



## Performance-based Fire Engineering

- ◆ Enriches knowledge and competency in the science of performance-based fire engineering.
- ◆ Understanding the basic concept of performance-based fire engineering approach.
- ◆ Familiarize with the performance-based fire engineering design process.
- ◆ Develop the use of appropriate analytical and computational methods in the study offices.
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The objective of this course is to provide an opportunity for engineering professionals who want to learn the basic understanding of fire engineering when designing buildings. This course emphasizes fire in the context of buildings and infrastructure, and the technology for predicting fires and designing against them. Fire engineering approach not only enables higher flexibility in building design but also reduces the life cycle cost of a project. The course will cover the overview of fire engineering, design codes, fire and smoke behavior, human response to fire, structural fire, fire safety management plan and case studies.

### 1. **Overview of fire engineering**

Introduction to fire engineering approach including, fire codes/regulations in designing buildings for Hong Kong, ASET/RSET analysis, tenability criteria, passive and active fire protection systems commonly adopted for fire engineering solutions

### 2. **Fire and smoke behavior**

Introduction to fire and smoke behavior including, ASET, smoke production in fires, stack and wind effect, heat transfer, flashover, smoke control, brief description of zone and field fire modelling (e.g. CFAST, FDS)

### 3. **Human response to fire**

Introduction to fire evacuation including, REST, effect of fire on human body, toxicity, smoke visibility, brief description of evacuation modelling (e.g. SIMULEX, STEPS)

### 4. **Fire safety management plan**

Introduction to fire safety management plan in accordance with the Code of Practice for Fire Safety in Buildings 2011 in Hong Kong including, fire action plan, training plan and maintenance plan

### 5. **Structural fire**

Introduction to structural fire engineering including, hand calculations on structural steel temperatures

### 6. **Case studies**

Various case studies will be presented

Fire / Building Services / Civil / Structure Engineers, Architects, Surveyors, Town Planners, Contractors

**Medium of Instruction**

Delivered in Cantonese with notes mainly in English

**Venue for Enrollment**

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SCS, 2/F Block O, Macau University of Science and Technology, Avenida Wai Long, Taipa, Macau

**Venue for Class**

Macau University of Science and Technology, Avenida Wai Long, Taipa, Macau

**Course Date & Time**

**Tuition Fee** MOP2,400

**Class Size** 16

**\* Enrollment Notes \***

(9:00 - 20:00) (9:00 - 13:00) [ ]

**Operation hours: Monday to Friday (9:00 - 20:00) ; Saturday (9:00 - 13:00) [Close at Public Holidays]**

1. <https://scs.must.edu.mo/oasc/PersonalInfo.do>

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