



Short course on

PRINCIPLES FOR TUNNEL DESIGN

27 & 28 February 2011

BEM Approved CPD/PDP Hours = 12. Ref no. IEM10/HQ/304/W

Venue:

**Professor Chin Fung Kee Auditorium
Wisma IEM
No. 21, Jalan Selangor
46200 Petaling Jaya, Selangor Darul Ehsan**

Organised by:

IEM Tunnelling & Underground Space Technical Division

Supported by:

International Tunnelling And Underground Space Association

Managed by:

IEM Training Centre Sdn. Bhd.

Facilitators

**In-Mo LEE – ITA President
Markus THEWES – ITA First Vice President
Soren Degn ESKESEN – ITA Vice President
Rick P. LOVAT – ITA Executive Council Member
Suchatvee (Vince) SUWANSAWAT – WTC 2012 Organizer
Harald WAGNER – Expert to the ITA Executive Council**

SEMINAR OBJECTIVE

To provide design and construction elements to young professionals related to the best practice of tunnel design.

TENTATIVE PROGRAMME:

Day 1 – Sunday, 27 February 2011

Session 1 Introduction and Overview on Tunnel Design

- 09.00 – 09.30: Welcome and Opening: ITA and local representatives
- 09.30 – 10.30: Design Philosophy: Tunnel Design and management by design
- 10.30 – 11.00: Coffee Break
- 11.00 – 11.45: Specificities and Stages of tunnel design
- 11.45 – 12.30: Geo-investigation and Tunnel Modeling parameters

- 12.30 – 14.00: Lunch

Session 2 General Aspects of Tunnel Design

- 14.00 – 14.45: Construction Methods and aspects affecting design (ventilation etc.)
- 14.45 – 15.30: Types and uses of Tunnels and Caverns
- 15.30 – 16.00: Coffee Break
- 16.00 – 16.45: Excavation in difficult ground (cavities, fault zones etc.)
- 16.45 – 17.30: Monitoring for Conventional and Mechanized Tunnelling
- 17.30 – 18.00: Questions and Answers

Day 2 – Monday, 28 February 2011

Session 3 Conventional Tunnelling

- 09.00 – 09.45: Sequential excavation in soft ground and hard rock
- 09.45 – 10.30: Structural design (calculation, Dimensioning, Face stability)
- 10.30 – 11.00: Coffee Break
- 11.00 – 11.45: Ground reinforcement techniques
- 11.45 – 12.30: Water control and drainages

- 12.30 – 14.00: Lunch

Session 4 Mechanized Tunnelling

- 14.00 – 14.45: Types of machines and support systems
- 14.45 – 15.30: Interface between TBM and Lining
- 15.30 – 16.00: Coffee Break
- 16.00 – 16.45: Design of Face pressure, Soil condition, Backfilling
- 16.45 – 17.30: Segment lining design for soft ground and hard rock
- 17.30 – 18.00: Summary and Closing

FACILITATORS

Dr. In-Mo Lee



Dr. In-Mo Lee received his B.S. degree (with honors) in Civil Engineering from Seoul National University, M.S. and Ph.D. degrees in Geotechnical Engineering from Ohio State University. He has been a professor of Civil, Environmental, and Architectural Engineering at Korea University since 1988. He is a full member of the National Academy of Engineering in Korea.

Dr. Lee's main research area is tunnelling and underground structure- related geomechanics. He has published more than 300 papers in international and domestic journals as well as conference proceedings. He has also delivered numerous keynote, invited, special, and theme lectures worldwide.

Dr. Lee is currently the director of Institute of Underground Space Technology at Korea University. He served as the president of Korean Tunnelling Association from May, 2006 to April, 2008 and is currently serving as the President of the International Tunnelling and Underground Space Association (ITA).

Prof. Dr.-Ing. Markus Thewes



Since October 2005, Prof. Dr.-Ing. Markus Thewes is professor at the Institute for Tunnelling, Pipeline Technology and Construction Management at the University of Bochum, Germany. He teaches the topics of Tunnel Construction and Operation as well as Construction Technologies and Economics. The research work at the institute focuses on Shotcrete Applications, TBM Technologies, Process Optimisation and Risk Management in TBM Tunnelling, Operation Maintenance of Tunnels and Sewage Lines.

Markus Thewes has some 80 publications and presentations on tunnelling issues. He is the First Vice President of the International Tunnelling and Underground Space Association.

Søren Degn. Eskesen



Mr Eskesen holds a Master of Science in Civil Engineering from the Technical University of Denmark from 1982 and a B. Comm. in International Economics and Management from the Copenhagen School of Economics and Business Administration, 1987.

Mr Eskesen is a Research and Development Manager in COWI's Tunnel and Underground Structures department and a member of the strategic management group in COWI's business unit for Bridge, Tunnels and Marine Structures.

Mr. Eskesen has more than 25 years of international experience in design and construction of tunnel and underground works. He is an effective project manager with experience from multidisciplinary projects working for public clients as well as private clients and consortia of international contractors on several high profile jobs.

Mr. Eskesen is an experienced tunnel advisor with both technical and managerial knowledge of development of projects from feasibility studies, to tender strategies, detailed design and construction issues.

Mr Eskesen is an elected Vice President of the International Tunnelling and Underground Space Association ITA. He has been leading the development of the highly accredited ITA "Guidelines for Tunnelling Risk Management".

Mr Eskesen has been the author of several articles and papers on the development of tunnel and underground projects and has given presentations at a high number of international conferences as well as the ITA credited Master Course in TBM Tunnelling and ITA-CET training courses.

Rick P. Lovat



With a background in the application, design, production and operation of Tunnel Boring Machines, Rick brings over 30 years of experience in the tunneling industry. With his international business experience together with a deep understanding of the worldwide infrastructure, Rick recognizes the benefits and opportunities offered by tunneling technology. Rick's commercial and technical skill set is applicable in multiple facets of the tunneling industry.

Until recently, Rick was the President of LOVAT Inc., a family owned business which specialized in the custom design and manufacture of Tunnel Boring Machines, who built over 250 TBMs for more than 700 tunneling projects worldwide.

Rick is a Professional Engineer and a member of Professional Engineers of Ontario and other professional affiliations. He currently resides in Kleinburg, Ontario with his wife and two children and is an avid skier.

Dr. Suchatvee (Vince) Suwansawat



Dr. Suchatvee (Vince) Suwansawat is the President of Thailand Underground and Tunneling Group (TUTG), ITA Nation Member. Currently, he serves as Dean of Engineering Faculty at King Mongkut's Institute of Technology Ladkrabang and Director of Ladkrabang Underground and Tunneling Center (LUTIC), the first research center on underground and tunneling in Thailand. He received a doctoral degree from Massachusetts Institute of Technology (MIT), USA. His research works include using Artificial Intelligence (AI) for shield tunneling operation and design, prediction of settlements caused by underground constructions, and tunneling parameters. He has published more than 150 papers and held 5 patents in tunneling technologies. He also involved in designs and constructions of the first and other coming subway projects in Bangkok.

Dr. Suwansawat was elected to be the Chairman of Civil Engineering, Engineering Institute of Thailand and will be the Organizing Chairman of World Tunnel Congress 2012 in Bangkok.

Dr. Harald Wagner



An international well-recognized consultant for underground infrastructures with more than 40 years of professional experience in tunnel design and construction and, a skilled lecturer. He is the founder of D2 Consult GmbH, one of the leading consulting firms in international tunnelling industry. He is a former professor at Technical University Graz in Austria, a Vice President of ITA and a Member of Executive Council. For his contribution on Advancement of Tunnelling in Austria, he received many professional awards and prizes as an Expert in Conventional and TBM Tunnelling. Throughout his career he has worked in numerous countries around the world including China, India, and Thailand.

Dr. Wagner has published 'TBM Tunnelling Trends ' and ' Tunnels in Soil, Rock and Water' . He has published more than 150 scientific papers, and made more than 300 presentations on each and every aspect of underground structures. He is a Member of the Editorial Board of TUST (Tunnels and Underground Space Technology).

REGISTRATION FEES

IEM/AGSSEA/SEAGS/ICE member	-	RM 600.00
Non-member	-	RM 800.00

All registration fees must be FULLY paid before commencement of the course. No invoice will be issued. Participants from Government Departments, Local Authorities and Statutory Bodies must provide Local Order. IEM Training Centre Sdn. Bhd. reserves the right to refuse entry for participant(s) who have not paid their registration fees to attend the course. THIS REQUIREMENT WILL BE STRICTLY ENFORCED.

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