

**NTA & UITP and Dr. Sauer & Partners**  
**Training Programme:**  
**Metro Transit System Design,**  
**Construction and Operation**

30 Nov – 10 Dec 2020 - 2 Weeks

**Module No. 2 – Underground structure design and Construction methods**

**Day 1, Monday 30 November 2020**

*\*All sessions will take place at 14:00 Tel Aviv time*

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|--------------|--|
| <b>14:00</b> | <b>Welcome &amp; Introduction to Training module</b><br>Expectation analysis with participants<br>Ozlem Tatar, Training Manager, UITP                        |
| <b>14:30</b> | <b>Session 1A: Geological survey and geotechnical investigations with emphasis on local geology (sandy soils)</b><br>Dr. Angelos Gakis, Dr. Sauer & Partners |
| <b>15:15</b> | Break  |
| <b>15:30</b> | <b>Session 1B: Mechanized tunnelling methods in urban areas (included break)</b><br>Adolfo Perez & Stefano Murga, INTECSA-INARSA                             |
|              | <ul style="list-style-type: none"><li>• With emphasis on soft soil strata and ground water environment</li></ul>   |
| <b>17:30</b> | <b>Session 1C: Conventional tunnelling methods in urban areas</b><br>Petr Salak, Dr. Sauer & Partners  |
|              | <ul style="list-style-type: none"><li>• With emphasis on soft soil strata and ground water environment</li></ul>   |
| <b>18:15</b> | End of Day 1   |

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**Day 2, Wednesday, 2 December 2020**

*\*All sessions will take place at 14:00 Tel Aviv time*

**14:00      Session 2A: Deep excavation of stations and shafts in urban area by Cut & Cover Method**

**Adrian Dolecki, WSP**

14:45      Break

**15:00      Session 2B: Conventional tunnelling (NATM) of stations and caverns in urban area**

**Petr Salak, Dr. Sauer & Partners**

15:45      Break

**16:00      Session 2B: Case Studies - Conventional tunnelling (NATM) of stations and caverns in urban area**

**Juergen Laubbichler, Dr. Sauer & Partners**

16:45      Break

**17:00      Session 2C: Soil Improvements**

**Roberti Piero, Bauer**

18:00      End of Day 2

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Day 3, Tuesday, 8th December 2020

*\*All sessions will take place at 14:00 Tel Aviv time*

**14:00**      **Session 3A: Ground water handling / Dewatering**  
**Tony Tomory & Zohar Artzi, WJ LDD**

14:45      *Break*

**15:00**      **Session 3B: Ground movements, settlements, influence on existing buildings and utilities**  
**Dr. Angelos Gakis, Dr. Sauer & Sauer**

16:45      *Break*

**15:00**      **Session 3B: Case Studies - Ground movements, settlements, influence on existing buildings and utilities**  
**Thomas Schwind, Dr. Sauer & Sauer**

16:45      *Break*

**17:00**      **Session 3C: Monitoring of metro projects**  
**Arnaud Quentin, Sixense**

- Monitoring survey in urban areas

18:00      End of Day 3

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**Day 4, Thursday, 10th December 2020**

*\*All sessions will take place at 14:00 Tel Aviv time*

- 14:00      Sesison 4A: Getting organized for construction in an urban area**  
**Yapı Merkezi**
- Optimization of tunnelling sections, launching and retrieval shafts locations, mobilizations areas in urban areas and impact on city life
- 14:45      Break
- 15:00      Session 4B: Construction management**  
**Yapı Merkezi**
- Lessons learnt from previous metro construction - what worked well and what did not
- 15:45      Break
- 16:00      Session 4C: Strategic and innovative approaches to building great cities, vibrant communities, and viable projects**  
**Tamim Raad & Lisa Salsberg, Access Planning**
- 16:45      Break
- 17:00      Session 4D: Enabling infrastructure projects in Canada; projects finance, procurement models, financing of P3 projects**  
**Andreas Prucker, Canada Infrastructure Bank**
- 17:45      Panel Discussion & Closing**
- 18:30      End of Module 2

*\*UITP reserves the right to make amendments to the programme or any related activity at its discretion*

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