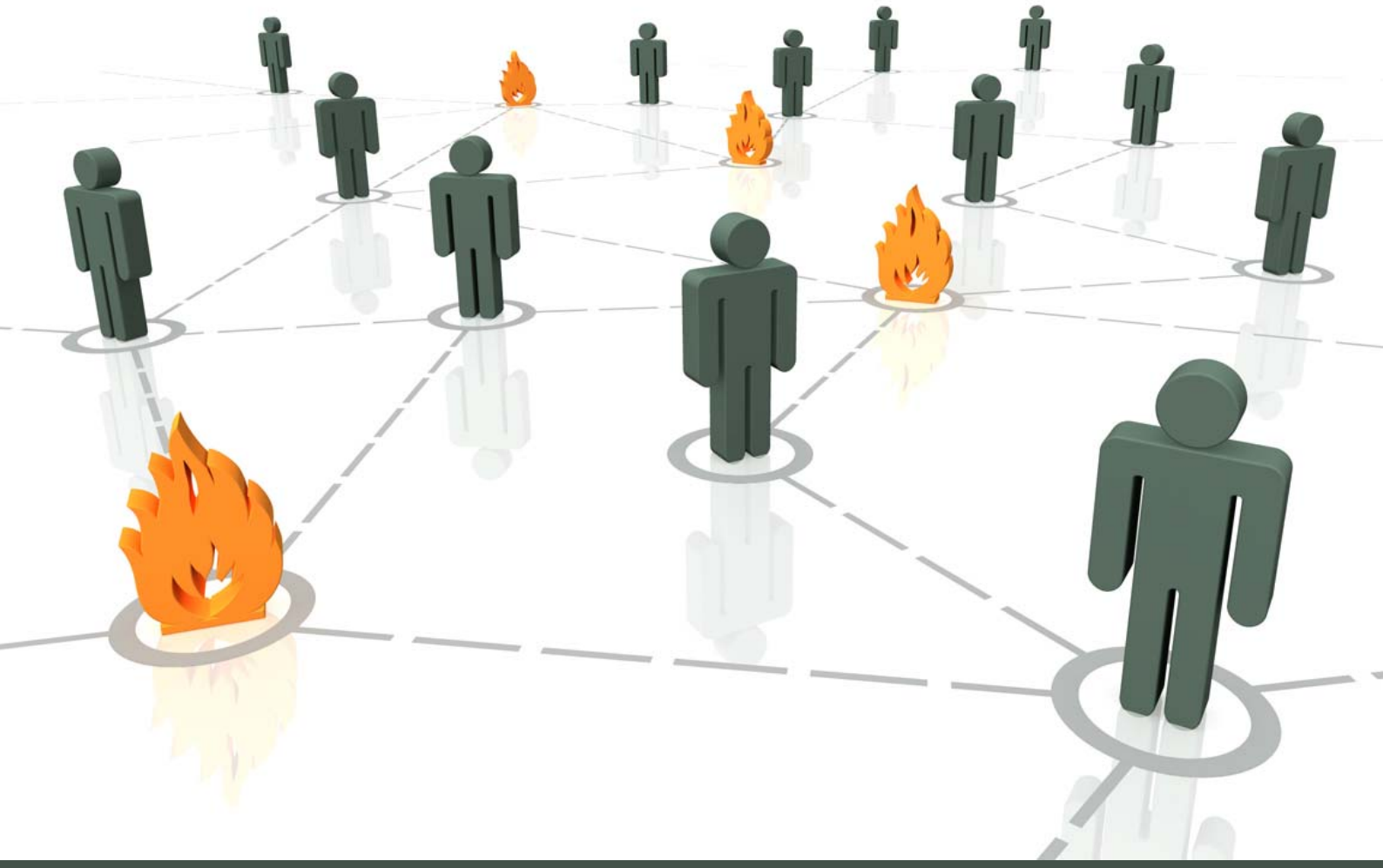
Level 5 Fire Engineering Design

Courses and qualification



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Contents

1. Introduction

This document is designed to help individuals and organisations inform their training decisions about the specialist fire engineering courses we offer, their content, costs and methods of delivery.

1.1 Qualification

See Section 1: Qualification.

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 Delegate numbers

i) **In-house courses**: A maximum of 14 delegates, contact courses@xact.org.uk
ii) **Open courses**: See website for dates and costs: www.xact.org.uk/courses/fire-engineering/

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 2.7 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.

2.4.2 RPL: Recognition of Prior Learning

The option for existing practitioners to achieve this qualification by RPL will be available. Contact us on qualifications@xact.org.uk to register your interest in RPL and we will update you when more information becomes available.

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 Course route to qualification

2.6.1 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

2.6.2 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.

2.7 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

Introduction

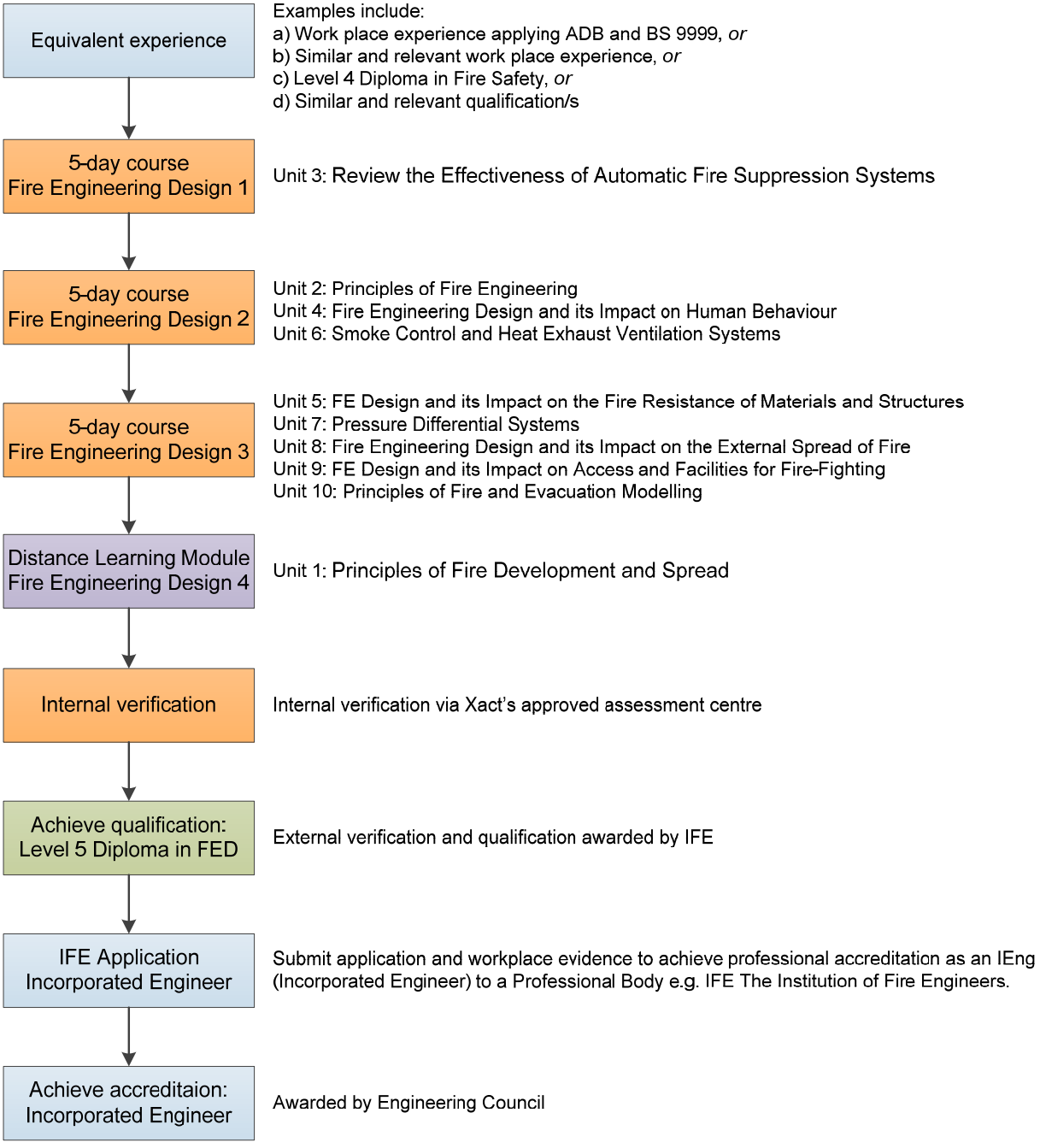
The 10 qualification units are achieved via:

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 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.

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 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

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 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 2.

3.4 Distance Learning Module: 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.

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

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.

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 with either:

  Computer which can upload PowerPoint from a memory stick, *or*

  Connection for laptop
- Projection screen for data projector
- 240v electrical supply for delegate and tutor laptops.
- Tutor and teaching staff refreshments during teaching day

Stone conference centre – open courses

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
- Free internet access
- Use of gym

Terms and conditions

Booking terms and conditions

These are the terms and conditions for booking in-house courses provided by Xact Consultancy and Training Limited (Xact)

Course booking

To secure a course, a booking form must be completed with. Once we have received your booking form we will send you confirmation

Deposit

Where booking instructions indicate a deposit is required the course is not confirmed until the deposit is paid

Payment

Xact will invoice the customer for the course cost on course completion. Xact makes an additional charge per person for qualifications. VAT (UK mainland only) is added to the amount at the current rate. Invoices must be paid with 30 days of invoice date

Course resources

The course requires resources to be provided by both the customer and Xact. Please ensure you provide the resources detailed in the proposal/agreement

Health and safety

Please inform Xact of any risk assessments, health and safety matters and requirements which Xact needs to be aware of or comply with during the courses delivery, at least 5 days before course commences

Please inform Xact of any delegate who has mobility, visual, hearing or cognitive impairment or condition which may affect their learning, so that we can work with you/the impaired person to identify ways in which we can support learning. Please inform us at least 10 days before course commences

Cancellation by customer

Xact may exercise its right to charge the following percentages of the total amount for pre-booked courses:

- Cancellation 5-9 weeks before event, cancellation charge 25%
- Cancellation 2-4 weeks before event, cancellation charge 50%
- Cancellation 0-1 weeks before event, cancellation charge 100%

Cancellation by Xact

Xact reserves the right to cancel or modify any training event. In the event of a cancellation where an alternative cannot be provided any payment received in respect of that course will be refunded in full.

Xact Consultancy and Training Limited

Company Registration No:	05295715
VAT Registration No:	855 4570 04

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VAT Registration No:	855 4570 04
Web site:	www.xact.org.uk
Email:	info@xact.org.uk

Insurance

Xact are insured for:

Public and Employers Liability

Professional Indemnity

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