 June 2024 in Zurich (page 4).

Educating India's future tunnellers

The MIT World Peace University, Pune, has received ITA endorsement of its M. Tech in tunnel engineering (page 5).

For more information

<http://www.ita-aites.org/en/wg-committees/committees/ita-cet>

ita-cet.secretariat@developpement-durable.gouv.fr



A successful WTC training course in Athens!

Sustainability and risk management were the focus of this two-day event which gathered a hundred participants.



This year's course focused on two of the most significant challenges faced by tunnelling professionals: risk management and sustainable underground solutions.

Professor Robert Galler, chairman of the ITA-CET Committee chaired the first day of the event, which stressed the importance of gathering sufficient data and optimizing the use of tools to identify and reduce risks and uncertainties, so as to avoid unnecessary costs, disputes and delays.

After a general overview on how to handle risks in subsurface engineering, the session looked at how to take into account geological and geotechnical uncertainties within the scope of a risk management strategy.

Risks related to both conventional and mechanized tunnelling were examined, with a focus on the specificities of deep tunnels and large-diameter tunnels. The main monitoring tools and practices were presented, in addition to best contractual practices and the importance of geotechnical baseline reports.

In line with the ITA's strong commitment to sustainability, which has become a key criterion of all ITA activities, day two of the training course focussed on how the tunnelling sector can adopt more sustainable practices.

The ITA President, Arnold Dix, and the co-chair of the ITA's Committee on Underground Space, Antonia Cornaro, opened this second day of the event, stressing how the underground sector can play an active part in achieving the 17 sustainability goals fixed by the United Nations.

After a general overview of the main sustainability issues in tunnelling, the session addressed how a sustainable approach can be adopted during the design, construction and operation phases of an underground project. The contribution of digitalization, numerical methods and life cycle assessments were emphasized, in addition to examples of how the choice of materials can play an important role in CO₂ reduction.

Safety aspects of tunnels in operation were also included on this second day, with examples of "resilient tunnel evacuation" and how to adopt a holistic management of emergency handling in road tunnels.

The course concluded with a round table discussion on the "future of tunnelling", with lively discussions between the panellists and questions from the participants.

The ITA-CET Committee would like to sincerely thank the co-organizers and the lecturers of this event, which attracted 100 attendees.

The traditional WTC training course is considered an integral part of each year's congress and is the chance for students, young professionals and more senior engineers to gain knowledge from renowned international tunnelling experts on hot topics within the underground space industry.

The 2023 edition, which took place on Friday 12th and Saturday 13th May at the Athens Chamber of Commerce, was co-organized with the Greek Tunnelling Society and the ITACET Foundation.



The lunchtime lecture series: satisfying the appetite for knowledge!



The ITA's monthly online training sessions continue to attract students and professionals from around the globe

The lunchtime lecture series is now in its third year and continues to attract a considerable audience every month. Co-organized by the ITACET Foundation and the ITA-CET Committee, in close collaboration with ITA Working Groups and Committees, there are no doubt several reasons for this ongoing success.

Firstly, the short, online formula enables participants from around the globe to benefit from practical "bite-size" lectures on a monthly basis. Although each session is programmed at 13:00 CET, those who cannot attend live due to different time zones can still register and receive a link to stream the recording. The 2023 edition of the lunchtime lecture series has so far welcomed over 1000 live participants, with approximately the same number of registrants preferring to stream each event, showing that there is a real appetite for knowledge!

Secondly, the wide array of topics, ranging from "underground space use and planning" to more technical subjects such as "TBM driving parameters", caters for a varied audience. The keynote lectures and case studies are designed to be accessible to both young professionals and more senior engineers alike. The question and answer session is also a contributing factor, as it enables specific points to be developed in more detail at the request of the participants.

The speakers are of course key to the success of this series and are largely prominent ITA Working Group or Committee members. Their valuable participation enables the ITA to promote the work that it undertakes in various fields, to inform a wider public of ITA publications that are available or under preparation and to attract potential new members.



The following topics have been explored so far in this year's lectures:

- "Sustainability issues" - The future of the underground" (Antonia Cornaro, Arnold Dix, Tarcisio B. Celestino), ITACUS / ITA EXco
- "From procurement to execution of a contract" (Pravin Karki, Gonçalo Diniz Vieira, Matthias Neuenschwander), WG3
- "Risk Management" (Philip Sanders, Emmanuel Humbert), WG2
- "Service of machinery in mechanized tunnelling" (Marco Della Casa, Doug Harding, Jens Classen), ITAtech/WG14
- "Life cycle analysis in tunnelling activities" (Konrad Bergmeister, Farid Achha, Panagiotis Spyridis), WG21
- "Occupational health in tunnelling" (Donald Lamont, Eric Ball), WG5
- "Planning for the subsurface and underground space use" (Han Admiraal, Antonia Cornaro, Abidemi Agwor), ITACUS
- "Main TBM driving parameters" (Charlotte Kiesele, Josh Jonasen, Christoph Hennings, Uwe Steinbock), WG14.

The last two instalments of this year's lunchtime lecture series will take a look at specific issues of conventional tunnelling, with our November session focussing on challenges related to highly deformable rocks and our December session focusing on conventional tunnelling in an urban setting. We hope that you can join us!

The ITA-CET Committee and ITACET Foundation have already drawn up a tentative programme for 2024 and hope to be able to provide sessions on the following topics: sustainability issues in tunnelling, mechanized tunnelling in various site conditions, logistic issues in long and deep tunnels, new developments in BIM, safety in railway tunnels, low carbon materials, immersed tunnels, underground use planning, health and safety issues in recent projects, face stability challenges and extracted materials sorting and treating. A great new season in perspective!

The ITA-CET Committee and ITACET Foundation would like to take this opportunity to thank all those who have contributed to our past sessions and remind readers that all programmed sessions are advertised on the home page of the ITACET Foundation website at www.itacet.org. To ensure that this online series remains a success in 2024 and to attract the widest audience possible, we rely heavily on ITA Member Nations regularly promoting these events within their own national networks, so please spread the word!

Professors and PhD students conference: call for abstracts!

The third edition of this ITA-CET event will take place on 3rd-4th June 2024 in Zurich, Switzerland.

Following a successful first edition in Turin (Italy) in 2019 and an equally successful second edition in Leoben (Austria) in 2022, the ITA-CET Committee is delighted to announce that the third University professors and PhD students conference will take place in Switzerland on 3rd-4th June 2024. It will be hosted by ETH Zurich.

The aim of this event is to strengthen collaboration within the ITA-CET university network, which currently comprises professors from 30 universities from around the globe providing Master and PhD level courses in tunnelling and underground space. This event is also open to other universities who are not official ITA-CET members, whether in Europe or elsewhere in the world.

The conference will be "in person" and an opportunity for the universities attending to showcase their recent research activities. The provisional programme is as follows:

- 3rd June afternoon: meeting of university professors (informal discussions on courses on offer, research and exchange opportunities etc.)
- 4th June: students and professors present their PhD research work (either ongoing or recently finalized)

Should there be a considerable demand for next year's event, a second day of PhD presentations may be envisaged on the morning of 5th June 2024.

Registration for this ITA-CET event is free of charge and universities interested in participating are invited to send a short abstract summarizing their proposed presentation to ETH Zurich before 21st December 2023:

<mailto:daniela.stark@igt.baug.ethz.ch>

We invite ITA Member Nations to circulate information on this ITA-CET event within their respective networks and to provide the ITA-CET secretariat with contact details of tunnelling professors in their country.

Those interested in prolonging their stay are welcome to attend the Swiss Tunnel Conference which will take place on 5th-6th June 2024, starting in the afternoon of the 5th (registration fees for this external event will apply).

We look forward to seeing you in Switzerland!

The poster features the ITA-CET logo (Committee on Education and Training) and the ETH zürich logo at the top. The background is a photograph of a tunnel under construction with two students in the foreground. The text on the poster reads: "CALL FOR ABSTRACTS! UNIVERSITY PROFESSORS & PHD STUDENTS CONFERENCE ZÜRICH, SWITZERLAND 3-4 JUNE 2024". At the bottom, it says: "Please submit your abstract to: daniela.stark@igt.baug.ethz.ch Deadline: 21/12/23".

Educating India's future tunnellers

In recent years, the MIT World Peace University in Pune has been stepping up its training efforts in order to meet the high demand for tunnel engineers faced by India. The M. Tech. in Tunnel Engineering has recently been endorsed by ITA-CET.

Due to an unprecedented rapid urbanization of cities, India has been experiencing a boom in infrastructure development over recent years, with a growing number of highway, rail, metro and hydropower tunnel construction projects. This has led to a shortage of qualified tunnel engineers to meet the demand of industry. To address this issue, the Department of Civil Engineering at MIT World Peace University, Pune, launched an M.Tech in Tunnel Engineering in 2018.

The two-year course aims to provide students with a comprehensive understanding of the technologies, machinery, software, and equipment used in tunnel engineering. Since the course began, 71 students have graduated and considerable efforts have been made to constantly improve the syllabus, bring in more international guest lecturers, provide internships on major projects and organize numerous site visits for students.

In addition to its Master of Tunnel Engineering, MIT World Peace University Pune has been actively engaging its students in various ITA activities: organization of a four-day online training session with ITA-CET and other online workshops with ITA, participation of a PhD student in the ITA-CET professors and students conference in November 2022, presentation of research papers at the WTC etc.

These elements clearly show the strong commitment of MIT WPU towards developing the training of tunnelling engineers in India. Given these elements, the ITA-CET Committee has granted ITA endorsement of the M. Tech in tunnel engineering.

More information can be found on this course by clicking [here](#).



Students visiting the Pune metro project



A site visit to the Bhanupali-Bilaspur-Beri rail line project