



# Principles for Tunnel Design

**20-21<sup>st</sup> April 2017, Selangor, Malaysia**

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

## **20th April**

### **Session 1: Introduction and Overview on Tunnel Design**

09.00-09.15: Welcome and opening  
09.15-09.45: Design Philosophy  
09.45-10.30: Geologic and geomechanical survey  
10.30-11.00: Coffee Break  
11.00-11.45: Settlement design  
11.45-12.30: Specific parameters affecting design  
  
12.30-14.00: Lunch

### **Session 2: Choosing the appropriate construction method during design**

14.00-14.45: Conventional tunnelling in hard rock  
14.45-15.30: Conventional tunnelling in soft ground  
15.30-16.00: Coffee Break  
16.00-16.45: Mechanized tunnelling (TBM and support systems)  
16.45-17.30: Health and safety issues and impact on tunnel design  
17.30-18.00: Questions and answers

## **21st April**

### **Session 3: Design and calculation methods**

09.00-09.45: Rock engineering design  
09.45-10.30: Analytical and numerical methods  
10.30-11.00: Coffee Break  
11.00-11.45: Risk Management – Contractor's perspective  
11.45-12.30: Design of face pressure, soil conditioning and backfilling for TBM  
  
12.30-14.00: Lunch

### **Session 4: Specific aspects of tunnel design**

14.00-14.45: Monitoring and control for conventional and mechanical tunnelling  
14.45-15.30: Case study of a complex urban tunnel: Monaco  
15.30-16.00: Coffee break  
16.00-16.45: Case study 1: SMART Design experience  
16.45-17.30: Case Study 2: Urban tunnelling in Singapore  
17.30-18.00: Closing Remarks