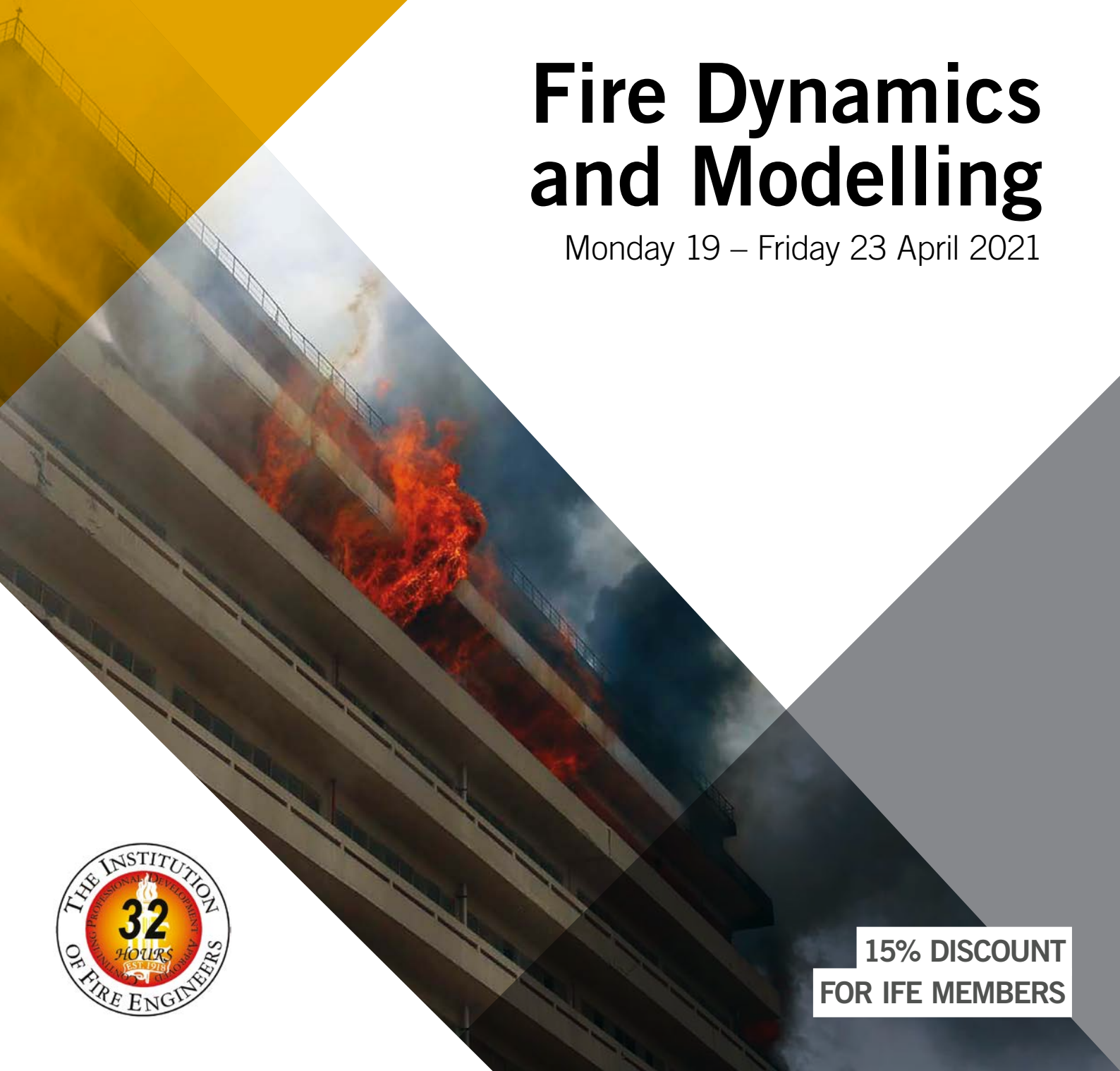
Faculty of Engineering and Physical Sciences

UNIVERSITY OF LEEDS

Fire Dynamics and Modelling

Monday 19 – Friday 23 April 2021



The Institution of Fire Engineers – Continuing Professional Development Approved – 32 Hours – Est. 1918

15% DISCOUNT FOR IFE MEMBERS

Fire Dynamics and Modelling

Monday 19 – Friday 23 April 2021

Course Director
Dr Roth Phylaktou, School of Chemical and Process Engineering, University of Leeds

About the course

This course helps delegates to understand the mechanisms and dynamics of fire development from a fundamental scientific level helping you to design safer systems, buildings and processes that protect life and property more effectively whilst allowing greater freedom in design.

The course follows a structured approach starting from the general fundamental principles of combustion flammability and heat transfer and moving onto the more specific study of fire spread and fire development in compartments. We will also cover open fires such as pool and jet fires. During the course we will discuss the principles of fire protection practice and technology within the context of understanding the fire development mechanism and the response of structures to fires. Your learning experience will be enhanced through worked examples and brief problems that you will be asked to attempt on your own or in groups (so please bring a calculator with you). On the last day of the course there may be the opportunity for some hands-on experience with predictive PC packages, please note this part of the course is dependent around availability of a software cluster on campus and social distancing guidelines in place at the time of the course.

Course Accreditation

The Fire Dynamics and Modelling CPD course, Leeds, has been approved for 32 CPD hours in total by the Institution of Fire Engineers (IFE).

Learning objectives

On completion of this course, delegates should be able to: apply general combustion and engineering principles to fire; know the parameters that influence flame spread and steady burning; quantify the burning rate in compartment fires; predict the rate of development of the fire and the onset of flashover; appreciate the application of these concepts to fire protection design; understand the factors influencing smoke toxicity and movement. Delegates will be made aware of the predictive tools that are available and should become familiar with the application and use of such tools.

Who should attend

Anybody who wishes/needs to gain a comprehensive, scientifically based analysis and engineering quantification tools of fire development and consequence assessment in industrial and residential scenarios. This could include those involved in the design and operation of buildings and chemical plant (architects, civil engineers, chemical engineers), and in the design of protection systems (passive and active system developers, manufacturers, installers), those responsible for building and plant safety on a day to day basis, regulators and advisors (HSE, Fire Service, Home Office, Local Authorities, Building Control Offices, Consultants, Insurers) and fire-fighting professionals. Additionally, young researchers may find this course very useful.

Programme

Monday 19 April 2021
Fundamental Processes

08.30 Registration and coffee
09.00 Physical concepts
Dr Roth Phylaktou
10.15 Coffee
10.30 Fuel and combustion processes and fundamentals
Dr Roth Phylaktou
12.15 Lunch
13.00 Limits of flammability
Dr Roth Phylaktou
14.15 Heat transfer: conduction and convection
Dr Roth Phylaktou
15.30 Tea
15.45 Heat transfer: conduction and convection (continued)
Dr Roth Phylaktou
16.45 End of day one

Tuesday 20 April 2021
Radiation, Ignition and Flame Spread

08.45 Registration and coffee
09.00 Radiation from fires
Dr Roth Phylaktou
10.20 Coffee
10.35 Radiation from fires (continued)
Dr Roth Phylaktou
12.25 Lunch
13.10 Ignition
Dr Roth Phylaktou
14.40 Tea
14.55 Spread of flame
Dr Roth Phylaktou
16.10 Fire combustion products and toxicity as a function of ventilation conditions
Professor Gordon Andrews, University of Leeds
17.10 End of day two

Wednesday 21 April 2021
Pool Fires, Jet Fires and Cloud Fires

08.45 Registration and coffee
09.00 Steady burning diffusion fires
Dr Roth Phylaktou
10.00 Coffee
10.15 Pool fires in the open
Dr Roth Phylaktou
11.15 Jet fires
Professor Derek Bradley, University of Leeds
12.00 Radiation from flames
Dr Roth Phylaktou
12.40 Lunch
13.25 Example calculations: radiation flux from flare on escape route
Dr Roth Phylaktou
14.00 Pool and jet fires, large scale tests
Rob Crewe, DNV GL
15.05 Tea
15.20 Pool and jet fires in compartments
Professor Geoff Chamberlain, Consultant, Waverton Consultancy Ltd, previously Shell Global Solutions (UK)
16.20 Cloud fires
Peter Rew, ATKINS
17.20 End of day three

Thursday 22 April 2021
Compartment Fires

08.45 Registration and coffee
09.00 The growth period
Dr Roth Phylaktou
10.30 Coffee
10.45 Flashover
Dr Roth Phylaktou
12.45 Lunch
13.30 The post-flashover period and backdraughts
Dr Roth Phylaktou
15.00 Tea
15.15 Fire performance of structures
Dr Florian Block/Iolanda del Prete, BuroHappold Engineering
16.00 Smoke movement
Dr Roth Phylaktou
17.15 End of day four

Friday 23 April 2021
Compartment Fire Modelling

08.45 Registration and coffee
09.00 Using CFD models
Jeremy Ockenden, Affinity Fire Engineering
10.15 Coffee
10.30 Fire Behaviour and Modern Buildings
Ben McColl, OFR Consultants
11.15 A zone model in detail – CFAST
Dr Roth Phylaktou
12.05 Buffet lunch

IMPORTANT NOTE
The following afternoon hands-on session is subject to Covid-19 guidance in place at the time of the running of the course and availability of university software cluster. If we are unable to run this session the course will finish with issue of attendance certificates directly after lunch. The delegate fee will be the same whether or not we are able to run this session.

12.50 Transport to the University of Leeds
The afternoon 'hands on' session will be held in the computer cluster
13.05 Hands on experience with a zone model
Dr Roth Phylaktou
15.35 Return transport to Weetwood Hall Estate
15.50 Tea and issue of attendance certificates
16.05 End of day five and course

What our previous delegates say:

"A well thought out, relevant and interesting course"
BAE Systems

"Excellent short course. There are few similar courses in Europe"
VSB – Technical University of Ostrava

"An excellent course for providing a balance between understanding the basic principles of fire science/dynamics and more in-depth practical applications. Thoroughly recommended"
Kingspan

View the full programme and book your place online at
http://eps.leeds.ac.uk/short-courses

Please note, although we remain devoted to the programme specified, we reserve the right to vary the programme in detail if required to do so by factors beyond our control.

Further information

Course Fees

The following course fees include the cost of tuition, paperless course materials, lunches and light refreshments for the days of attendance:

Full five days **£1595**
Any one day **£410**

15% discount for Institution of Fire Engineers (IFE) members.

Delegates are responsible for their own evening meals.

Venue

The venue for the course is the Village hotel Leeds North, LS16 5PR. The Village is just a couple of miles away from Leeds city centre and directions including a map and other details can be found at www.villagehotels.co.uk/hotels/leeds-north

Accommodation

The University has negotiated a 10% discount at the Village Hotel North on a bed and breakfast basis for those who require accommodation during the course. The rooms are subject to availability, and must be booked directly with the hotel using the University discount code **COR10A** of 10% (applicable on the advertised live rates at the time of booking) which can be used either online by accessing www.village-hotels.co.uk or by calling Central Reservations on 01925 873 284.

How to Book

Please book your place for this course through our secure Online Store, using debit or credit card, following the instructions below:

1. Visit our Online Store at: http://store.leeds.ac.uk
2. Select Conferences and Events in the left-hand navigation bar and 'CPD Faculty of Engineering and Physical Sciences'
3. Select the relevant course, click on 'Book Event' and complete your booking details

You will receive an automatic confirmation email within 24 hours of your booking.

Get in touch

Harriet Wills
CPD, Conference and Events Unit
Faculty of Engineering and Physical Sciences
University of Leeds

E: cpd@engineering.leeds.ac.uk
W: https://eps.leeds.ac.uk/short-courses

@LeedsUniCPD
@LeedsUniCPD
CPD, Conference and Events Unit, University of Leeds

Please note

The CPD team are currently working remotely and therefore not contactable by phone, if you have a query please send us an email.

Terms and conditions for booking

Payment by debit/credit card
Payment should be made at the time of booking via the Online Store.

Payment via purchase order and invoice
A purchase order document should accompany your booking form. Our standard terms of payment are 30 days from date of invoice, however payment must be made prior to attendance. Attendance may be refused if payment has not been received.

Where a delegate cancels a registration
For cancellations made within seven days of booking: a full refund is payable unless the course starts within the next seven days, in which case the full fee is payable and no refunds will be made.

For cancellations made after seven days of booking: written cancellations received up to 15 working days before the course will be subject to an administrative charge of 20% of the total fee. Within 15 working days of the course the full fee is payable and no refunds will be made.

For non-attendance: the full fee is payable and no refunds will be made but copies of the course materials will be sent to the registered delegate. Substitutions may be made at any time.

Changes made by the University of Leeds
The course programme may have to be re-scheduled or the speakers changed for reasons outside our control. The University of Leeds reserves the right to cancel or postpone a course, in which case fees will be refunded in full. In the event of cancellation, the University will not be held liable for delegates' travel or accommodation expenses.

Data/Privacy
Your right to privacy is important to us. We will only use your information to provide information on our CPD courses and relevant events. We will not pass your details on to any other organisations. The ways in which your personal data may be used when you provide it to us are defined in our Privacy Notice at https://eps.leeds.ac.uk/privacy.

If you have opted in to receive details of future CPD courses from us you can unsubscribe at any time by emailing us at cpd@engineering.leeds.ac.uk and your details will be removed from our database.

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