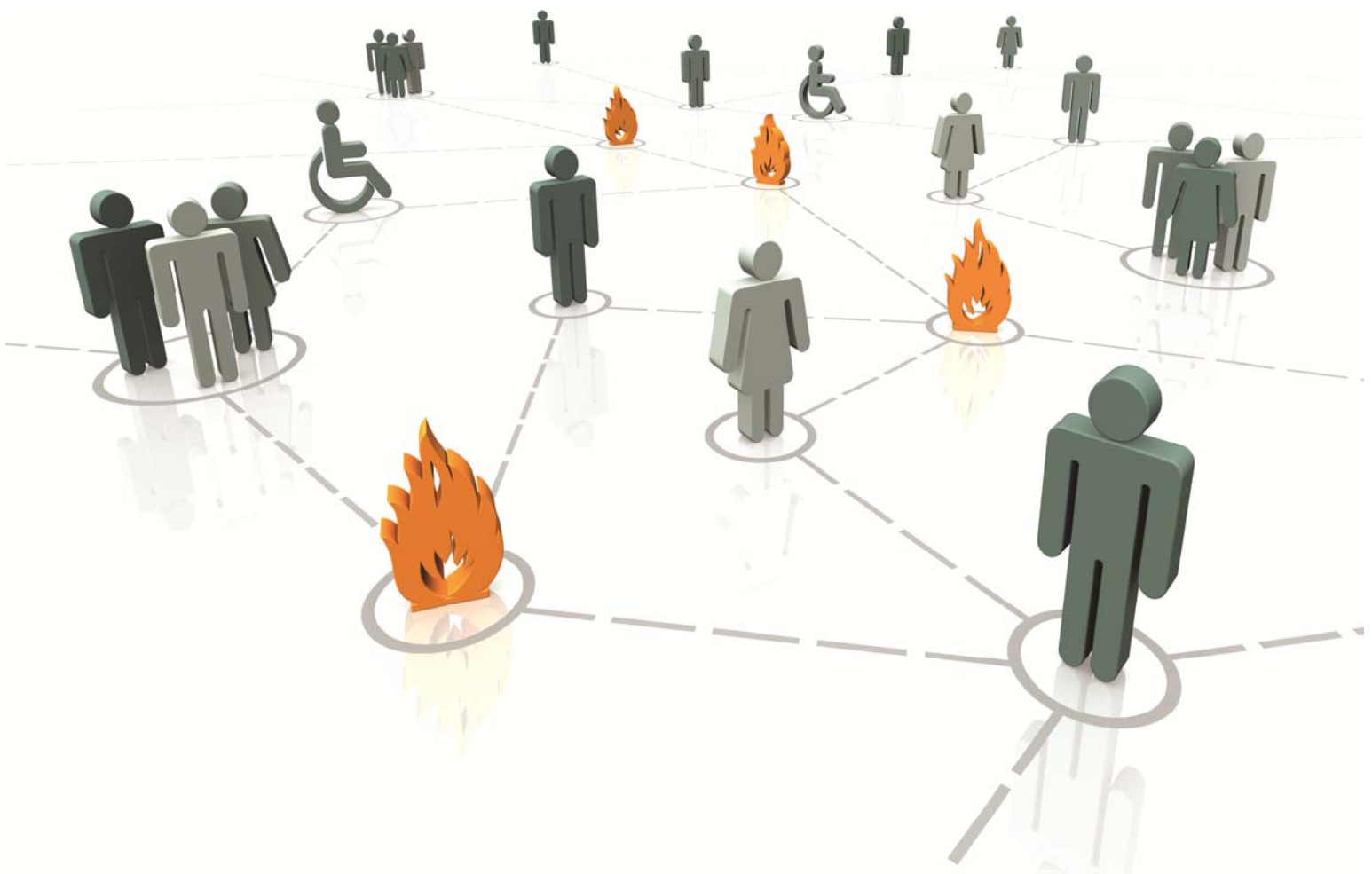


IFE: Level 5 Diploma in Fire Engineering Design



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1. Introduction

1.1 Qualification: IFE Level 5 Diploma in Fire Engineering Design

This document identifies courses available for delegates to achieve a Level 5 Diploma in Fire Engineering Design awarded by the IFE (Institution of Fire Engineers).

This document is designed to help individuals and organisations inform their training decisions about fire engineering courses we offer, their content, costs and methods of delivery. For more details, see Section 2.

1.2 Courses

The following three courses and distance learning module are required to achieve the qualification:

- i) Fire Engineering Design 1 (5 days)
- ii) Fire Engineering Design 2 (5 days)
- iii) Fire Engineering Design 3 (5 days)
- iv) Fire Engineering Design 4: Distance Learning Module

For more details, please see Section 3.

1.3 Target Audience

The qualification is aimed at building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, risk assessors, managers, surveyors and fire safety professionals.

It enhances previous experience in applying fire safety guidance such as Approved Document B and BS 9999 fire safety in the design, management and use of buildings.

Note individuals must demonstrate their suitability for attending the above courses.

1.4 Location and dates

1.4.1 In-house courses: Premises arranged by customer. Dates to be agreed.

1.4.2 Open-courses: Yarnfield Park. See Section 8. For dates see website: www.xact.org.uk/open-course-dates-and-costs/

1.5 Booking

1.5.1 In-house courses: Please contact Xact on: qualifications@xact.org.uk

1.5.2 Open-courses: Please use on-line booking form: www.xact.org.uk/open-course-dates-and-costs/

1.6 Terms and conditions

Terms and Conditions apply, please see our website link at [www.xact.org.uk/Terms and Conditions](http://www.xact.org.uk/Terms_and_Conditions) for a copy of our Terms and Conditions or contact us on courses@xact.org.uk to request a copy. All orders and bookings made will be subject to our Terms and Conditions.

2. Qualification

2. Qualification

2.1 History

The qualification specification for Level 5 qualification Fire Engineering Design was developed by CFOA (Chief Fire Officers Association), now the NFCC (National Fire Chiefs Council) for existing fire safety professionals who work or are planning to work in the fire engineering sector.

The qualification is listed on OFQUAL (Office of Qualifications and Examinations Regulation) register, qualification number is 603/2775/3.

2.2 Qualification

Qualification title: **IFE Level 5 Diploma in Fire Engineering Design**

The qualification is for individuals who work or intend to work in a position where they are involved in auditing or risk assessing fire engineering premises and designing or assessing fire engineering design submissions.

This Level 5 qualification is aimed at building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, fire risk assessors, managers, surveyors, architects and fire safety professionals, allowing them to work towards achieving Incorporated Engineering status IEng. See Section 2.8 for more information.

This qualification provides individuals with a practical understanding of fundamental engineering principles, enabling them to identify proven techniques and procedures to solve practical fire engineering problems and, when appropriate, to hand over to a fire engineer.

2.3 IFE: Institution of Fire Engineers



This qualification will be provided via the Institution of Fire Engineers. Xact is an Approved Assessment for this Awarding Body.

IFE Specification Qualification Handbook: *“Candidates should note that significant reading and self-study will also be required as attainment of this qualification requires candidates to develop awareness and understanding of an extensive range of industry-specific regulations and approved documents as well as developing underpinning understanding of relevant scientific and engineering principles.”*

2.4 Options for qualification

2.4.1 Courses

See Section 3 for details about the three courses and distance learning module to achieve this qualification.

2. Qualification

2.4.2 RPL: Recognition of Prior Learning

Please contact us on qualifications@xact.org.uk for more information

2.5 Qualification structure

- i) Ten mandatory Level 5 units
- ii) 230 guided learning hours (GLH)
- iii) 370 total qualification time (TQT)

Note 1: Guided learning hours (GLH): The number of hours with specific guidance towards learning.

Note 2: Total qualification time (TQT): GLH plus the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment.

2.5.1 Qualification Units

Unit	Unit title	Credit	TQT	GLH
1	Principles of Fire Development and Spread	2	20	10
2	Principles of Fire Engineering	6	60	40
3	Review the Effectiveness of Automatic Fire Suppression Systems	7	70	50
4	Fire Engineering Design and its Impact on Human Behaviour	3	30	20
5	Fire Engineering Design and its Impact on the Fire Resistance of Materials and Structures	3	25	20
6	Smoke Control and Heat Exhaust Ventilation Systems	6	60	30
7	Pressure Differential Systems	5	45	30
8	Fire Engineering Design and its Impact on the External Spread of Fire	2	20	10
9	Fire Engineering Design and its Impact on Access and Facilities for Fire-Fighting	2	20	10
10	Principles of Fire and Evacuation Modelling	2	20	10

2.6 Qualification requirements

A level 5 qualification requires delegates to demonstrate they possess the following knowledge and skill:

2.6.1 Knowledge requirement

- a) Practical, theoretical or technological knowledge and understanding of a subject or field of work to find ways forward in broadly defined, complex contexts.
- b) Ability to analyse, interpret and evaluate relevant information, concepts and ideas.
- c) Awareness of the nature and scope of the area of study or work.
- d) Informed awareness of different perspectives or approaches within the area of study or work.
- e) Ability to understand different perspectives, approaches or schools of thought and the reasoning behind them.

2. Qualification

2.6.2 Skills requirement

- a) Determine, adapt and use appropriate methods, cognitive and practical skills to address broadly defined, complex problems.
- b) Use relevant research or development to inform actions.
- c) Evaluate actions, methods and results.

2.7 Course route to qualification

2.7.1 Course entry requirement

Individuals who wish to attend the Level 5 Fire Engineering Design courses must demonstrate that they have the appropriate knowledge, understanding and experience to attend. Examples of suitable experience includes:

- a) Work place experience applying ADB and BS 9999, *or*
- b) Similar and relevant work place experience, *or*
- c) Level 4 Diploma in Fire Safety, *or*
- d) Similar and relevant qualification/s

2.7.2 Study commitment

To complete this qualification you are committing to a programme of study of 230 GLH (Guided Learning Hours) which consists of a wide variety of activities:

- a) Attending courses
- b) Self-study and research:
 - i) Reading course reference material
 - ii) Viewing online videos
- c) Application of learning and writing assignments

The programme consists of 100 hours attending courses with the remainder being from self-study, research, application of learning and written assignments. See also Section 2.3.

2.8 Professional Accreditation: Incorporated Engineer (IEng)

Incorporated Engineers (IEng) maintain and manage applications of current and developing technology and may undertake engineering design, development, manufacture, construction and operation (see Engineering Council website).

The Institution of Fire Engineers (IFE) is exploring how this qualification can be used as a route for professional accreditation as an Incorporated Engineer.

For information regarding Incorporated Engineer (IEng) see:

Fire Engineering Council: <https://www.engc.org.uk/ieng>

Institution of Fire Engineers: <http://www.ife.org.uk/Join/IncorporatedEngineer>

3. Fire Engineering Design Courses

3. Fire Engineering Design Courses

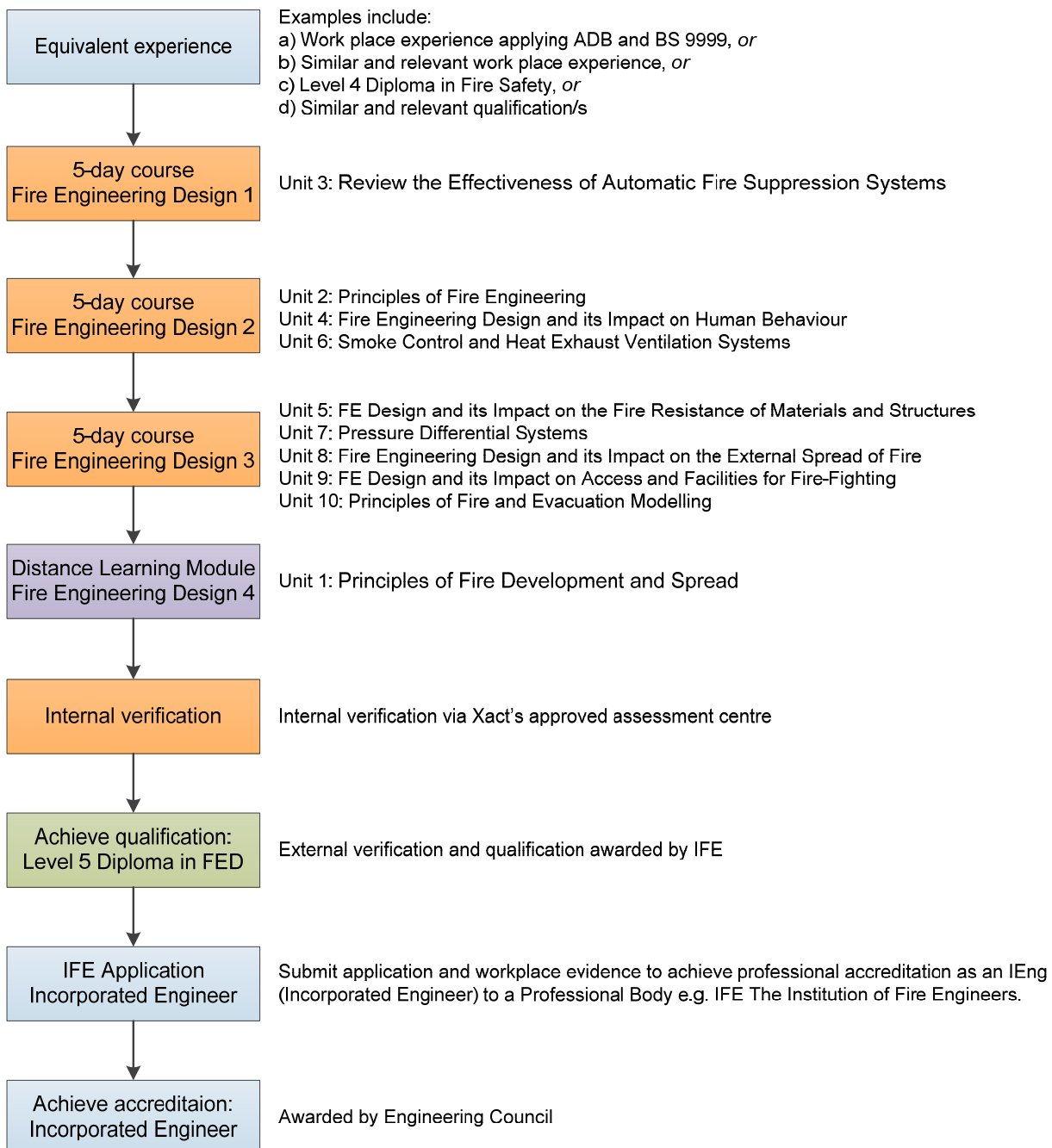
Introduction

The 10 qualification units are achieved via:

- a) Previous experience to ensure suitability for attending courses
- b) Completion of course work, course assignments and distance learning module

Qualification and Professional Accreditation flowchart

IFE: Level 5 Diploma in Fire Engineering Design



3.1 Course: Fire Engineering Design 1

3.1 Fire Engineering Design 1

Target audience

Aimed at those who work or intend to work in a position of responsibility for assessing the existing fire engineering arrangements in buildings, this course is for building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, risk assessors, managers, surveyors and fire safety professionals.

Aim

First of three courses to enable delegates to design fire engineering solutions or assess fire engineering design submissions.

Qualification units

- Unit 3: Review the Effectiveness of Automatic Fire Suppression Systems

Core content

In-depth study and research into:

- Principles of automatic fire suppression systems
- Residential and domestic sprinklers: BS 9251
- Residential water mist systems: NFPA 750, BS 8458
- Commercial sprinklers: BS EN 12845
- LPC Sprinkler rules and ESFR: Early Suppression Fast Response Fire Sprinkler Systems
- Hazard review of commercial sprinkler systems
- Commercial water mist systems: NFPA 750, BS 8489
- Oxygen Reduction Fire Prevention Systems: BS EN 16750
- Gaseous and foam systems: BS EN 1365-9: Foam systems
- Case studies of Automatic Fire Suppression Systems

Duration

5 days

Delivery

Sessions will be delivered using PowerPoint, flipchart, group discussion, videos, individual tuition and practical exercises.

Course assessment

Assessment of all course work is to the qualification assessment criteria.

3.1 Course: Fire Engineering Design 1

Post course

Delegates must complete course work within six weeks of course completion.

Prior learning

This course is part of a qualification to enable attendees to develop an understanding of fire engineering at technician level. It is a natural progression from achieving qualification: Level 4 Diploma in Fire Safety (Fire Inspectors) or an equivalent qualification or experience.

Delegates must have an in-depth working knowledge of the functional requirements of the building regulations and fire safety guidance documents such as Approved Document B, Volume 2 and BS 9999 fire safety in the design, management and use of buildings.

Note Individuals must demonstrate their suitability for attending this course.

3.2 Fire Engineering Design 2

Target audience

Aimed at those who work or intend to work in a position of responsibility for assessing the existing fire engineering arrangements in buildings, this course is for building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, risk assessors, managers, surveyors and fire safety professionals.

Those who have completed Fire Engineering Design 1 course.

Aim

Second of three courses to enable delegates to design fire engineering solutions or assess fire engineering design submissions.

Qualification units

- Unit 2: Principles of Fire Engineering
- Unit 4: Fire Engineering Design and its Impact on Human Behaviour
- Unit 6: Smoke Control and Heat Exhaust Ventilation Systems

Core content

In-depth study and research into:

- BS 7974 Application of fire engineering principles
- Tenability principles
- Principles of smoke obscuration/visibility
- Human behaviour in fire
- QDR: Qualitative Design Review
- Fire engineering design and consultations
- Probabilistic risk assessment
- Business impact assessment
- ASET – RSET timelines
- Fire Safety management and control procedures
- Interactions between fire safety systems
- Design fires and radiation shape factors
- SHEVS: Smoke and heat exhaust ventilation systems
- Commissioning, testing and maintenance programmes

Duration

5 days

3.2 Course: Fire Engineering Design 2

Delivery

Sessions will be delivered using PowerPoint, flipchart, group discussion, videos, individual tuition and practical exercises.

Course assessment

Assessment of all course work is to the qualification assessment criteria.

Post course

Delegates must complete course work within six weeks of course completion.

Prior learning

Delegates must have completed course: Fire Engineering Design 1.

3.3 Fire Engineering Design 3

Target audience

Aimed at those who work or intend to work in a position of responsibility for assessing the existing fire engineering arrangements in buildings, this course is for building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, risk assessors, managers, surveyors and fire safety professionals.

Those who have completed the Fire Engineering Design 2 course.

Aim

Final of three courses to enable delegates to design fire engineering solutions or assess fire engineering design submissions.

Qualification units

- Unit 5: FE Design and its Impact on the Fire Resistance of Materials and Structures
- Unit 7: Pressure Differential Systems
- Unit 8: Fire Engineering Design and its Impact on the External Spread of Fire
- Unit 9: FE Design and its Impact on Access and Facilities for Fire-Fighting
- Unit 10: Principles of Fire and Evacuation Modelling

Core content

- BS 7974 Application of fire engineering principles
- Radiation shape factors
- Applying fire engineering to the functional requirements of the building regulations:
 - B2: Internal fire spread (linings)
 - B3: Internal fire spread (structure)
 - B4: External fire spread
 - B5: Access and facilities for FRS
- Series and parallel pressure differential systems
- Principles of fire and evacuation modelling

Duration

5 days

Delivery

Sessions will be delivered using PowerPoint, flipchart, group discussion, videos, individual tuition, practical exercises and software programmes.

3.3 Course: Fire Engineering Design 3

Course assessment

Assessment of all course work is to the qualification assessment criteria.

Post course

Delegates must complete course work within six weeks of course completion.

Prior learning

Delegates must have completed course: Fire Engineering Design 2.

3.4 Distance learning: Fire Engineering Design 4

Target audience

Aimed at those who work or intend to work in a position of responsibility for assessing the existing fire engineering arrangements in buildings, this course is for building control officers, approved inspectors, fire engineers, fire safety auditors, inspectors, risk assessors, managers, surveyors and fire safety professionals.

Those who have completed the Fire Engineering Design 3 course.

Aim

Final of three courses to enable delegates to design fire engineering solutions or assess fire engineering design submissions.

Qualification units

- Unit 1: Principles of Fire Development and spread

Core content

- Explain the principles of fire development
- Explain how fires are initiated and develop within enclosure of origin
- Explain how smoke and toxic gases spread within and beyond enclosure of origin

Distance learning

This module requires delegates to conduct research and self-study.

Course assessment

Assessment of all course work is to the qualification assessment criteria.

Post course

Delegates must complete course work within six weeks of issue.

Prior learning

Delegates must have completed course: Fire Engineering Design 3.

4. In-house and open course costs

Course	Duration	In-house	Open
Fire Engineering Design 1	5 days	8,900	890
Fire Engineering Design 2	5 days	8,900	890
Fire Engineering Design 3	5 days	8,900	890
Fire Engineering Design 4: Distance Learning Module	DL	0 ¹	0 ¹

¹ Cost included when attending previous three courses.

Individual unit costs		Duration	Course	Day	Open
1	Principles of Fire Development and Spread	DL	NA	NA	150
2	Principles of Fire Engineering	2 days	2	1-2	500
3	Review the Effectiveness of Automatic Fire Suppression Systems	5 days	1	1-5	890
4	Fire Engineering Design and its Impact on Human Behaviour	1 day	2	2	250
5	Fire Engineering Design and its Impact on the Fire Resistance of Materials and Structures	1 day	3	1	200
6	Smoke Control and Heat Exhaust Ventilation Systems	3 days	2	3-5	600
7	Pressure Differential Systems	2 days	3	4-5	450
8	Fire Engineering Design and its Impact on the External Spread of Fire	1 day	3	2	200
9	Fire Engineering Design and its Impact on Access and Facilities for Fire-Fighting	1 day	3	3	200
10	Principles of Fire and Evacuation Modelling	1 day	3	5	250

Qualification fees

Unit accreditation (per unit), see notes 2 + 3	25
Qualification	60

4. Costs

Notes:

Note 1: Delegate suitability: Individuals must demonstrate their suitability for attending these courses.

Note 2: Individual unit costs: For those who wish to achieve a qualification unit accreditation only.

Note 3: Unit accreditation: A fee for those not working towards the complete qualification, but wish to receive an awarding body certificate confirming they have successfully completed a unit.

Note 4: In-house courses:

- i) **Inclusive cost:** For course e.g. notes, guidance documents, exercises, tutor travelling and accommodation. See iv) below.
- ii) **Teaching facilities:** Does not include teaching facilities provided by customer. See Appendix B.
- iii) **Delegate numbers:** Maximum 14 delegates for in-house courses.
- iv) **Additional costs:** These will be charged at cost and are incurred for:
 - If tutor car parking and refreshments are unavailable.
 - Extended travel e.g. flights to Channel Islands, Isle of Man, Northern Ireland and Eire. Extended. Extended travel to remote locations. Please contact us to confirm.

Note 5: Open courses: Cost includes teaching facilities, refreshments and lunch during teaching day. Additional charge for bed, breakfast and evening meal – see below.

Note 6: Open courses are normally located at Yarnfield Park Training and Conference Centre, Yarnfield Lane, Yarnfield, Stone, Staffordshire ST15 0NL.

Note 7: Overnight accommodation with en-suite facilities is available at Yarnfield Park at £59 for bed, breakfast and evening meal. Sunday night rate at £47 as no evening meal is available. Snacks such as soup, sandwiches and pies can normally be purchased from bar between 6-9 pm. To confirm please call reception on 01785 762605.

Note 8: Open courses are also provided at other locations. Accommodation charges at these venues will differ from those quoted above.

Note 9: VAT will be added at the current rate.

Note 10: Payment terms: Within 30 days of invoice date for customers with a suitable credit rating, or one month prior to course commencement.

5. Distance learning

5. Distance learning

Delegates need the following resources to complete on-line distance learning options:

- Computer with internet access
- Adobe reader software
- Access to a printer

Distance learning module

When part of the course is completed on-line by pre-course study or post course assignment or both:

On-line courses

Delegates are provided with:

- Online course guide to the module
- Reading material for course
- Module work book for completion before course commences

Note: Delegates will have to obtain copies of copyrighted material e.g. British Standards, through their own organisations.

Post course assignment

Delegates are provided with all resources during the course. They complete the last phase in their workplace, a Workplace fire risk assessment or audit.

6. Teaching facilities for courses

6. Teaching facilities for in-house courses

All courses:

Require a main teaching room with following facilities:

- Delegate chairs and desks (minimum 0.75m x 0.75m per delegate)
- Tutor table and chair
- Whiteboard, dry marker pens and eraser (or flipchart)
- Data projector for PowerPoint and videos with either:
 - Computer which can upload PowerPoint from a memory stick, *or*
 - Connection for laptop
- Projection screen for data projector
- 240v electrical supply for laptop
- Tutor and teaching staff refreshments during teaching day

7. Course support information

7. Course support information

National Occupational Standards and IPDS modules

Courses are designed to cross-map with the relevant qualification units.

Legislation, British Standards and technical guidance documents



Delegates have access to a wide range of Technical Guidance, British Standards, best practice and reference material on courses. Hard copies for classroom work and on-line versions for distance learning and study programmes are available.

Approved Assessment Centre and National Awarding Bodies

Xact is an Approved Assessment Centre and provides qualifications via national awarding bodies. We are externally audited by the awarding bodies which are regulated by OFQUAL, the regulator of qualifications, examinations and assessments.

Continual Professional Development

All delegates receive CPD certificates on course completion. All courses are designed and assessed to approved centre standards.

Courses

Courses consist of three phases:

- Learning – acquiring knowledge, understanding and skills
- Practising learning – using real-life reconstructions designed to replicate workplace activities of delegates
- Comprehensive debrief – to confirm learning

Delegate numbers

Xact restricts delegate numbers to allow an optimal level of interaction between delegates and tutor. This provides delegates with the best opportunity to achieve learning outcomes

Assessment

Courses are assessed. Assessment standards are based on OFQUAL and awarding body requirements.

8. Open courses: Stone conference centre

8. Open courses: Stone conference centre

Address

Yarnfield Park Training and Conference Centre, Yarnfield, Stone, Staffordshire ST15 0NL



Meals

Breakfast, lunch and evening meals are provided in the restaurant



Overnight accommodation

This includes:

- Evening meal
- En-suite bedroom
- Breakfast



9: Xact Consultancy and Training Limited

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Insurance

Xact are insured for:

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