



The
University
Of
Sheffield.

Department of Civil and Structural
Engineering

Fire Engineering Design of Structures

A continuing professional
development course
(3 days IFE)

25 March, 1 & 29 April 2020



Registration and fees

The course runs as an intensive Meng/MSc module, and as a CPD course accredited by the Institution of Fire Engineers.

The fee for the whole course, including course materials in the form of notes, Powerpoint presentations and a collection of Excel spreadsheets, lunch and tea/coffee over all three days, is £800.

If you wish to attend for less than the 3 days of lectures the fee is £300 per day. Either includes hands-on practice using spreadsheets to conduct Eurocode-based element fire resistance design, as well as more advanced methods.

Please register online at onlineshop.shef.ac.uk

Then navigate to
Conferences and events >
Faculty of Engineering >
Civil and Structural Engineering

Course Fees: £800 for full course or £300 per day

Further Information

We can provide a list of accommodation for anyone wishing to stay in Sheffield. If you would like accommodation details, or if you have any other non-technical queries, please contact

Hayley Proffitt,
Department of Civil & Structural Engineering,
Sir Frederick Mappin Building, The University of Sheffield,
Mappin Street, Sheffield S1 3JD.

(Tel: 0114 222 5758 email h.proffitt@sheffield.ac.uk)

For technical details contact Ian Burgess (ian.burgess@sheffield.ac.uk) or Shan-Shan Huang (s.huang@sheffield.ac.uk).

FIRE ENGINEERING DESIGN of STRUCTURES

25th March, 1st and 29th April 2020

Course Outline

The course will provide an overview of the fire hazard in buildings and the measures necessary for life safety and containment of losses. General structural requirements will be reviewed, and the response of steel structures in particular will be discussed. In addition to an evaluation of traditional design approaches, new design strategies will be discussed, including references to the Fire Engineering parts of the structural Eurocodes. These approaches will be supported by the evidence of recent research including the results of full-scale fire testing at Cardington. Advanced methods of analysis and simulation, and the influence of various parameters will be discussed. Likely future developments will be reviewed, including measures to ensure robustness in fire.

The concept of structural safety, and in particular how we design for extreme conditions, has come under examination since the collapse of the twin towers of the World Trade Center, as well as in recent major fires in the UK. The role of fire engineering in this context will clearly be important, and it is likely that structural engineers will need to be more familiar with the principles of fire safety for future building design. This course provides an essential grounding in the subject.

Who should attend?

The course will be of use to structural engineers, building control authorities and others involved in ensuring fire resistance of buildings, who wish to understand the background and principles of structural fire engineering, particularly in the context of the considerable advances in the state of the art which have taken place over the past two decades.

Programme

First Day

- Introduction
- UK legal requirements and fire strategies
- Building fires & intro to Eurocode structural fire engineering
- Fire testing & protection
- Design fires
- Hands-on session on Parametric fire and travelling fire

Second Day

- Eurocode 3 fire design of steel structures
- Eurocode 4 fire design of composite structures
- Eurocode 2 fire design of concrete structures
- Timber in fire
- Fire engineering design in practice
- Hands-on session on Eurocode design of steel and composite structures

Third Day

- Cardington full-scale fire tests & whole structure behaviour
- Post-Cardington guidance for performance-based design
- Firefighting in modern buildings
- Robustness case study: The collapse of "Seven World Trade"
- Advanced calculation approaches
- Hands-on session on composite floor design using tensile membrane action

The Speakers

Ian Burgess	Civil & Structural Engineering, University of Sheffield
Shan-Shan Huang	Civil & Structural Engineering, University of Sheffield
Bob Birtles	Manchester Fire & Rescue Service
Jenny Burridge	Concrete Centre
Danny Hopkin	OFR Consultants
Allan Jowsey	PFP Specialists Ltd
Roger Plank	Vulcan Solutions Ltd