

21 January 2026 | Short Course 1

As part of the Joint International Conferences on CTTU and TBM DiGs, a rare collaboration between academia, industry, and professional associations brings together a one-day workshop focused on the timely topic of automation and digitalisation in underground space. The event features research, industry expertise, and interpretations of emerging guidelines. This Site Visit and Short Course in Digital Engineering (DE) is designed to provide hands-on experience and expert insights into advanced digital technologies for tunnelling and underground construction.

- **Morning Session:** Visit & Scan-to-BIM at VTC*
- **Afternoon Session:** Workshops at Monash University

Course Lecturers

- **Amanda Huang:** Lecturer, Swinburne / Member of ISSMGE TC222
- **Allen Chen:** Assistant Lecturer, Monash University
- **Jurij Karlovsek:** Senior Lecturer, UQ / Vice President at ATS
- **Jelena Ninic:** Associate Professor, University of Birmingham / President of UKACM
- **Ross Digby:** Associate Director, Centre for Energy and Infrastructure, Holmesglen
- **Martin White:** State Manager VIC/SA/TAS, Geomotion
- **Georg Erharter:** Senior Engineer, Norwegian Geotechnical Institute, Norway
- **Philip Tsang:** Design Coordinator, Suburban Connect / Chair at ATS Young Member
- **Qian-Bing Zhang:** Associate Professor, Monash University

Registration

- **Fee:** AU\$ 300 (Early Bird until 31 October 2025)
- <https://www.monash.edu/engineering/tunnel2026/registration>

Contact & Enquiry

- civeng-tunnel@monash.edu



Digital Engineering (DE)

Time	Activity and Workshop
8.30 – 9.00 AM	Registration and bus departing to Victorian Tunnelling Centre (VTC)
9.00 – 10.30 AM	Session 1: VTC Visit and Data Collection Segmental lined tunnel, Mined tunnel, TBM cutterhead
10.30 – 11.30 AM	Session 2: Sensing Technologies and Demo IoT-enhanced real-time monitoring and asset management
11.30 – 11.45 AM	Bus transfer back to Monash University
11.45 – 1.00 PM	Light lunch and break
1.00 – 2.00 PM	Session 3: BIM Digital Modelling Digital workflow including Scan-to-BIM and as-built BIM
2.00 – 3.00 PM	Session 4: ITA Working Groups ITA Working Group 22 - Digitalisation and Automation TAtch Activity Group: Low Carbon Concrete Linings
3.00 – 3.15 PM	Coffee break
3.15 – 4.15 PM	Session 5: Structural Analysis Automation and evaluation for structural analysis
4.15 – 5.15 PM	Session 6: Sustainability Evaluation Monash Open-source TunCO ₂ Digital Toolbox: hands-on practices
5.15 – 5.30 PM	Certificate presentation and acknowledgements
5.30 – 6.00 PM	End-of-Workshop Networking

Endorsement

Engineers Australia (EA): 6.5 CPD hours



21 January 2026 | Short Course 2

As part of the Joint International Conferences on CTTU and TBM DiGs, a rare collaboration between academia, international experts, and the tunnelling industry brings together a one-day workshop focused on the critical topic of tunnel design and construction in complex geological conditions. This short course features cutting-edge research, engineering practice, and globally recognised methodologies for underground space development.

This Short Course is designed to deliver both theoretical insights and practical guidance, offering participants a comprehensive understanding of modern tunnelling strategies—from underground space planning and hard rock TBM methodologies to ground support system design.

Course Lecturers

- **Nick Barton:** Nick Barton & Associates, Norway
- **Jian Zhao:** Professor, Monash University, Australia
- **Jamal Rostami:** Professor, Colorado School of Mines, USA
- **Wout Broere:** Professor, Delft University of Technology, Netherlands



Registration

- **Fee:** AU\$ 300 (Early Bird until 31 October 2025)
- <https://www.monash.edu/engineering/tunnel2026/registration>

Contact & Enquiry

- civeng-tunnel@monash.edu



Tunnel Design and Construction

Time	Activity and Workshop
8.30 – 9.00 AM	Registration and welcome
9.00 – 10.00 AM	Session 1: Underground Urban Planning Smart planning for sustainable and resilient underground space use
10.00 – 11.00 AM	Session 2: Geological Investigation Geological investigation for safe and efficient tunnel design
11.00 – 11.30 AM	Coffee break
11.30 AM – 12.30 PM	Session 3: Tunnel Support Design and Understanding Empirical Q, continuum or discontinuum
12.30 – 1.30 PM	Light lunch and break
1.30 – 2.30 PM	Session 4: Hard Rock CSM Model and TBM Design Colorado School of Mines model
2.30 – 3.00 PM	Coffee break
3.00– 4.00 PM	Session 5: Large-Scale Cavern Design and Support Design of large rock cavern in Singapore
4.00 – 5.00 PM	Session 6: Single Shell or Double Shell: NMT, NATM, or Hybrid Norwegian Method of Tunnelling, New Austrian Tunnelling Method
5.00 – 5.15 PM	Certificate presentation and acknowledgements
5.15– 6.00 PM	End-of-Workshop Networking

Endorsement

Engineers Australia (EA): 6 CPD hours

