

## How to Book

Booking for this course should be completed through our secure Online Store.

To complete your booking please follow the instructions below:

1. Log on to our Online Store at: <https://store.leeds.ac.uk/>
2. Select Conferences and Events in the left-hand navigation bar.
3. Select CPD Faculty of Engineering
4. Select the course or event for which you wish to register and click on "Book".
5. If you are a new user, please follow the instructions to register. If you already have an account log in as instructed.
6. Complete the application process as directed by the booking system.

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

### Problems with booking online and for all other enquiries

If you are experiencing problems with booking online or have any queries about the course please contact:

Sophie Chopping, CPD Course and Events Co-ordinator,  
CPD Unit, Faculty of Engineering,  
c/o School of Civil Engineering, Room 209  
University of Leeds,  
LEEDS, LS2 9JT, UK.

T: + 44 (0) 113 343 2494

F: + 44 (0) 113 343 2511

E: [cpd@engineering.leeds.ac.uk](mailto:cpd@engineering.leeds.ac.uk)

W: [www.engineering.leeds.ac.uk/short-courses/](http://www.engineering.leeds.ac.uk/short-courses/)

Potential delegates who have any special requirements should contact the above as soon as possible.

### Terms and conditions for online booking

Payment in full should accompany your online booking. The course fee is exempt from VAT.

Registrations are accepted on the understanding that the printed programme is given in good faith but 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 the 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.

Delegates will receive a full refund for cancellations made within 7 days of online booking, except where the booking has been made for an event commencing within the next 7 days. Where a delegate wishes to cancel a registration after this 7 day period, written cancellations received up to 15 working days before the course commences will be subject to an administrative charge of 20% of the total remittance. After this date the full fee is chargeable and no refunds will be made, this also applies for non-attendance but copies of the course documents will be sent. Substitutions may be made at any time.

If you are unable to complete your registration using the online booking system please contact the CPD Unit to discuss alternative arrangements.

## Administration Details

**Venue:** The venue for the course will be Weetwood Hall Conference Centre and Hotel which offers first-class hotel facilities, a business centre and ample parking facilities. Weetwood Hall is the largest and most flexible conference centre and hotel in the North of England.

Weetwood Hall Hotel is ideally situated 15 minutes north of the centre of Leeds in wooded grounds at the junction of the Otley Road and the outer ring road. It is just 15 minutes from Leeds Bradford International Airport and a short distance from the A1, M1, M606, M621 and M62 motorways.

Further details can be found at [www.weetwood.co.uk](http://www.weetwood.co.uk)

**Accommodation:** Bed and breakfast accommodation is available at the course venue, Weetwood Hall Conference Centre and Hotel. To take advantage of the special rates we have negotiated with the hotel for our course delegates, please book using the instructions below:

1. Log onto:  
<http://www.engineering.leeds.ac.uk/short-courses/fire-engineering/>
2. Select "Fire and Explosion Investigation"
3. Click on the "Accommodation Booking" link in the left hand column
4. Complete the following fields: Arrival Date, Departure Date, Rooms, Adults, Children
5. Click the "Check Availability" button (N.B. You will not need to click on "Click Here for Special Rates" or enter a promotional code as this is already completed for you).
6. Proceed with your booking as instructed by the booking system.

We have negotiated the following special rates per night:

#### Friday – Sunday evening

Bed and breakfast £62

#### Monday – Thursday evening

Bed and breakfast £87

Delegates are responsible for their own evening meals.

A list of alternative hotels is available on request.

If you are unable to complete your accommodation using the online booking system please contact Weetwood Hall Hotel directly at the contact details given on their web page at [www.weetwood.co.uk](http://www.weetwood.co.uk)

**Course fees:** The following course fees include the cost of tuition, course notes, lunches and light refreshments for the day(s) of attendance:

**£1370 Full five days**

**£330 Any one day**

**IFE MEMBERS (if applicable):** Delegates who are a member of the Institution of Fire Engineers (IFE) will receive a 15% discount on the course fee. Please indicate on booking if you are a member, stating your IFE membership number.



Faculty of Engineering

UNIVERSITY OF LEEDS

# Fire and Explosion Investigation

Monday 26 – Friday 30  
September 2011

15% Discount for  
IFE members

**Course Directors:**  
Professor Gordon Andrews  
Dr Roth Phylaktou

Energy and Resources  
Research Institute,  
School of Process,  
Environmental  
and Materials Engineering

Please pass this leaflet to a  
colleague if this course is not  
relevant to you



The University of Leeds



Weetwood Hall Hotel



# Information about the course

## FIRE AND EXPLOSION INVESTIGATION

Monday 26 – Friday 30 September 2011

### Background to the course

The total monetary cost of fire and explosions (of losses and safety provision) in the UK is estimated at £6 billion per year or approximately 1% of GDP and this is typical of the financial cost of fire in developed countries across the globe. Loss of life in fires is commonplace and can be in large numbers, as in the Bradford football stadium fire and the Kings Cross fire.

Fire investigation carried out correctly provides a most important tool for:

- Improving public safety (by revealing the weak points in our current practices in prevention, suppression, mitigation and building design)
- Improving the assessment of liability and where appropriate underpinning and safeguarding the integrity of resultant civil and/or criminal prosecutions;
- Reducing social, economic and environmental losses.

### How can you be sure that you have got it right?

Fire investigators face a unique competency challenge. How many other professionals must routinely testify in court as to how they reached their conclusions? Mistakes can have serious implications.

There is no “art” to fire investigation but there should be plenty of “science”! As the legal climate for fire investigation becomes more demanding, the need for a rigorous scientific foundation is growing. A competent investigator should have in-depth knowledge (and experience in applying this knowledge) in order to recognise the clues and evidence at the fire scene, collect, test, analyse and interpret it. For a sound conclusion the whole process must be based firmly on scientific principles and methodologies and be guided by the legal framework.

### Intended Audience

Our target audience is the national/international community of stake holders in fire investigation. These include fire fighters/investigators, forensic scientists, procurators fiscal, coroners, police, health & safety executive, insurers, and local authorities, fire safety and security consultants.

### What will you get out of this course?

This course aims to provide a large part of the scientific knowledge and understanding needed in Fire Investigation within the framework of the new relevant legislation. The course will provide a mix of lectures and a large range of case studies/scenarios, many of which are given by the person who has investigated the incident.

The course will be delivered by a large team of practitioners and academics, all experts in their particular fields of contribution. We have over 10 external consultants presenting on our course.

Example calculations and scientific analyses and case-studies will be used by the speakers to demonstrate clearly the application and significance of science principles in fire investigation. The syllabus of the course covers the breadth and far exceeds the depth of the subjects required for the IFE membership Examination Paper: Fire Investigation.

Delegates will receive substantial course notes to take away. Not all the notes will be covered during the lectures due to time constraints, they are included as additional reading materials.

### Course Accreditation

The Fire and Explosion Investigation CPD course has been approved for 33 CPD hours in total by the Institution of Fire Engineers (IFE).

The Energy Institute has approved Leeds University – Faculty of Engineering as an Approved Training Provider.

### MSc Option

This course also forms part of an MSc Masters programme (full time or part time) in Fire and Explosion Engineering. Modules of this MSc may also be taken individually or as part of a coherent course to meet personal needs for Continuing Professional Development.

For more information on the MSc please visit the website at <http://www.engineering.leeds.ac.uk/fire>

# Full course programme

A full programme including detailed lecture descriptions can be viewed online at:

[www.engineering.leeds.ac.uk/short-courses](http://www.engineering.leeds.ac.uk/short-courses)

## MONDAY 26 SEPTEMBER 2011

### Principles of Fire Investigation with Case Studies

Course Director: Professor Gordon Andrews

08.30 Registration

08.55 Introduction

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

09.00 Legal implications of fire investigation

Richard Hagger, West Yorkshire Fire and Rescue

10.15 Coffee

10.30 Management of fire investigation and collection of information  
Deductive evidence at the scene, locating seats of fire and witness statements

Graham Saward, Consultant and Paula Saward, Consultant

12.30 Lunch

13.15 The effects of firefighting operations on fire investigation

Richard Hagger, West Yorkshire Fire and Rescue

14.00 Fire investigation case studies – lessons learned

Professor David Purser, Hartford Environmental Research

15.30 Tea

15.45 Forensic pathology as an aide to fire investigation

Professor David Purser, Hartford Environmental Research

16.45 End of day one

## TUESDAY 27 SEPTEMBER 2011

### Fire Science and Engineering Fundamentals

Course Director: Professor Gordon Andrews

08.45 Registration

09.00 Heat transfer, ignition and flame spread

Dr Roth Phylaktou, Energy and Resources Research Institute, University of Leeds

10.00 Burning rates, fire plumes

Dr Roth Phylaktou, Energy and Resources Research Institute, University of Leeds

10.45 Coffee

11.00 Stoichiometry, passive fire protection and air supply, fire load, estimation of fire heat release

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

12.30 Lunch

13.30 Compartment fires

Dr Roth Phylaktou, Energy and Resources Research Institute, University of Leeds

14.30 The interaction of insurance with fire investigation

Russell Kirby, FM Global

15.45 Tea

16.00 Laboratory analytical techniques for the detection of accelerants used in arson fires

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

17.15 End of day two

## WEDNESDAY 28 SEPTEMBER 2011

### Post Fire Data Analysis and Modelling and its use in Fire Protection

Course Director: Professor Gordon Andrews

08.45 Registration

09.00 Fire investigation as a source of data for safety design

Paul Jenkins, London Fire and Emergency Planning Authority and Nick Troth, Arup Fire

10.15 Coffee

10.30 Fire investigation as a source of data for safety design continued...

Paul Jenkins, London Fire and Emergency Planning Authority and Nick Troth, Arup Fire

12.00 Lunch

13.00 The digital equipment company fire investigation case study

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

14.00 Fire modelling in support of fire investigation with case studies

Richard Chitty, BRE Global

15.10 Tea

15.30 Passive fire protection in process and building fires (failure and testing)

Keith Murray, Darchem Thermal Protection

16.30 End of day three

## THURSDAY 29 SEPTEMBER 2011

### Specialist Fires

Course Director: Dr Roth Phylaktou

08.45 Registration

09.00 Fire and explosion experience in industrial and commercial fires

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

10.00 Coffee

10.15 Vehicle fire investigation

Luke Collins, Hannaford Forensic

11.15 Electrical fires

Dr Peter Jowett, Dr J H Burgoyne and Partners

12.15 Lunch

13.00 Scene investigation – case studies

Dr Charlie Gardner, Dr J H Burgoyne and Partners

14.00 Spontaneous ignition

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

15.00 Tea

15.15 Hickson and Welch fire and other case studies

Dr Ken Patterson, Yule Catto plc

16.15 Bleves

Professor Geoff Chamberlain, Waverton Consultancy Ltd, previously Shell Global Solutions (UK)

17.00 End of day four

## FRIDAY 30 SEPTEMBER 2011

### Explosion Investigation

Course Director: Dr Roth Phylaktou

08.45 Registration

09.00 Types of explosions

Alan Mitcheson, Dr J H Burgoyne and Partners

10.30 Coffee

10.45 Vapour/gas explosion fundamentals with case studies including fuel tank vapour explosions

Professor Gordon Andrews, Energy and Resources Research Institute, University of Leeds

12.30 Lunch

13.15 Hazard zoning – defining the situation

Professor Gordon Andrews on behalf of Dr Martin Pitt, University of Sheffield

14.15 Electrostatic ignition hazards

Dr Jeremy Smallwood, Electrostatic Solutions Ltd

15.10 Tea

15.30 Explosion investigation: estimation of overpressures from structural damage and missile path length

Dr Roth Phylaktou, Energy and Resources Research Institute, University of Leeds

16.30 End of day five and course

View the full programme online at

[www.engineering.leeds.ac.uk/short-courses/](http://www.engineering.leeds.ac.uk/short-courses/)

### Other courses offered by the CPD Unit in:

Fire Engineering  
Environmental Engineering  
Waste Management  
Power and Process Engineering  
Automotive Engineering  
ParticlesCIC

### What our previous delegates say

“An interesting and informative mix of theory, practice and case study”

“Very good presentations overall and good industry personnel involved”

“It is a course with a consistent range of important subjects and where the speakers expressed their ideas and experiences very well”

“A thorough overview of fire and explosion in buildings and relating to process and plant. Lots of detailed information about past incidents, the subsequent investigations and the lessons to be learnt”