



**Training Course WTC 2012, Bangkok**  
**Friday 18 – Saturday 19 May 2012**  
**Venue: Queen Sirikit National Convention Center (QSNCC)**  
**Tunnelling in Urban Areas**

**Objectives of the Course**

The objective of the course is to present the design and construction approaches for tunnelling in urban areas.

The course should highlight the most important design and construction methods with reference to urban tunnelling, with special attention devoted to mechanise tunnelling and to the constraints imposed by urban tunnelling (settlement and damage control, risk management, watertight tunnels, building and infrastructure effects).

**Friday, 18 May 2012**

**Session 1: General**

08.00 - 08.15	Welcome and Opening – Objectives of the Course	
08.15 - 09.00	Why Go underground in Urban Areas	Han ADMIRAAL
09.00 – 10.00	General Aspects of Urban Tunnelling	Andre ASSIS
10.00 – 10.30	Coffee Break	

**Session 2: Conventional Tunnelling**

10.30 - 11.30	Excavation methods and basic aspects of design (soil and rock masses)	Harald WAGNER
11.30 – 12.30	Ground Reinforcement	Felix AMBERG
12.30 - 14.00	Lunch	

**Session 3: Mechanized Tunnelling in Soft Ground**

14.00 – 15.00	Slurry shield	Markus THEWES
15.00 – 16.00	EPB and Soil Conditioning	Lars BABENDERERDE
15.30 – 16.00	Coffee break	

**Session 4: Support Design**

16.00 – 17.00	Segment Lining Design	Fritz GRUEBL
17.00 – 18.00	Lining Design for Conventional Tunnelling: Sprayed Concrete – Waterproofing – Final lining	Tarcisio CELESTINO



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**Session 5: Special Aspects**

08.00 – 09.00	Risk Analysis for the excavation of mechanized tunnels	Søren ESKESEN
09.00 – 10.00	Site Investigations	Harvey PARKER
10.00 – 10.30	Coffee Break	
10.30 – 11.30	Face stability design for mechanized tunnelling (EPB and SS)	Georg ANAGNOSTOU
11.30 – 12.30	Tunnelling Induced Ground Movement and Effect to Buildings & Structures	Noppadol PHIENTWEJ
12.30 – 14.00	Lunch	
14.00 – 15.00	Monitoring of the surface and of the machine	Piergiorgio GRASSO
15.00 – 15.30	Conventional excavation by Drill and Blast: vibration control	Daniele PEILA
15.30 – 16.00	Coffee Break	

**Session 6: Industry special aspects**

16.00 – 16.30	BASF: Watertightness examples (conventional and sprayed membranes)	Thomas KOTHE
16.30 – 17.00	BECKAERT: Use of fibres (plastic and steel) for fire control	Benoit de RIVAZ
17.00 - 17.30	CATERPILLAR: Presentation and discussion of 2 relevant case histories	Klaus UKENS
17.30 - 18.00	HERRENKNECHT: Case histories for Tunnelling in Urban Areas	Karin BÄPPLER
18.00 - 18.30	ROBBINS: Presentation and discussion of 2 relevant case histories	Lok HOME
18.30	Closing	