Fire Behaviour and Investigation
A Practical Short Course

Validated by the University of Lincoln and approved for 16.5 CPD points by the Chartered Society of Forensic Sciences

Course Dates: 19th and 20th September 2017

Venue: Joseph Banks Laboratories, Brayford Pool Campus, University of Lincoln LN6 7DL

Introduction

This two day short course provides participants with the opportunity to experience a ‘real’ compartment fire. The aim is to build understanding of fire and fire behaviour and then to apply this in support of the knowledge and skills required for fire investigation. The course assumes no prior knowledge and develops from the basics of fire and combustion, fuels and fuel load in a compartment, compartment fires and investigation of compartment fires.

Emphasis is placed on practical activities at the fire scene with some additional interactive classroom sessions. Participants initially develop their knowledge of fire and fire behaviour through the observation of single item fires. They will then observe and analyse a pre-fire compartment and discuss the opportunity for fire ignition and fire development. Observation of the compartment fire will further develop understanding of the different stages of fire growth and development and will demonstrate the influence of the compartment. A systematic investigation of the fire scene allows participants to build their skills in recognising and interpreting fire scene indicators and in the techniques used by fire investigators including recording, photographing and recovery of evidence. Additional support in the investigation is provided by an accelerant canine in the investigation of suspicious fires.

Facilities

Classroom sessions will be held in classrooms in the Joseph Banks Laboratories (JBL) (building 22). The fire scene is located on land to the west of the JBL and is a short walk from the classrooms. For those coming by car there are visitor parking spaces near the main entrance to the JBL on the north side of the building (shown below). To access the car park enter the campus through the Beevor street entrance at the back of JBL and drive around to the front of the building. Your space will be allocated and you can identify it by the cone labelled with your name. If you require a reserved parking space please provide your name and car registration number.

Clothing

The fire scene activities are outside and the scene is a dirty environment and so it is essential that you come prepared with waterproof, warm outdoor clothing that you don’t mind becoming soiled by the scene. You should wear suitable footwear such as safety shoes or walking boots that have a thick sole. You will be provided with PPE that includes eye protection, face masks and gloves.

Accommodation

There are a number of hotels and guest houses that are walking distance from the university campus.

Double Tree by Hilton, Brayford Wharf North, Lincoln LN1 1YW Tel:01522565180

Holiday Inn Express, Brayford Enterprise Park, Ruston Way, Lincoln LN6 7DB Tel:08714234876

Premier Inn, Broadgate, Lincoln LN2 5AQ Tel:08715279418

Lincoln Hotel, Eastgate, Lincoln LN2 1PN Tel: 01522520348

Brayford Guest House, 79 Carholme Road, Lincoln LN1 1RT Tel:01522885007

Contact Details

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JBL Main Entrance and Visitor Car Parking Spaces

JBL Classrooms

Outside Fire Scene

The Training Organisations

University of Lincoln

The University of Lincoln offers programmes in Forensic Science and Forensic Chemistry at undergraduate and postgraduate level. The BSc (Hons) Forensic Science was the first presentation of forensic science in 2000 with recruitment of around 70 students. Since then a number of additional programmes have been added with healthy recruitment year on year. Currently the following courses are available:
BSc (Hons) Forensic Science
BSc (Hons) Forensic Chemistry
MChem Forensic Chemistry
MSc Forensic Science
MSc Forensic Science (Erasmus Mundus)

In 2004 the BSc (Hons) Forensic Science was fully accredited by the Forensic Science Society (now The Chartered Society of Forensic Sciences) and has retained its full accreditation status to date.

Fire investigation has been a core subject within the Forensic Science programmes since the first presentation of forensic science in 2000. The fire scene is presented as a challenging scene to investigate and as such is delivered at level 6 (final year BSc) and 7 (M-level). The subject has been led by Dr Mark Baron throughout this time and has become well established with excellent feedback from students from all programmes. Use has always been made of external input by practitioners and in recent years a collaborative relationship has been established with JC Fire and JMS Accelerant Research to deliver fire investigation teaching based on a real fire scene.

JC Fire

JC Fire is a professional forward thinking company which provides Fire Investigation services and training throughout the country.

JC Fire specialises in designing bespoke courses incorporating a mobile fire or forensic scene (including a live burn) for university courses both at undergraduate and postgraduate levels, these courses have become an integral part of the course syllabus at a number of universities who have gone on to gain accreditation from the Chartered Society of Forensic Science for their Forensic Science Courses.

JC Fire currently works with a number of Universities on a regular basis including Nottingham Trent University, Liverpool John Moores, Keele, University of West of England, University of Lincoln, University of Leicester, DeMontfort University, Teeside University, Bournemouth University, University of South Wales.

JC Fire also provides a Fire Investigation and Expert Witness Service to the private sector.

JMS Accelerant Search

JMS Accelerant Search **an independent** company providing a certificated Accelerant Detection Dog and Handler team for the purposes of Investigation and Education

The team maintain a 24 hour call out service for liquid accelerant detection at fire scenes for fire/ forensic investigators, police, fire and rescue services and insurance companies.

JMS Accelerant Search specialises in working within the education sector providing both technical input and practical demonstrations at all levels from key stage two up to Masters and PhD Courses.

JMS Accelerant Search currently works with a number of Universities on a regular basis including Nottingham Trent University, Liverpool John Moores, Keele, University of West of England, University of Lincoln, University of Leicester, DeMontfort University, Teeside University, Bournemouth University, University of South Wales.

The Training Team

John Caulton MCSFS GIFireE, JCFire

I am a graduate member of the Institute of fire Engineers a member of the International Association of Arson Investigators (UK-AFI) and a professional member of the Chartered Society of Forensic Science. I was registered with the Council for the Registration of Forensic Practitioners (CRFP) when that organisation was in existence.

I have 32 years' experience as an operational Fire Fighter / Fire Officer and that included 17 years as a Senior Fire Investigating Officer. During this time I have attended and carried out over 700 Fire Investigations this has included incidents where there have been fatalities, high value losses and incidents that have been high profile. For all of these incidents I have been responsible for completing either full or short fire investigation reports and have attended court on numerous occasions this has included crown court, coroner's court, and family court where my evidence has been taken into account in order for decisions to be made in relation to child welfare.

When promoted to Group Manager I was a designated Senior Fire Investigation Advisor and although would not attend day to day incidents I was responsible for overseeing fire investigations that were deemed to be significant incidents this would include multi agency working not only with other category 1 responders but also with insurance companies and company officials. I was also responsible for mentoring newly trained Fire Investigation Officers.

A number of years ago I was one of the lead officers responsible for implementing Fire Investigation training for selected officers in Derbyshire Fire and Rescue Service. My responsibility was to train, mentor and coach these officers whilst developing fire investigation policies and procedures throughout the organisation.

I have personally received training and gained qualifications in the following areas:
Fire (and explosion) Investigation
Advance Cause and Origin course Federal Law Enforcement Training Centre (USA)
DeHaan's Fire and Explosion Course (Gardiner Associates Training & Research)

Investigative Interview Techniques, (Bond Solon)
All Gardiner & Associates training and refresher courses

Julie Sykes MinstLM, JMS Accelerant Search

I have 25 years' experience as an emergency fire control room operator which included 4 years as the Station Manager responsible for incident management and resource deployment for all incidents within the county and overall operational efficiency during periods of high volume incidents which included interagency working. During my time as a Station Manager I received operational training including Fire Behaviour, Operational Incident Command and Fire Investigation, I also achieved an ILM Level 5 certificate in Management.

Since 2011 I have worked for JC Fire Investigation & Training attending incidents to assist with Fire Investigations during which my role includes evidence gathering, photography and report production. In addition to fire scene investigation I am also responsible for producing training materials both for live practical fire investigation training and online arson investigation modules

In 2014 I trained as an Accelerant Detection Dog Handler and now work in the private sector, supporting forensic investigations and delivering training both independently (JMS Accelerant Search) and for other private companies at educational establishments throughout the country including Fire Service College , Moreton in Marsh on behalf of C.P.Gregory & Associates and a number of universities on behalf of JC fire . I deliver training on undergraduate and post graduate courses and have worked with PhD students as part of their research projects.

I have personally received training and gained qualifications in the following areas:
ILM Level 5 (Certificate in Management)
Accelerant Detection Dog Handling (C.P. Gregory & Associates)
Independent Certification in Accelerant Detection Dog Handling (FS College)
Fire Investigation, Fire Behaviour, Operational Incident Command, IOSH
PTLLS Level 4, Assessor, Equality and Diversity

Since leaving the Fire Service I have continued to maintain my skills and update my knowledge by attending training courses and seminars, I also attend regular Dog Handler competency training and annual recertification assessments.

Dr Mark Baron, Principal Lecturer in Analytical Chemistry, School of Chemistry, University of Lincoln

I have been teaching fire investigation to undergraduate and postgraduate students for a number of years. I have number of research interests in this area mainly related to the analysis of ignitable liquids and I have supervised a number of research projects in the detection of ignitable liquids in fire debris.
I successfully completed the Gardiner Associates short courses Joint Services Fire Investigation Practical Course in April 2003 and John DeHaan Fire and Explosion Investigation Course in September 2003.
I am a member of the United Kingdom Association of Fire Investigators (UK-AFI) since 2010, a member of the Chartered Society of Forensic Sciences since 2014 and a member of the Royal Society of Chemistry since 1992.

Course Programme

Tuesday 19th September 2017

Fire Behaviour

10 am – 10.30 am (Joseph Banks Laboratories Reception) Registration and coffee

10.30 – 11 am (JBL0W05) Welcome: Combustion and fire

11 am – 12 pm (fire scene) Single item burning

Ignition Sources; Fire spread and growth; Entrainment and effects of nearby surfaces; Comparison of fire resistant and non resistant furniture.

12 pm – 1.00 pm (JBL0W05) Contained fires

1.00 pm - 2.00 pm lunch (Provided)

2.00pm – 3.00pm (fire scene) Pre-burn fire scene

3.00pm – 4.00pm (fire scene) The burn

4.00pm – 5.00pm (JBL0W05) Day 1 assessment

Wednesday 20th September 2017

Fire Investigation

9 am – 10 am (JBL1W01) The burn reviewed
10 am – 11 am (fire scene) Preliminary Scene Examination

Dynamic Risk Assessment of Burnt Scene; Observation & explanation of the fire scene indicators; Formulation of Initial hypotheses. Investigation Planning.

11 am – 11.30 am Coffee break

11.30 am – 12.30 pm (fire scene) Detailed Scene Examination

Identify Risk & Apply Control Measures including PPE; Fire Indicators- (suspicious / accidental); Hypothesis testing; Excavation Techniques; Exhibit Identification & Recording,

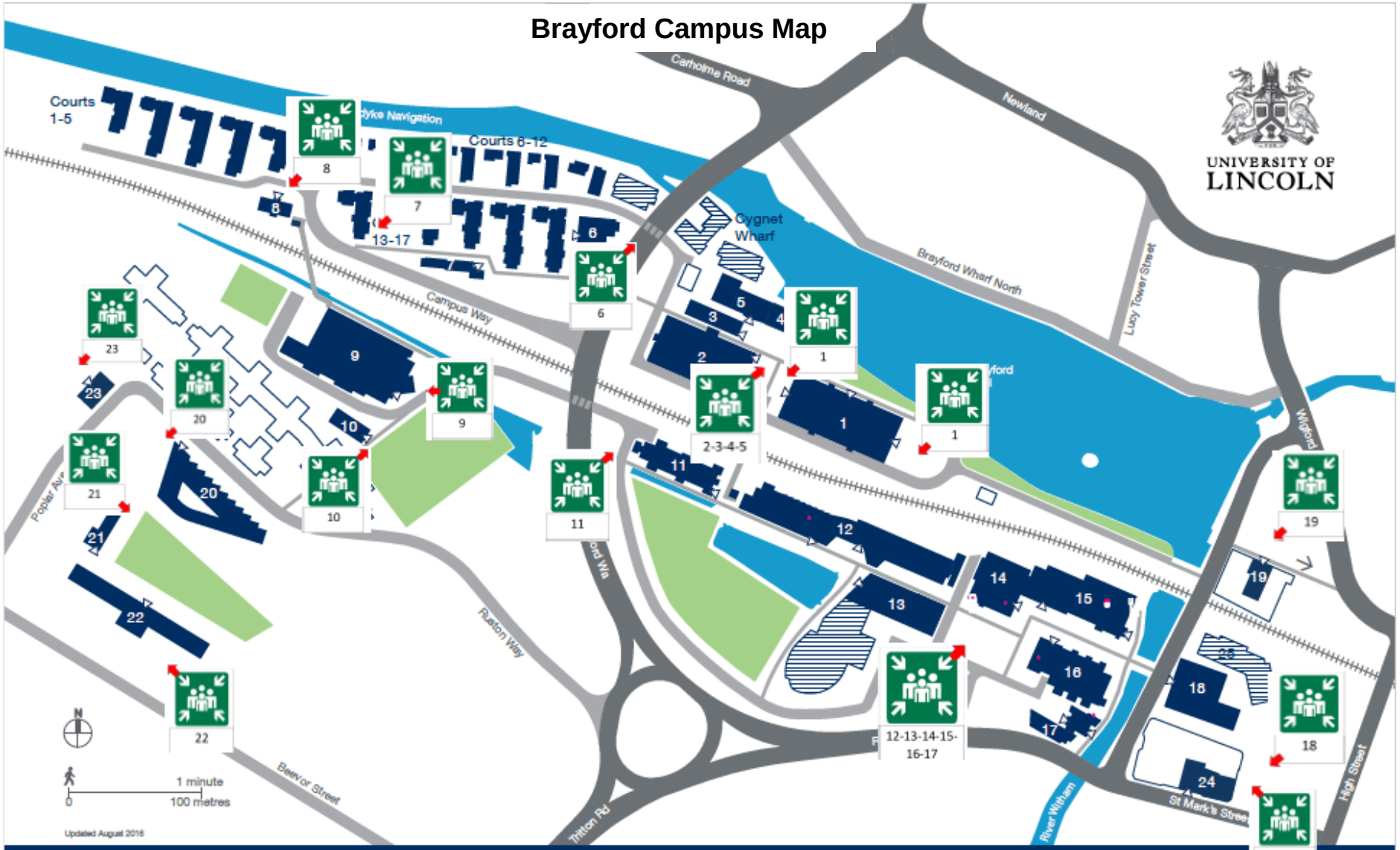
12.30 pm – 1.30 pm lunch (Provided)

1.30 pm – 2.00 pm (fire scene) Detailed Scene Examination continued

2.00 pm – 3.00 pm (fire scene)
Suspicious fires. Indicators and fire patterns; Fire tests; Canine Search of Fire Scene; Ignitable liquid residues & Sampling.

3.00 pm – 4.00 pm (JBL1W01) Day 2 assessment and course evaluation

Brayford Campus Map



1 (MB) Minerva Building
2 (MC) Media, Humanities & Technology
3 (SLB) Stephen Langton Building (Formerly EMMTEC)
4 (--) The Swan
5 (SS) Student Wellbeing Centre
6 (BH) Bridge House
7 (VH) Village Hall
8 (OCW) One Campus Way
9 (HP) Sports Centre
10 (WH) Witham House
11 (SB) Science Centre
12 (AAD) Art, Architecture & Design
13 (INB) Isaac Newton Building
14 (PA) Lincoln Performing Arts Centre
15 (--) Students' Union
16 (UL) Library
17 (--) Enterprise Building
18 (DCB) David Chiddick Building
19 (WIW) Witham Wharf
20 (THT) Think Tank
21 (MIH) Minster House
22 (JBL) Joseph Banks Laboratories
23 (CSB) Charlotte Scott Building
24 (JUN) Junxion
25 (SSB) Sarah Swift Building