



# Training catalogue 2012

# Welcome to IChemE's training catalogue 2012

**IChemE provides products and services tailored to support the career-long development of chemical, process and related professionals. We constantly strive to meet industry needs and all our courses reflect this.**

The comprehensive programme of quality assured training courses for 2012 includes over 50 courses which take place across the UK and internationally.

The range of subject areas include: safety, process automation and control, project management and process. With courses on HAZOP to heat transfer, explosion hazards to energy savings, pressure relief to project management, you can be sure to find a course that meets your development needs.

For detailed information on the courses featured in the catalogue, including outline programmes and testimonials from past attendees, visit [www.icheme.org/courses](http://www.icheme.org/courses). If you have any specific questions contact the relevant course organiser.

## In-company training

If you think that several of your colleagues could benefit from the same course, why not speak to us about running it in-house? An in-house course will guarantee the programme addresses your own operational processes, whilst generally being a more cost effective option.

Contact [courses@icheme.org](mailto:courses@icheme.org) to discuss your requirements and request a quotation.

## e-learning

IChemE also offers a wide range of online courses which offer a flexible way to develop new skills at a time and place that suits you. See pages 35–37 or visit [www.icheme.org/elearning](http://www.icheme.org/elearning) for details.

We feel you will find this catalogue invaluable when planning your training requirements for the coming year and find a successful course to further develop yourself.

## How to book

Contact the relevant course organiser to reserve your place. For courses run by IChemE, use the booking form at the back of the catalogue or book online at [www.icheme.org/courses](http://www.icheme.org/courses)

Email: [courses@icheme.org](mailto:courses@icheme.org)

Tel: +44 (0)1788 578214

Fax: +44 (0)1788 560833



## Process safety and the board: an executive programme in process safety management

**Review your understanding of process safety management to keep operations safe and meet your obligations for the direction of the organisation**

A one-day, customised programme with specific objectives to enhance the safety assurance of the business by:

- developing the board's understanding of the principles of process safety management, of human factors and how the safety culture affects performance
- ensuring board awareness of the process safety hazards of the business and of their role in managing these hazards
- methods used to inform the board of the status of process safety across the company
- exploring how the board's commitment to process safety is understood throughout the company and by the contractors employed in its operations

To find out more or register your interest tel: +44 (0)1788 534431, email: [courses@icheme.org](mailto:courses@icheme.org)

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# Course schedule

Date	Course title	Location	Page
<b>January</b>			
16-20	Advanced control systems	Cranfield, UK	6
17-19	Control, operation and design of reciprocating gas compressors	London, UK	14
23-27	Process simulation and design	Cranfield, UK	29
25	Sustainable design workshop	London, UK	34
31	Hazard study awareness	Manchester, UK	21
<b>February</b>			
1-3	Design and operation of floating production, storage and off-loading facilities (FPSOs)	Aberdeen, UK	15
6-7	Control, operation and design of reciprocating gas compressors	Houston, USA	14
6-8	Production, process and emergency systems on oil and gas installations	Aberdeen, UK	30
8	Assessment and control of electrostatic ignition hazards	Grimsby, UK	8
8-10	Control and operation of centrifugal gas compressors	Houston, USA	13
13-15	Control and operation of centrifugal gas compressors	Kuala Lumpur, Malaysia	13
21-22	Essentials of pressure systems	York, UK	17
27-28	Control, operation and design of reciprocating gas compressors	Calgary, Canada	14
27 Feb – 1 Mar	Quality by design for effective bioprocess characterisation and validation	London, UK	32
29 Feb – 1 Mar	Control and operation of centrifugal gas compressors	Calgary, Canada	13
29 Feb – 2 Mar	Production, process and emergency systems on oil and gas installations	Perth, Australia	30
<b>March</b>			
5-7	Practical aspects of process control and instrumentation	Aberdeen, UK	28
7-8	SIL determination IEC 61508/61511	Cheshire, UK	33
12-14	Design of experiments for bioprocess optimisation	London, UK	16
13-15	HAZOP study for team leaders and team members	Brisbane, Australia	24
13-15	Pressure relief—a proven approach	Bristol, UK	29
14-16	Control and operation of centrifugal gas compressors	Aberdeen, UK	13
19-20	Control, operation and design of reciprocating gas compressors	Perth, Australia	14
19-23	Chemical engineering for scientists	Shipley, UK	10
20-23	HAZOP study for the offshore oil and gas industry	Aberdeen, UK	23
21-23	Control and operation of centrifugal gas compressors	Perth, Australia	13
26-27	Control, operation and design of reciprocating gas compressors	Brisbane, Australia	14
27-28	Communication and presentation skills for engineers	Rugby, UK	12
28-30	Control and operation of centrifugal gas compressors	Brisbane, Australia	13
<b>April</b>			
16-20	Fundamentals of process safety	Perth, Australia	18
17-19	HAZOP study leadership and management	London, UK	25
24-26	Alarm management	Manchester, UK	6
25-27	Practical aspects of process control and instrumentation	Kuala Lumpur, Malaysia	28
30 Apr – 4 May	Pumps and pumping systems	Cranfield, UK	32
<b>May</b>			
2-3	Design and operation of piping systems	Edinburgh, UK	15
2-3	What every engineer should know about contracts	Rugby, UK	34
10-11	Control, operation and design of reciprocating gas compressors	Aberdeen, UK	14
7-11	Fundamentals of process safety management Boksburg,	South Africa	19
14-16	Biomanufacturing innovation tools: speeding from concept to commerce	London, UK	8
14-16	Practical aspects of process control and instrumentation	Calgary, Canada	28
14-16	Production process and emergency systems on oil and gas installations	Houston, USA	30
14-18	SIL determination and hazard assessment	Cheshire, UK	33
15	Appraisal skills for the chemical and process engineer	Rugby, UK	7
15-16	Layer of protection analysis (LOPA)	Manchester, UK	26
22-23	Managing deterioration of plant equipment	York, UK	27
29-30	Area classification	Edinburgh, UK	7

Date	Course title	Location	Page
<b>June</b>			
11-13	Applied hazard and operability (HAZOP) study	Manchester, UK	22
13-14	SIL determination IEC 61508/61511	Edinburgh, UK	33
18-20	Control and operation of centrifugal gas compressors	Aberdeen, UK	13
18-22	Fundamentals of process safety	Aberdeen, UK	18
19-21	HAZOP study for team leaders and team members	Perth, Australia	24
19-21	Pressure relief – a proven approach	Manchester, UK	29
20-22	Control and operation of centrifugal gas compressors	Houston, USA	13
21-22	Carbon footprinting	Manchester, UK	9
27-28	IChemE forms of contract	London, UK	26
<b>July</b>			
2-6	Fundamentals of process safety	Kuala Lumpur, Malaysia	18
4-6	Chemical plant commissioning	Leeds, UK	11
10-11	Control, operation and design of reciprocating gas compressors	Kuala Lumpur, Malaysia	14
23-25	Chemical engineering for non chemical engineers	Perth, Australia	9
<b>August</b>			
1-3	Production process and emergency systems on oil and gas installations	Brisbane, Australia	30
13-17	Fundamentals of process safety	New Plymouth, New Zealand	18
<b>September</b>			
3-5	Production process and emergency systems on oil and gas installations	Aberdeen, UK	30
4-5	Introductory HAZOP - applied hazard and operability study	Melbourne, Australia	22
5-6	SIL determination IEC 61508/61511	York, UK	33
10-11	Control, operation and design of reciprocating gas compressors	Calgary, Canada	14
10-12	HAZOP study leadership and management	Rugby, UK	25
11-12	Essentials of pressure systems	Edinburgh, UK	17
12-14	Control and operation of centrifugal gas compressors	Calgary, Canada	13
18-19	Layer of protection analysis (LOPA)	Manchester, UK	26
18-20	Pressure relief – a proven approach	York, UK	29
24-26	Control and operation of centrifugal gas compressors	Aberdeen, UK	13
<b>October</b>			
1-5	Chemical engineering for scientists	Shipley, UK	10
1-5	Fundamentals of process safety	Preston, UK	18
2-4	Alarm management	Edinburgh, UK	6
8-12	Heat transfer	Cranfield, UK	25
9-10	Communication and presentation skills for engineers	Rugby, UK	12
10-11	What every engineer should know about contracts	London, UK	34
10-12	Production process and emergency systems on oil and gas installations	Kuala Lumpur, Malaysia	30
15-17	Control and operation of centrifugal gas compressors	Kuala Lumpur, Malaysia	13
15-17	Design and operation of floating production, storage and off-loading facilities (FPSOs)	Perth, Australia	15
16-17	Area classification	Manchester, UK	7
16-17	New to management	London, UK	27
16-18	Alarm management	Cork, Ireland	6
16-18	Pressure relief – a proven approach	Cork, Ireland	29
17	Hazard study awareness	Grimsby, UK	21
22-24	Engineering project management	Manchester, UK	16
22-24	Practical distillation technology	London, UK	28
22-26	Fundamentals of process safety	Brisbane, Australia	18
23-24	Design and operation of piping systems	York, UK	15
29-30	Control, operation and design of reciprocating gas compressors	Perth, Australia	14
31 Oct – 2 Nov	Control and operation of centrifugal gas compressors	Perth, Australia	13
31 Oct – 2 Nov	Practical aspects of process control and instrumentation	Kuala Lumpur, Malaysia	28

Date	Course title	Location	Page
<b>November</b>			
5-6	Control, operation and design of reciprocating gas compressors	Houston, USA	14
5-7	Design and operation of floating production, storage and off-loading facilities (FPSOs)	Aberdeen, UK	15
5-9	Fundamentals of process safety (nuclear)	Preston, UK	20
6	Coaching for chemical engineers	London, UK	11
6-8	Pressure relief – a proven approach	Edinburgh, UK	29
6-9	HAZOP study for team leaders and team members	Manchester, UK	24
7-9	Control and operation of centrifugal gas compressors	Houston, USA	13
12-13	Control, operation and design of reciprocating gas compressors	Melbourne, Australia	14
12-14	Project engineering	Melbourne, Australia	31
13-15	Chemical engineering for other engineers	Shipleigh, UK	10
13-15	Practical aspects of process control and instrumentation	Aberdeen, UK	28
14	Appraisal skills for the chemical and process engineer	Rugby, UK	7
14-15	Control and operation of centrifugal gas compressors	Melbourne, Australia	13
19-21	HAZOP study leadership and management	London, UK	25
19-23	SIL determination and hazard assessment	Edinburgh, UK	33
28	Assessment and control of electrostatic ignition hazards	Warrington, UK	8
28-29	Managing deterioration of plant equipment	Edinburgh, UK	27
28-29	SIL determination IEC 61508/61511	Cork, Ireland	33
<b>December</b>			
3-4	Control, operation and design of reciprocating gas compressors	Calgary, Canada	14
3-5	Control and operation of centrifugal gas compressors	Aberdeen, UK	13
5-7	Control and operation of centrifugal gas compressors	Calgary, Canada	13
10-12	Production process and emergency systems on oil and gas installations	Aberdeen, UK	30



## Human factors in health and safety

A professional development programme for the process industries

Third programme commences in May 2012

**Module 1** An introduction to Human factors: 23–24 May 2012

**Module 2** Human reliability and failure: 19–20 September 2012

**Module 3** Organisational issues: 16–17 January 2013

**Module 4** Human factors and design: 22–23 May, 2013

**New for 2012-2013** The Human factors programme will run in Australia  
**Register your interest NOW!**

For more information and to register, visit: [www.icheme.org/HumanFactors](http://www.icheme.org/HumanFactors)

Email: [conferences@icheme.org](mailto:conferences@icheme.org)

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**ICHEME** ADVANCING CHEMICAL ENGINEERING WORLDWIDE

## Advanced control systems

This course introduces a systematic approach to the design of measurement systems for process applications. On completion, participants should:

- have comprehensive knowledge about structures of modern computer control systems
- understand the dynamics of processes and modelling methods
- understand the design processes for continuous and discrete controllers for these systems

### Key topics:

- computer control system structure
- process modelling and dynamics
- feedback control
- enhanced controllers
- digital controllers
- multivariable control
- advanced control topics
- case studies for process control systems
- hands-on control system design using Simulink and Matlab

### Who will benefit:

Engineers employed in the process industries who are involved with process automation and control, either in the design or development of control systems, or in their application, operation and management.

### Course director:

Dr Yi Cao, Cranfield University

**Dates:** 16–20 January 2012

**Location:** Cranfield, UK

**Fees:** £1500.00 + VAT

### Contact:

Samantha Skears, Department of Process and Systems Engineering, Cranfield University, UK

**Tel:** +44 (0)1234 754766, **Fax:** +44 (0)1234 754685

**Email:** [s.skears@cranfield.ac.uk](mailto:s.skears@cranfield.ac.uk)

[www.cranfield.ac.uk/soe/shortcourses](http://www.cranfield.ac.uk/soe/shortcourses)

## Alarm management

A practical training course in the application of good alarm management practice to the requirements of EEMUA 191.

### Key topics:

On completion of this course participants will be able to:

- understand why their alarm system should be managed
- have a good awareness of EEMUA 191 and its core principles
- develop an alarm system management strategy
- develop an alarm design strategy
- better understand effective alarm usage and how to configure alarms
- have an understanding of how to measure and what tools are available
- understand what is required to run an alarm rationalisation project
- identify nuisance alarms and assemble a toolkit that helps reduce them

### Who will benefit:

Anyone involved in the specification, design, operation and maintenance of control systems or anyone who has an interest in improving their current alarm system.

### Course directors:

Tony Atkinson and Peter Bruce, ABB Engineering Services

### Dates:

24–26 April 2012  
2–4 October 2012  
16–18 October 2012

### Location:

Manchester, UK  
Edinburgh, UK  
Cork, Ireland

### Fees:

IChemE member – £1460.00 + VAT  
Non member – £1575.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK

**Tel:** +44 (0)1642 372121, **Fax:** +44 (0)1642 372296

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## Appraisal skills for engineers

The ability to lead a team and develop staff, for example by carrying out staff appraisals, is one of the core competency standards for Chartered Engineers, as described in the Engineering Council's UK Standard for Professional Engineering Competence.

This workshop has been designed to help managers and lead engineers in the process industries to prepare and conduct an effective appraisal discussion and learn how to build effective development plans for their staff.

### Objectives:

At the end of the course, delegates should be able to:

- describe the key steps needed to prepare for an effective appraisal discussion
- structure and conduct an appraisal discussion to achieve the desired objectives
- share performance feedback and discuss performance improvements
- identify, discuss and confirm strengths and development needs
- take steps to agree a development plan for the individual
- use the key skills of attending, active listening, exploring, confirming understanding and where necessary, confronting performance shortfalls

### Who will benefit:

Managers, lead engineers, supervisors and others who appraise and manage the performance of staff as part of their role.

### Course director:

Dr Jamie Cleaver, PhD, CEng, FICHEM

### Dates:

15 May 2012  
14 November 2012

### Location:

Rugby, UK  
Rugby, UK

### Fees:

ICHEM member – £400.00 + VAT  
Non-member – £450.00 + VAT

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/appraisal](http://www.icheme.org/appraisal)

## Area classification

The classification of hazardous areas is an integral part of the overall risk assessment process required under the Dangerous Substances Explosive Atmospheres Regulations 2002 (DSEAR). Its purpose is to define the extent, frequency and duration of any occurrence of an explosive atmosphere (the zone). The zone in turn defines the requirements for the selection of equipment and protective systems so as to prevent sources of ignition. Compliance with the DSEAR regulations is mandatory for any operator handling dangerous substances.

### Key topics:

- introduction to the risk assessment requirements under DSEAR (2002), in particular the requirements for area classification and selection of equipment to avoid ignition sources
- the flammability of gases, vapours and dusts and how they relate to area classification
- introduction to BSEN60079-10, the British Standard for area classification relating to gases and vapours and BSEN61241-10, the British Standard for area classification relating to dusts

### Who will benefit:

Recent graduates and experienced staff with operations, process, engineering and safety responsibilities.

### Course director:

Mike Ellis, ABB Engineering Services

### Dates:

29–30 May 2012  
16–17 October 2012

### Location:

Edinburgh, UK  
Manchester, UK

### Fees:

ICHEM member – £995.00 + VAT  
Non-member – £1075.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK

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[www.abb.com](http://www.abb.com)

## Assessment and control of electrostatic ignition hazards

Electrostatic hazards are common in all sectors of the chemical and process industry during the handling and processing of flammable powders, gases and liquids. Electrostatic sparks are capable of igniting flammable atmospheres, and are thought to be the cause of 10% of fires and explosions at a rate of 1 per day in the European chemical industry. An important requirement of the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) is to carry out a risk assessment of potential ignition sources, specifically including electrostatic discharges.

This practical course aims to improve awareness of hazards associated with static electricity and provide the basic approach to identifying at-risk areas on a process plant. It also provides an insight into the more common control measures used to reduce the risk of a fire or explosion due to electrostatic ignition. Participants should gain sufficient understanding of the subject to be able to carry out electrostatic risk assessments for DSEAR compliance.

### Key topics:

- overview of electrostatic ignition hazards
- flammability hazards
- generation of electrostatic charge
- charge accumulation
- electrostatic discharges
- control measures
- incident case studies

### Who will benefit:

Anyone who designs, operates, maintains or manages the safety of plants where flammable powders, vapours or liquids are handled.

### Course director:

Graeme Ellis, ABB Engineering Services

### Dates:

8 February 2012  
28 November 2012

### Location:

Grimsby, UK  
Warrington, UK

### Fees:

IChemE member – £530.00 + VAT  
Non-member – £575.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK

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[www.abb.com](http://www.abb.com)

## Biomanufacturing innovation tools: speeding from concept to commerce

Addresses the major issues in taking products from research through to manufacture with special emphasis on speed to manufacture for both clinical trials and commercial production. The course is part of the UCL-accredited short courses programme in bioprocessing, designed specifically for industrialists.

### Key topics:

- radical approaches to efficient process development
- development of R&D plans
- technology transfer
- production of materials for clinical applications
- regulatory considerations
- aspects of quality systems management
- outsourcing options

### Who will benefit:

Those interested in learning how to deal with the internal and external factors governing the fast, efficient and successful translation of research into products.

### Course director:

Eli Keshavarz-Moore, University College London

### Dates:

14–16 May 2012

### Location:

London, UK

### Fees:

£1300.00 + VAT

### Contact:

The Advanced Centre for Biochemical Engineering,

University College London, UK

Tel: +44 (0)207 679 1316

Fax: +44 (0)207 209 0703

Email: [mbi-training@ucl.ac.uk](mailto:mbi-training@ucl.ac.uk)

[www.ucl.ac.uk/biochemeng/industry/mbi](http://www.ucl.ac.uk/biochemeng/industry/mbi)

## Carbon footprinting

Designed to provide an understanding of the fundamentals for estimating carbon footprints of products, processes and technologies. Life Cycle Analysis (LCA), used to calculate the carbon footprint along supply chains, will be explained and applied in a number of practical case studies and hands-on exercises using the CCaLC carbon footprinting software tool. The differences between the ISO 14044 and PAS2050 standards will be examined, and the advantages and disadvantages of carbon labelling will be discussed.

### Key topics:

Participants will learn about a range of issues related to carbon footprinting, including:

- the requirements of the LCA and carbon footprinting standards ISO 14044 and PAS2050
- how to estimate a carbon footprint for business-to-business and business-to-consumer communication
- how to identify and reduce carbon 'hot spots' along supply chains.

### Who will benefit:

This course is aimed at corporate and other organisations, and could in particular be useful for:

- environmental and sustainable development managers
- technical and operations managers
- communications and marketing managers
- R & D managers
- estates and business development managers
- any other professionals who wish to update their knowledge on carbon footprint-related issues.

### Course director:

Professor Adisa Azapagic FICHEME FRSC FRSA

**Dates:** 21–22 June 2012

**Location:** Manchester, UK

### Fees:

ICHEME member – £700 + VAT  
Non-member – £800 + VAT

### Contact:

Courses department, IChemE, UK

**Tel:** +44 (0)1788 578214, **Fax:** +44 (0)1788 560833

**Email:** [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/carbon](http://www.icheme.org/carbon)

## Chemical engineering for non-chemical engineers – Australia

This intense course is aimed at engineers and scientists working in the chemical and process industries, at government agencies who work in close collaboration with chemical engineers, and at companies who employ chemical and process engineers. It offers an introduction to some of the main subject areas involved in chemical engineering disciplines and will broaden the technology base of participants with a view to promoting improved communication with chemical engineers.

### Key topics:

- what is chemical engineering
- material and energy balances
- fluid flow
- process heat transfer
- reactor design
- basic mass transfer and mass transfer operations
- process safety and HAZOP

### Who will benefit:

- mechanical engineers
- production engineers
- civil engineers
- chemists
- human resource managers
- department managers
- environmental scientists

### Course director:

Dr David Shallcross, University of Melbourne

**Dates:** 23–25 July 2012

**Location:** Perth, Australia

### Fees:

ICHEME member – \$2300.00 (GST inc)  
Non-member – \$2800.00 (GST inc)

### Contact:

Nicole French, IChemE, Australia

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[www.icheme.org/chemaus](http://www.icheme.org/chemaus)

## Chemical engineering for other engineers

This well-established course is designed for engineers working in the chemical and process industries, and offers an introduction to some of the main subject areas involved in chemical engineering that are not normally included in other engineering disciplines. This course will broaden the technology base of participants with a view to promoting improved communication with chemical engineers. It may also provide the basis for a more detailed study of chemical engineering. The course is delivered by a team of experienced chemical engineers drawn from industry and academia.

### Key topics:

- what is chemical engineering
- material and energy balances
- reactor design
- basic mass transfer and mass transfer operations
- solvent extraction
- solids processing
- electrostatic ignition hazards in chemical operations

### Who will benefit:

- mechanical engineers
- production engineers
- control engineers
- civil engineers
- instrumentation engineers
- electrical engineers

### Course director:

Professor Philip Bailes, formerly Professor of Process Engineering, University of Bradford

**Dates:** 13–15 November 2012

**Location:** Shipley, UK

**Fees:** £1450.00 + VAT

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/chemeng](http://www.icheme.org/chemeng)

## Chemical engineering for scientists

This well-established introductory course is designed to provide chemists and other scientists working in the chemical and process industries with the opportunity to understand the basic concepts and general philosophy of chemical engineering. It aims to broaden the technology base of participants with a view to promoting improved communication with chemical engineers and may also provide the basis for a more detailed study of the subject. The course is delivered by a team of experienced chemical engineers drawn from industry and academia.

### Key topics:

- what is chemical engineering
- material and energy balances
- fluid flow
- process heat transfer
- reactor design
- basic mass transfer and mass transfer operations
- electrostatic ignition hazards in chemical operations
- biochemical engineering
- solids processing

### Who will benefit:

- chemists
- physicists
- biologists
- pharmacists
- environmental scientists

### Course director:

Professor Philip Bailes, formerly Professor of Process Engineering, University of Bradford

**Dates:** 19–23 March 2012  
1–5 October 2012

**Location:** Shipley, UK

**Fees:** £1600.00 + VAT

### Contact:

Courses department, IChemE, UK

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Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/chemsci](http://www.icheme.org/chemsci)

## Chemical plant commissioning

This course deals with the commissioning and start-up of process plants, both large and small. It covers many different aspects including the planning and managerial aspects of major plants, and the start-up of small plants, with an emphasis on the technical problems, and dealing with the documentation associated with commissioning. Lecture materials are delivered by a number of specialists in the field, all of whom have been associated with start-ups themselves. There is substantial emphasis on tutorial exercises in both commissioning and pre-commissioning.

### Key topics:

- introduction to plant commissioning
- introduction to pre-commissioning
- planning: where to begin and end
- risk-based commissioning and start-up
- quality assurance and coping with the paperwork
- commissioning instruments
- diagnosing causes of mal-operation
- commissioning process control systems
- safety in commissioning
- IPPC and environmental aspects of commissioning

### Who will benefit:

- young graduate process engineers about to take on their first major commissioning responsibility
- process engineers who want to strengthen their knowledge in commissioning in order to commission a new plant

### Course director:

Professor Mike Fairweather, University of Leeds

**Dates:** 4–6 July 2012

**Location:** Leeds, UK

**Fees:** Available on request

### Contact:

CPD, conference and events co-ordinator,  
Faculty of engineering,  
University of Leeds, UK

**Tel:** +44 (0)113 343 2494 / 8104

**Fax:** +44 (0)113 343 2511

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

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

## Coaching for chemical engineers

People are the source of the success of any organisation, and so developing the skills of its people is critical. Good coaching skills enable managers and others to provide timely and appropriate support and help to colleagues, delivering sustainable success. Some people find coaching comes naturally, but most do not; real skill is needed to help someone find their own solution to an issue they face and share the coach's and others' experience in a constructive way.

This course provides a tried and tested framework for successful coaching that can be used for anything from a five-minute chat to a long and detailed discussion about a complex issue, with the opportunity to practise these new skills extensively in a no-risk environment. It is set within the context of the process industries and delivered by a chartered chemical engineer with many years experience in the chemical and food industries.

### Objectives:

The course will develop a basic skill that will impact both performance management and team morale. By the end of the course every delegate will have a thorough grasp of the coaching framework and how to apply it, and will be competent to use their new skills effectively in the workplace.

### Who will benefit:

Anyone who leads other people, either as a line manager or more informally in a project environment. Both experienced managers and people who are just moving to a leadership role will benefit from the programme.

### Course director:

Fiona Carter, CEng, MIChemE, Consultant

**Dates:** 6 November 2012

**Location:** London, UK

### Fees:

IChemE member - £500.00 + VAT

Non-member - £600.00 + VAT

### Contact:

Courses department, IChemE, UK

**Tel:** +44 (0)1788 578214, **Fax:** +44 (0)1788 560833

**Email:** [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/coaching](http://www.icheme.org/coaching)

## Communication and presentation skills for engineers

The ability to demonstrate effective interpersonal skills, including good communication and presentation skills, is one of the core competency standards for Chartered Engineers, as described in the Engineering Council's UK Standard for Professional Engineering Competence.

This course has been designed to help engineers working at all levels become better communicators, influencers and presenters. It develops ability through a fundamental understanding of communication principles, and gives practical advice on the different modes of communication including presentations. A large proportion of the course is devoted to developing assertiveness and confidence, and overcoming nerves. The course delivery involves a series of short sessions of input followed by activities to help develop skills and understanding.

### Objectives:

At the end of the course delegates should be able to:

- understand the different ways in which we communicate
- understand the importance of building rapport
- select the most effective mode of communication for a given situation
- listen effectively
- understand the huge impact of body language in communication
- develop effective communication strategies
- communicate with increased assertiveness
- structure a presentation effectively for a given time and given audience
- use techniques to enhance their physical presence
- improve the control of their nerves
- use their voice effectively to enhance the presentation
- deal with questions more effectively
- use visual aids such as PowerPoint more effectively

### Who will benefit:

Engineers working at all levels who want to improve their communication and presentation skills.

### Course director:

Dr Jamie Cleaver, PhD, CEng, FIChemE

### Dates:

27–28 March 2012  
9–10 October 2012

### Location:

Rugby, UK  
Rugby, UK

### Fees:

IChemE member – £700.00 + VAT  
Non-member – £800.00 + VAT

### Contact:

Courses department, IChemE, UK

**Tel: +44 (0)1788 578214 Fax: +44 (0)1788 560833**

**Email: [courses@icheme.org](mailto:courses@icheme.org)**

**[www.icheme.org/interpersonal](http://www.icheme.org/interpersonal)**

## Control and operation of centrifugal gas compressors

This hands-on course uses dynamic simulation models to give a practical introduction to centrifugal gas compressors and their operation in process plant. The practical exercises and workshops will use dynamic simulation models of compression systems running on PCs. They will be easy to use and participants will require no prior knowledge of dynamic simulation.

### Key topics:

- compression principles
- process and control description
- compressor operations
- mechanical design - centrifugal compressors
- instrumentation and control
- simple anti-Surge control
- recycle valve sizing
- compressor protection and complex anti-surge control
- compressor operations
- case studies
- course review

### Who will benefit:

Engineers with little previous knowledge of compressors who are involved in the design, control, operation or commissioning of process plant.

### Course director:

Mark Dixon, ESD Simulation Training

### Locations, dates and fees:

London, UK	17–19 January 2012 £1755.00 + VAT
Houston, USA	8–10 February 2012 Fees available on request
Kuala Lumpur, Malaysia	13–15 February 2012 Fees available on request
Calgary, Canada	29 February–2 March 2012 Fees available on request
Aberdeen, UK	14–16 March 2012 £1755.00 + VAT
Perth, Australia	21–23 March 2012 Fees available on request
Brisbane, Australia	28–30 March 2012 Fees available on request
Aberdeen, UK	18–20 June 2012 £1755.00 + VAT
Houston, USA	20–22 June 2012 Fees available on request

Calgary, Canada	12–14 September 2012 Fees available on request
Aberdeen, UK	24–26 September 2012 £1755.00 + VAT
Kuala Lumpur, Malaysia	15–17 October 2012 Fees available on request
Perth, Australia	31 October– 2 November 2012 Fees available on request
Houston, USA	7–9 November 2012 Fees available on request
Melbourne, Australia	14–16 November 2012 Fees available on request
Aberdeen, UK	3–5 December 2012 £1755.00 + VAT
Calgary, Canada	5–7 December 2012 Fees available on request

### Contact:

Fae Milne, ESD Simulation Training, UK

Tel: +44 (0)1467 634934

Fax: +44 (0)1467 634949

Email: [fae.milne@esd-simulation.com](mailto:fae.milne@esd-simulation.com)

[www.esd-simulation.com](http://www.esd-simulation.com)



## Control, operation and design of reciprocating gas compressors

This course offers delegates a comprehensive overview of the design, construction, control and operation of reciprocating compressors of the type normally found in the oil, gas, and other process industries. The course describes the principles of operation of the compressor and how, through a combination of the physical constraints both on the gas being processed and the materials of construction of the compressor, the design is adapted to a number of different configurations to meet numerous needs.

### Key topics:

- compressor selection
- principles of the compression process
- theory of operation
- volumetric and mechanical efficiency and multi-staging design
- compressor operation
- compressor cylinder assembly
- frame assemblies and compressor configurations
- cooling and lubrication
- capacity control
- performance & design calculations
- case studies and compressor applications

### Who will benefit:

Operations personnel of a non-mechanical background who are either supervisors or persons responsible for the day-to-day operation and maintenance of reciprocating compressor installations. This includes process operators, supervisors, technicians and engineers who do not have a mechanical background.

### Course director:

Mark Dixon, ESD Simulation Training

### Location, dates and fees:

Houston, USA	6–7 February 2012 Fees available on request
Calgary, Canada	27–28 February 2012 Fees available on request
Perth, Australia	19–20 March 2012 Fees available on request
Brisbane, Australia	26–27 March 2012 Fees available on request
Aberdeen, UK	10–11 May 2012 £1355.00 + VAT
Kuala Lumpur, Malaysia	10–11 July 2012 Fees available on request
Calgary, Canada	10–11 September 2012 Fees available on request
Perth, Australia	29–30 October 2012 Fees available on request
Houston, USA	5–6 November 2012 Fees available on request
Melbourne, Australia	12–13 November 2012 Fees available on request
Calgary, Canada	3–4 December 2012 Fees available on request

### Contact:

Fae Milne, ESD Simulation Training, UK

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Email: [fae.milne@esd-simulation.com](mailto:fae.milne@esd-simulation.com)

[www.esd-simulation.com](http://www.esd-simulation.com)



## Design and operation of floating production, storage and off-loading facilities (FPSOs)

This course has been designed to provide a comprehensive study into the subject of modern floating production systems. The subject matter is presented in a manner to reflect what might be considered a standard project development path and encompasses the areas of technology, engineering, project management and legislation.

### Key topics:

- introduction to floating production systems
- field development
- FPSO system
- mooring and turret design
- subsea system
- marine systems

### Who will benefit:

A wide range of personnel whose work scope involves the specification, design, management or operations of FPSO projects.

### Course director:

Bob Hodder, ESD Simulation Training

### Locations, dates and fees:

Aberdeen, UK	1–3 February 2012 £1755.00 + VAT
Perth, Australia	15–17 October 2012 Fees available on request
Aberdeen, UK	5–7 November 2012 £1755.00 + VAT

### Contact:

Fae Milne, ESD Simulation Training, UK

Tel: +44 (0)1467 634934, Fax: +44 (0)1467 634949

Email: [fae.milne@esd-simulation.com](mailto:fae.milne@esd-simulation.com)

[www.esd-simulation.com](http://www.esd-simulation.com)

## Design and operation of piping systems

Aims to explain why it is necessary to pay attention to piping systems at all stages throughout their life cycle to prevent loss of containment and thereby maintain a license to operate. The course identifies the principles and methods of piping design together with the requirements for layout and routing, testing, commissioning and safe operation, taking into account the whole life cycle of piping systems.

### Key topics:

- code compliance
- layout
- routing
- flexibility analysis
- supporting
- testing
- commissioning

### Who will benefit:

- participants who require an increased awareness and understanding of the design features and the causes of piping failures and how to resolve the problems that can occur
- anyone who is involved in design, construction, inspection, operation or maintenance of piping systems or who needs a design appreciation or to be aware of safer piping practices

### Course director:

Laza Krstin, ABB Engineering Services

### Dates:

2–3 May 2012  
23–24 October 2012

### Location:

Edinburgh, UK  
York, UK

### Fees:

IChemE member – £1200.00 + VAT  
Non-member – £1299.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK

Tel: +44 (0)1642 372121, Fax: +44(0)1642 372296

Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)

[www.abb.com](http://www.abb.com)

## Design of experiments for bioprocess optimisation

This course shows practitioners how experimental design techniques can be used to rapidly understand and optimise bioprocess performance. It provides managers with methods to ensure the whole bioprocess sequence is operating robustly and development budgets are used effectively. The course is part of the UCL-accredited short courses programme in bioprocessing, designed specifically for industrialists.

Bioprocess case studies, supported by a series of introductory and expert lectures, will enable delegates to:

- generate appropriate experimental designs within fixed research budgets and timescales
- ensure analytical methods can be validated and provide reliable data for process evaluation
- rapidly screen and optimise different fermentation media and operating conditions
- obtain the highest yield of active product throughout the downstream process sequence

### Key topics:

- introduction to experimental design techniques and software
- industrial analytical method validation using DoE
- screening and optimisation of microbial fermentations
- application of DoE in mammalian cell culture process development
- optimisation and validation of chromatographic steps for antibody purification
- protein refolding, stabilisation and formulation

### Who will benefit:

Those who wish to learn how experimental design techniques can be used to rapidly understand and optimise bioprocess performance.

### Course director:

Gary J Lye, University College London

**Dates:** 12–14 March 2012

**Location:** London, UK

**Fees:** £1300.00 + VAT

### Contact:

The Advanced Centre for Biochemical Engineering,

University College London, UK

Tel: +44 (0)207 679 1316, Fax: +44 (0)207 209 0703

Email: [mbi-training@ucl.ac.uk](mailto:mbi-training@ucl.ac.uk)

[www.ucl.ac.uk/biochemeng/industry/mbi](http://www.ucl.ac.uk/biochemeng/industry/mbi)

## Engineering project management

Designed to provide an introduction to the systems, tools and techniques that can be used to facilitate the management of engineering projects, allowing participants to take an informed view on how best to deliver, control and manage a project through to a successful conclusion. It clearly demonstrates the range of systems that can be deployed, providing a structured approach to delivery and for managing the many issues that inevitably arise throughout the project life-cycle.

### Key topics:

- the stage-gate process
- project set-up
- resource management and project organisation
- planning
- measuring progress
- measuring earned value
- cost management
- change management
- monthly reporting, viz boards and performance dashboards
- risk management
- the procurement lifecycle
- commercial management
- project close-out
- lessons learned from projects

### Who will benefit:

- engineers new to project and construction management
- project managers with some years of experience
- construction engineers and managers
- line managers

### Course director:

David Andrews, consultant

**Dates:** 22–24 October 2012

**Location:** Manchester, UK

### Fees:

ICHEME member – £1350.00 + VAT

Non-member – £1450.00 + VAT

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/epm](http://www.icheme.org/epm)

## Essentials of pressure systems

Aims to provide the fundamental understanding required for managing the integrity of pressure systems equipment, highlighting some of the problems that may be encountered and how to avoid them. The course covers design issues, significant deterioration mechanisms and failure modes that can affect the integrity of pressure equipment, and provides an overview of the UK legislative framework relating to pressure systems.

### Key topics:

- legislation
- vessels and low pressure storage
- piping components
- valves and steam trapping
- supports
- quality control
- pressure testing
- pressure relief
- deterioration mechanisms

### Who will benefit:

- participants of all backgrounds who require an overview or refresher of the essential elements of design and integrity management of pressure systems equipment
- the course would be particularly beneficial to engineers and managers in design, construction, operations and maintenance roles

### Course director:

Laza Krstin, ABB Engineering Services

### Dates:

21–22 February 2012  
11–12 September 2012

### Location:

York, UK  
Edinburgh, UK

### Fees:

ICHEME member – £1200.00 + VAT  
Non-member – £1299.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK

Tel: +44 (0)1642 372121, Fax: +44(0)1642 372296

Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)

[www.abb.com](http://www.abb.com)



## Fundamentals of process safety

Investigations into recent incidents have highlighted the importance of having a clear understanding of the principles of process safety management throughout an organisation. This must include staff at all levels from board members through engineers and other technical staff to plant and shift managers and supervisors. This intensive course covers the fundamentals and aims to provide an understanding of the key principles of process safety and its management.

### Objectives:

At the end of the course delegates should achieve the following key learning outcomes:

- understand the human, environmental and business consequences of poor process safety
- be aware of and understand the key factors influencing the basis for process safety
- understand the hazards associated with process plant and how the risks can be controlled
- understand the key process safety requirements at each stage in the life cycle of process plant from conceptual design through to operation, maintenance and modification
- understand the ways in which their work depends on the knowledge and expertise of others (i.e. interdependency and the need for overall organisational process safety management competence)
- understand their own limitations and know how to acquire further knowledge and understanding of process safety management

An end-of-course assessment will be included. Delegates who successfully complete the assessment will receive an IChemE certificate in the *Fundamentals of process safety*.

### Who will benefit:

- managers, supervisors, engineers and others involved in the design, operation, modification or maintenance of major hazard or other process plant, including safety personnel
- young chemical engineers en route to achieving chartered status
- anyone who would like to develop an understanding of process safety

### Course director UK:

Gary Pilkington

### Course directors Australia and Malaysia:

Joe Eades, Ispanan Training Pte Ltd, Terry Booth and Steve Cooper, Worley Parsons.

### Dates:

16–20 April 2012  
 18–22 June 2012  
 2–6 July 2012  
 13–17 August 2012  
 1–5 October 2012  
 22–26 October 2012

### Location:

Perth, Australia  
 Aberdeen, UK  
 Kuala Lumpur, Malaysia  
 New Plymouth, NZ  
 Preston, UK  
 Brisbane, Australia

### Fees:

IChemE member–  
 £1500.00 + VAT / \$3300.00 (GST inc) / RM4,500.00 + VAT  
 Non-member–  
 £1600.00 + VAT / \$3800.00 (GST inc) / RM5,000.00 + VAT

### For UK and Malaysian courses contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/fps](http://www.icheme.org/fps)

[www.icheme.org/fpsmal](http://www.icheme.org/fpsmal)

### For Australian courses contact:

Nicole French, IChemE, Australia

Tel: +61 (0)3 9642 4494, Fax: +61 (0)3 9642 4495

Email: [austcourses@icheme.org](mailto:austcourses@icheme.org)

[www.icheme.org/fpsperth](http://www.icheme.org/fpsperth)

[www.icheme.org/fpsnz](http://www.icheme.org/fpsnz)

[www.icheme.org/fpsbrisbane](http://www.icheme.org/fpsbrisbane)

## Fundamentals of process safety management

Investigations into recent incidents have highlighted the importance of having a clear understanding of the principles of process safety management throughout an organisation. This must include staff at all levels from board members through engineers and other technical staff to plant and shift managers and supervisors. This intensive course covers the fundamentals and aims to provide an understanding of the key principles of process safety and its management.

### Objectives:

At the end of the course delegates should achieve the following key learning outcomes:

- understand the human, environmental and business consequences of poor process safety
- be aware of and understand the key factors influencing the basis for process safety
- understand the hazards associated with process plant and how the risks can be controlled
- understand the key process safety requirements at each stage in the life cycle of process plant from conceptual design through to operation, maintenance and modification
- understand the ways in which their work depends on the knowledge and expertise of others (i.e. interdependency and the need for overall organisational process safety management competence)
- understand their own limitations and know how to acquire further knowledge and understanding of process safety management

An end-of-course assessment will be included. Delegates who successfully complete the assessment will receive an IChemE certificate in the *Fundamentals of process safety management*.

### Who will benefit:

- managers, supervisors, engineers, safety personnel and others involved in the design, operation, modification or maintenance of major hazard or other process plant
- young chemical engineers en route to achieving chartered status
- anyone who would like to develop an understanding of process safety

### Course directors:

Rod Prior, consultant,  
Nigel Coni, consultant

### Dates:

7–11 May 2012

### Location:

Boksburg, South Africa

### Fees:

R12000.00

### Contact:

Rod Prior

Tel: +27 (0)82 554 0010, Fax: +27 (0)11 453 2156

Email: [r.prior@mweb.co.za](mailto:r.prior@mweb.co.za)

[www.icheme.org/fpsm](http://www.icheme.org/fpsm)



## Fundamentals of process safety (nuclear)

The *Fundamentals of process safety* course, developed in 2008, aims to give an understanding of the key principles of process safety and its management. It is now established and been presented in the UK, Asia and Australia. A version for the nuclear industry has been steered by an expert group of safety professionals with wide experience of best practice in organisations such as AWE, Springfield Fuels, Energy Solutions, Rolls-Royce, Sellafield, HSE and Cambridge University. Throughout the course extensive use will be made of a range of real life case studies and of group discussions.

### Objectives:

Investigations into recent incidents have highlighted the importance of having a clear understanding of the principles of process safety management throughout an organisation. This needs to include staff at all levels from board members through engineers and other technical staff to plant and shift managers and supervisors. This intensive course covers the fundamentals of process safety, related to nuclear facilities and aims to provide an understanding of the key principles of safety

At the end of the course delegates should achieve the following key learning outcomes:

- understand the hazards of the nuclear industry and how the risks can be controlled
- be aware of and understand the key factors influencing the basis for process safety

- understand the key process safety requirements at each stage in the life cycle of process plant from conceptual design through to operation, maintenance and modification
- understand the consequences of poor process safety
- understand the ways in which their work depends on the knowledge and expertise of others (i.e. interdependency and the need for overall organisational process safety management competence)
- understand their own limitations and know how to acquire further knowledge and understanding of process safety management
- need for understanding of the safety case and how it should be the basis of decisions
- importance of authority and accountability

An end-of-course assessment will be included. Delegates who successfully complete the assessment will receive an IChemE certificate in the *Fundamentals of process safety (nuclear)*.

### Who will benefit:

- managers, supervisors, engineers and others involved in the design, operation, modification or maintenance of nuclear related process plant
- chemical engineers and scientists en route to achieving chartered status
- anybody else, including safety personnel, who would like to develop an understanding of process safety related to the nuclear industry: safety case authors; internal inspectors; safety analysts and regulators

### Course director:

Bob Skelton, Cambridge University

### Dates:

5–9 November 2012

### Location:

Preston, UK

### Fees:

IChemE member – £1500.00 + VAT  
Non-member – £1600.00 + VAT

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/nps](http://www.icheme.org/nps)



## Hazard study awareness

ICI invented the HAZOP study in the 1960s to anticipate hazardous events and ensure that suitable protective measures were included in the process design. HAZOP has become firmly established as an essential safety tool during the design stage of new processes and significant modifications. Many companies have a suite of hazard studies carried out throughout the project process. Those sites coming under the COMAH regulations in the UK use the hazard study process to demonstrate that the risks of their operations continue to be as low as reasonably practicable.

A hazard study is a team-based exercise and the quality of the result is highly dependent on the standard of leadership and the contribution of study team members. Whilst the need for the study leader to be suitably trained and experienced is well recognised, the study will be greatly enhanced by team members who are fully aware of their role and contribution.

This practical course is aimed at providing a demonstration that delegates have received suitable training, to be followed up by appropriate on-the-job experience.

### Key topics:

- the range of hazard study techniques available and how these fit into a typical project programme
- key assumptions and limitations of hazard studies
- the role of hazard studies in the hazard study process
- problems that can arise during hazard studies and how the team can help to resolve them
- related topics such as inherent safety, risk assessment, instrumented protective systems and human factors

### Who will benefit:

- project managers/engineers
- chemical and process engineers
- plant supervisors/operators
- chemists
- SHE advisors
- functional engineers, eg C/E, mechanical

### Course director:

Graeme Ellis, ABB Engineering Services

### Dates:

31 January 2012  
17 October 2012

### Location:

Manchester, UK  
Grimsby, UK

### Fees:

IChemE member – £530.00 + VAT  
Non-member – £575.00 + VAT

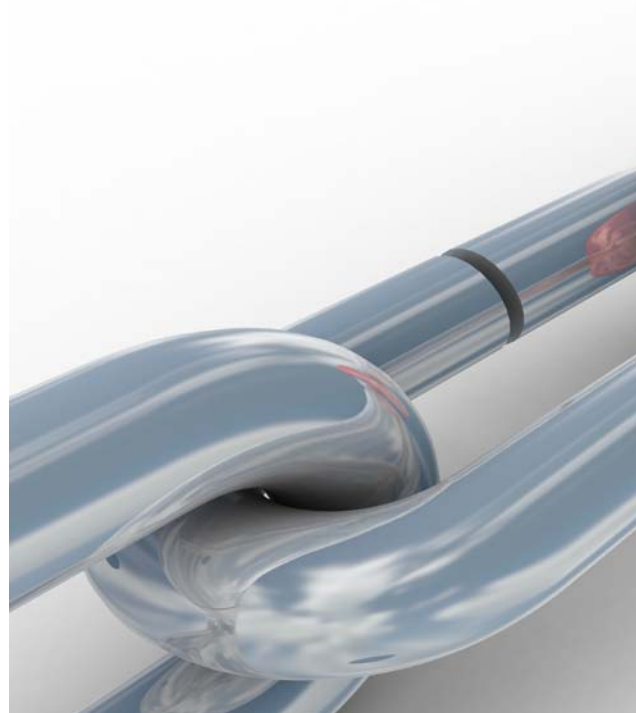
### Contact:

Jackie Kendall, ABB Engineering Services, UK

Tel: +44 (0)1642 372121, Fax: +44 (0)1642 372296

Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)

[www.abb.com](http://www.abb.com)



## HAZOP – applied hazard and operability study

This course covers the key issues of the HAZOP procedure and is designed for newcomers to the technique and those with limited experience through study team exposure. It includes substantial workshops and case study material to illustrate the HAZOP technique, and covers both continuous and batch systems. Guidance is given on techniques for reporting, procedures for 'action' follow-up and application of the technique to 'non-process' scenarios.

### Key topics:

- introduction to the technique, its application and the place of HAZOP technique in risk management
- the technique used in a HAZOP study
- reporting techniques during a HAZOP study
- the method demonstrated
- application of HAZOP to a batch process
- information required to carry out a HAZOP study

- documentation generated during a HAZOP study
- introduction to the management of HAZOP studies
- non-process applications of the technique

### Who will benefit:

- design engineers
- chemical and process engineers
- plant managers
- safety and operations personnel
- maintenance engineers
- control engineers
- project engineers

### Course directors:

Steve Witty, Jenbul Associates, UK  
Robert Jorgensen, RKEJ Pty Ltd

### Dates:

11–13 June 2012  
4–5 September 2012

### Location:

Manchester, UK  
Melbourne, Australia

### Fees:

IChemE member – £1350.00 + VAT, AUD \$1550.00 + GST

Non-member – £1450.00 + VAT, AUD \$2050.00 + GST

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

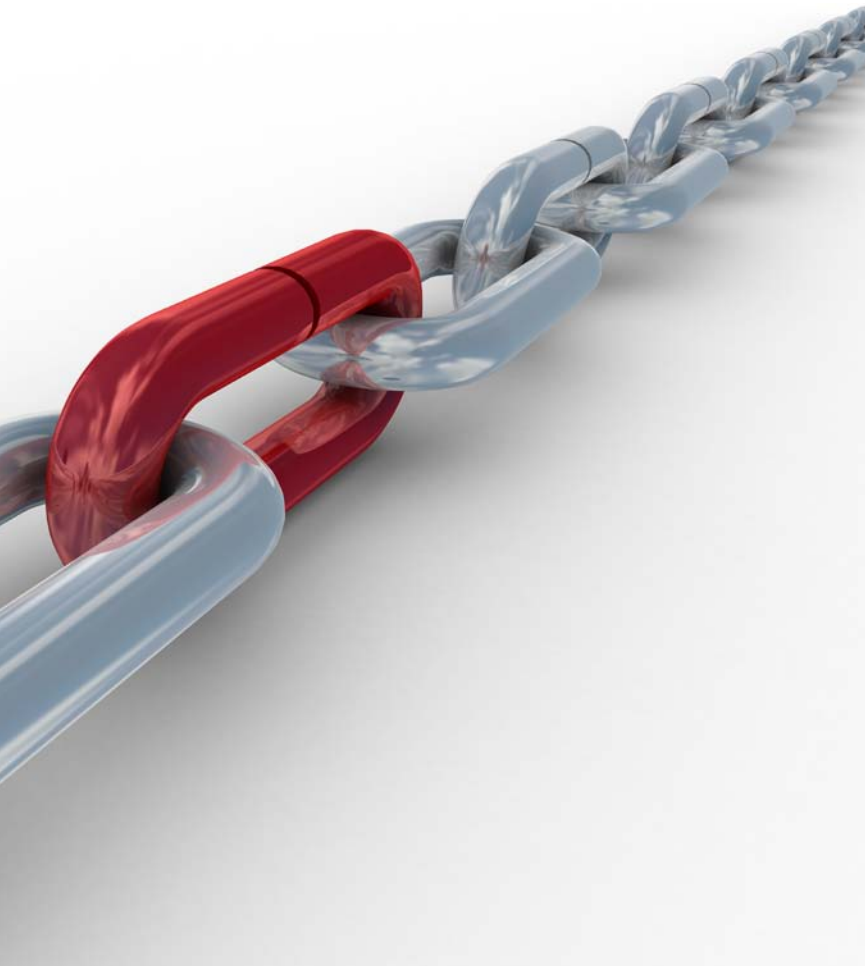
[www.icheme.org/appliedhazard](http://www.icheme.org/appliedhazard)

Nicole French, IChemE, Australia

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Email: [austcourses@icheme.org](mailto:austcourses@icheme.org)

[www.icheme.org/introhazop](http://www.icheme.org/introhazop)



## HAZOP study for the offshore oil and gas industry

A course specifically tailored to meet the needs of the offshore oil and gas industry, based around well-established, integrated modules, to provide effective training in the HAZOP technique for both team leaders and team members. As well as presentations covering all the essential aspects of the method, there are workshops on HAZOPs for continuous processes, sequential operations and computer-controlled plant. The relationship between HAZOP, other hazard identification methods and hazard studies is also discussed. Participants with experience in HAZOP should consider applying as a team leader, whilst newcomers to the technique will benefit from attending as a team member.

### Key topics:

- principles and methodology of a HAZOP study and its practical application
- key features which determine the effectiveness of a HAZOP study in exposing relevant hazards and operability problems
- factors that control the efficient management of studies and the use of resources
- the importance of pre-planning studies
- the role of a detailed HAZOP study as one of a series of process hazard studies
- improvement in effectiveness as team leader or team member through experience, knowledge and understanding gained from group work
- role and importance of recording in HAZOP studies

### Who will benefit:

- experienced HAZOP team members who are moving on to team leadership
- those who need to refresh and update their HAZOP experience
- engineers and other technical personnel who are new to HAZOP study
- those with safety and project management responsibilities

### Course director:

Phil Aspinall, Arcadis

### Dates:

20–23 March 2012

### Location:

Aberdeen, UK

### Fees UK:

ICHEME member – £1400.00 + VAT

Non-member – £1500.00 + VAT

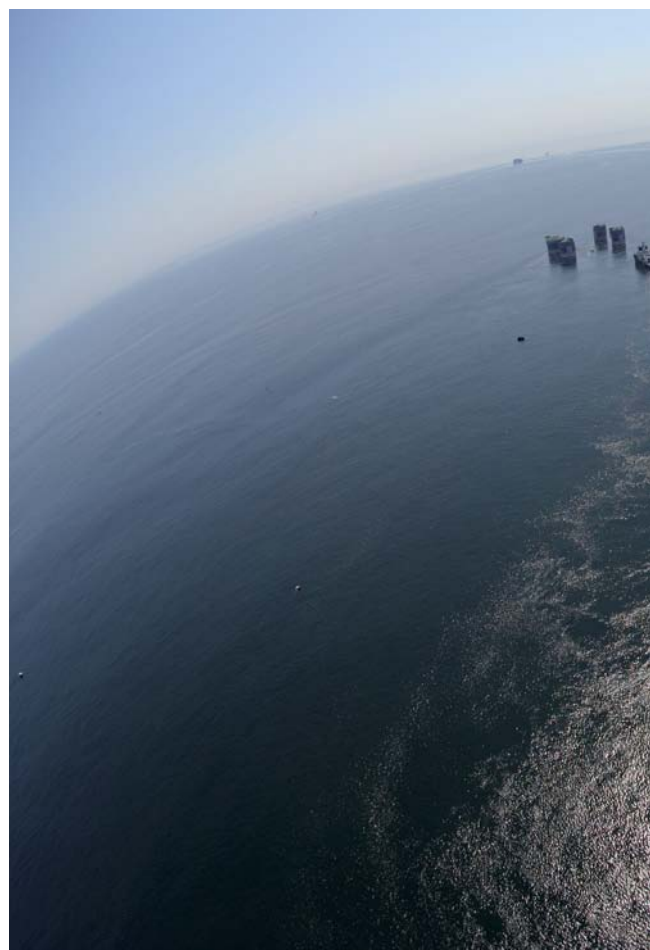
### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/hazopoil](http://www.icheme.org/hazopoil)



## HAZOP study for team leaders and team members

This well-established, integrated course uses examples drawn from a range of operations, including the petroleum, petrochemicals, fine chemicals and pharmaceutical industries, to provide effective training in the HAZOP technique for both team leaders and team members. As well as presentations covering all the essential aspects of the method, there are workshops on HAZOPs for continuous processes, sequential operations and computer-controlled plant. The relationship between HAZOP, other hazard identification methods and hazard studies is also discussed. Participants with experience in HAZOP should consider applying as a team leader, whilst newcomers to the technique will benefit from attending as a team member.

### Key topics:

- principles and methodology of a HAZOP study and its practical application
- key features which determine the effectiveness of a HAZOP study in exposing relevant hazards and operability problems
- factors that control the efficient management of studies and the use of resources
- the importance of pre-planning studies
- the role of a detailed HAZOP study as one of a series of process hazard studies
- improvement in effectiveness as team leader or team member through experience, knowledge and understanding gained from group work
- role and importance of recording in HAZOP studies

### Who will benefit:

- experienced HAZOP team members who are moving on to team leadership
- those that need to refresh and update their HAZOP experience
- engineers and other technical personnel who are new to HAZOP study
- those with safety and project management responsibilities

### Course director UK:

Phil Aspinall, Arcadis

### Course director Australia:

Robert Jorgensen, RKEJ Pty Ltd

### Dates:

13–15 March 2012  
19–21 June 2012  
6–9 November 2012

### Locations:

Brisbane, Australia  
Perth, Australia  
Manchester, UK

### Fees:

IChemE member – £1400.00 + VAT / \$3300.00 (GST inc)  
Non-member – £1500.00 + VAT / \$3800.00 (GST inc)

### Contact:

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[www.icheme.org/hazopteam](http://www.icheme.org/hazopteam)

Nicole French, IChemE, Australia

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[www.icheme.org/hazopperth](http://www.icheme.org/hazopperth)

[www.icheme.org/hazopbris](http://www.icheme.org/hazopbris)



## HAZOP study, leadership and management

Designed for participants experienced in the HAZOP technique, this course thoroughly revises the principles of HAZOP and the group response required for HAZOP to be most effective and concentrates on the organisation, leadership and management of HAZOP study teams. Dedicated workshops enable participants to practice leadership skills and team management under tutored observation and provide an opportunity for expert guidance in a controlled environment before exposure in the real world. The course includes guidance on post-action procedures, the use of recording software and highlights potential pitfalls that can significantly affect the efficiency of a study. An introduction is given to the relationship between a HAZOP study and Safety Integrity Levels (SILs).

### Key topics:

- the place of HAZOP in risk management
- basic principles of the technique and general points about carrying out a HAZOP study
- HAZOP study reporting
- the leadership of a HAZOP study team
- the management of HAZOP studies

### Who will benefit:

Those with HAZOP study experience and a basic knowledge of loss prevention and safe working practice, including:

- safety managers
- plant designers
- process engineers
- project engineers
- operational personnel
- maintenance engineers

### Course director:

Steve Witty, Jenbul Associates

Dates:	Location:
17–19 April 2012	London, UK
10–12 September 2012	Rugby, UK
19–21 November 2012	London, UK

### Fees:

ICHEME member – £1400.00 + VAT  
Non-member – £1500.00 + VAT

### Contact:

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Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/hazopstudy](http://www.icheme.org/hazopstudy)

## Heat transfer

This course aims to provide an in-depth understanding of the fundamentals of heat transfer. It presents practical tools and techniques for solving heat transfer problems and designing heat transfer equipment.

### Key topics:

- modes of heat transfer
- conduction
- convection
- empirical and practical relations for forced convection
- empirical relations for natural convection
- thermal radiation
- boiling heat transfer
- condensation heat transfer

### Who will benefit:

Engineers employed in the energy and process industries and design practices.

### Course director:

Dr Ossama Badr, Cranfield University

**Dates:** 8–12 October 2012

**Location:** Cranfield, UK

**Fees:** £1500.00 + VAT

### Contact:

Samantha Skears, Department of Process and Systems, Engineering, Cranfield University, UK

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[www.cranfield.ac.uk/soe/shop](http://www.cranfield.ac.uk/soe/shop)

## The IChemE forms of contract

The IChemE *Forms of contract* are drafted as performance-based contracts for the design and construction of process plants and other output-based projects. There are two suites of contract forms: the UK forms and the international forms. This two-day course provides a detailed examination of both suites: their approach to risk and payment, their structure, how they govern work from initial requirements through design to fully commissioned and operational plant, and party liabilities.

### Key topics:

- the structure of a contract under each suite and the differences
- the conditions of contract – a detailed examination of the life of a contract
- the agreement and the schedules
- risk and payment mechanisms – price, cost, target cost
- subcontracting
- liabilities
- dispute resolution

### Who will benefit:

Those who will prepare and tender a contract using the forms or those who will manage such a contract - as a client, consultant or contractor, including:

- project and contract managers
- engineers, quantity surveyors, contract administrators
- clients', contractors' and consultants' personnel
- graduate engineers

### Course director:

Gordon H Bateman, consultant and chair of IChemE's contracts drafting committee

**Dates:** 27–28 June 2012

**Location:** London, UK

### Fees:

IChemE member – £900.00 + VAT  
Non-member – £950.00 + VAT

### Contact:

Courses department, IChemE, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/foccourse](http://www.icheme.org/foccourse)

## Layer of protection analysis (LOPA)

LOPA is a semi-quantitative tool for analysing and assessing risk that looks at the safeguards on a process plant to see if the protection provided is adequate for known hazards.

This course covers basic and more advanced methodology of LOPA and the detailed stages of its application. Participants are shown how significant scenarios are categorised and tolerable frequencies assigned for identified hazardous events. They are shown how to assign risk categories and hence determine the number of independent protection layers (IPLs) that should be in place. The specification and requirements for a protection layer to be accepted as an IPL are discussed. All the essential steps in this method are practiced in workshops, including the use of software tools in LOPA.

### Key topics:

- the basic methodology of LOPA
- how to decide if a process needs a safety instrumented system (SIS)
- if yes, what safety integrity level (SIL) do they need?
- how to define an independent protection layer (IPL)
- how to implement a process to manage these systems through the life cycle of an installation
- toolbox demonstration and workshops based on simple, but realistic, examples

### Who will benefit:

- production engineers
- process design engineers
- project engineers
- process programmers and instrument control designers

### Course director:

Richard Gowland, technical director, European Process Safety Centre (EPSC)

**Dates:** 15–16 May 2012  
18–19 September 2012

**Location:** Manchester, UK

### Fees:

IChemE member – £1150.00 + VAT  
Non-member – £1250.00 + VAT

### Contact:

Courses department, IChemE, UK

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Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/lopa](http://www.icheme.org/lopa)

## Managing deterioration of plant equipment

This course provides guidance on how to achieve safe and reliable operation of process equipment by design and beyond its design life. An effective plant integrity system delivers benefits for safety, reliability and operational performance whilst optimising maintenance and inspection costs. Implementing such a system requires proactive management of deterioration mechanisms and a 'whole team' approach, as equipment integrity is not solely the responsibility of the maintenance and inspection functions. The course covers the essential elements of an equipment integrity management system including legislative compliance.

### Key topics:

- integrity management
- forms of corrosion
- forms of deterioration
- focused inspection
- non-metallics
- non-destructive testing
- pressure testing
- fitness for service
- defect remediation
- repair philosophy
- auditing programmes
- asset life plans

### Who will benefit:

Anyone who is involved in the development and implementation of integrity management strategy and procedures, particularly involving ageing plant.

### Course director:

Laza Krstin, ABB Engineering Services

Dates:	Location:
22–23 May 2012	York, UK
28–29 November 2012	Edinburgh, UK

### Fees:

ICChemE member – £1200.00 + VAT  
Non-member – £1299.00 + VAT

### Contact:

Jackie Kendall, ABB Engineering Services, UK  
Tel: +44 (0)1642 372121, Fax: +44(0)1642 372296  
Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)  
[www.abb.com](http://www.abb.com)

## New to management

A manager must display skills and behaviours which are very different from those required of a member of a team - and the transition needed to succeed is probably greater for someone moving into their first managerial role than it will be at any future point in their career. Unfortunately for many new managers – and their employers - the training they receive does not recognise the fundamental changes they need to make. With guidance however, most new managers can quickly understand and start to put into practice the necessary skills and behaviours.

This course focuses on how delegates lead their team and deliver results through them. It recognises that attendees are likely to be professionals with significant experience of the workplace. It is content-rich and fast-paced, providing learning points, hints and tips that will be of use to delegates for years to come.

### Key topics:

- the key shifts in behaviour and attitude that are essential in order to be a successful manager
- specific skill areas: time management, effective communication, delegation, motivation, providing effective feedback, developing people
- action planning – a clear individual action plan to link the course learning back to their workplace

### Who will benefit:

- anyone currently in a first level management position
- staff who lead teams but might not yet have a formal management position
- staff who will shortly be promoted into a management position

### Course director:

Fiona Carter, CEng, MICChemE, Consultant

**Dates:** 16–17 October 2012

**Location:** London, UK

### Fees:

ICChemE member – £900.00 + VAT  
Non-member – £950.00 + VAT

### Contact:

Courses department, ICChemE, UK  
Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833  
Email: [courses@icheme.org](mailto:courses@icheme.org)  
[www.icheme.org/ntm](http://www.icheme.org/ntm)

## Practical aspects of process control and instrumentation

This course gives a practical introduction to the principles of measurement and control of process plant. It is a hands-on course and participants will have the opportunity to explore the set-up and tuning of control loops using simulation and other computer-based training packages.

### Key topics:

- principles of control
- measurement principles
- PID control
- Control tuning
- CBT exercises
- Control techniques
- Computer control systems - DCS, SCADA, PLC's
- Control valves

### Who will benefit:

- young graduates who require a practical introduction to measurement and control systems on process plant.
- anyone working in the process industries who would like to understand the techniques used in measurement and control and who have not had the opportunity to learn about them before.

### Course director:

Mark Dixon, ESD Simulation Training

### Locations, dates and fees:

Aberdeen, UK	5–7 March 2012 £1840.00 + VAT
Kuala Lumpur, Malaysia	25–27 April 2012 Fees available on request
Calgary, Canada	14–16 May 2012 Fees available on request
Kuala Lumpur, Malaysia	31 October– 2 November Fees available on request
Aberdeen, UK	13–15 November 2012 £1840.00 + VAT

### Contact:

Fae Milne, ESD Simulation Training, UK

Tel: +44 (0)1467 634934, Fax: +44 (0)1467 634949

Email: [fae.milne@esd-simulation.com](mailto:fae.milne@esd-simulation.com)

[www.esd-simulation.com](http://www.esd-simulation.com)

## Practical distillation technology

This well-established course gives comprehensive coverage of distillation technology, with particular emphasis on the problems that can occur and how to solve them. It provides an excellent opportunity to develop a working knowledge of key techniques that can promote trouble-free operation and reduce distillation cost. The course is delivered by Henry Kister, a recognised specialist with a vast background in all phases of distillation, including operation, design, start-up, troubleshooting and research.

### Key topics:

- trouble-shooting a distillation column and determining what may cause poor performance
- evaluating existing performance and developing new designs
- validating your tower simulation
- how to avoid common causes of capacity bottlenecks, tray damage, down comer sealing problems, packed tower distributor malfunctions and many other operating difficulties
- de-bottlenecking a column to improve capacity and/or separation
- controlling and operating a distillation column

### Who will benefit:

Engineering and supervisory personnel who are involved in operating, designing, trouble-shooting, de-bottlenecking, or start-up of distillation processes and equipment.

### Course director:

Henry Z Kister

**Dates:** 22–24 October 2012

**Location:** London, UK

**Fees:**  
 IChemE member – £1400.00 + VAT  
 Non-member – £1500.00 + VAT

### Contact:

Courses department, IChemE, UK

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Email: [courses@icheme.org](mailto:courses@icheme.org)

[www.icheme.org/pdt](http://www.icheme.org/pdt)

## Pressure relief – a proven approach

Pressure relief can be caused by a number of events including fire, reaction runaway, thermal expansion and process abnormality. Incorrect design of pressure relief systems continues to result in major safety and environmental incidents with resultant business consequences. Incidents can occur as a result of failure to provide relief, inadequate relief capacity, disposal system failure or incorrect design and installation. A structured approach to pressure relief design is vital to ensure protection of plant from excessive over and under pressure. This course is based on ABB's extensive experience of design installation and maintenance of relief systems, and covers a state-of-the-art methodology, based on a 'life cycle approach' to pressure relief. The format consists of two core days with a third specialist day.

### Key topics:

- when a relief system is required
- how to determine a worst-case relief duty and calculate the required relief rate for single- and two-phase cases
- the different types of relief systems and relief devices and how to size and select them
- how to design a relief system
- what is important in relief system design
- how plant modification can affect relief systems

### Who will benefit:

Anyone involved in the design and operation of relief systems.

### Course director:

Peter Hunt, ABB Engineering Services

### Dates:

13–15 March 2012  
 19–21 June 2012  
 18–20 September 2012  
 16–18 October 2012  
 6–8 November 2012

### Location:

Bristol, UK  
 Manchester, UK  
 York, UK  
 Cork, Ireland  
 Edinburgh, UK

### Fees:

IChemE member – £1620.00 + VAT (Days 1, 2 and 3)  
 £1340.00 + VAT (Days 1 and 2)

Non-member – £1750.00 + VAT (Days 1, 2 and 3)  
 £1450.00 + VAT (Days 1 and 2)

### Contact:

Deborah Law, ABB Engineering Services, UK

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## Process simulation and design

Aims to introduce techniques and tools for the design, analysis and optimisation of process equipment and plants. On completion, participants should:

- understand the key steps in carrying out a process design
- be familiar with the techniques and tools for steady and dynamic process simulation
- understand the basic optimisation principles for process design
- be able to carry out process design and analysis using simulation tools
- be able to tackle industrial process design problems

### Key topics:

- process design principles
- process modelling with gPROMS
- process analysis through simulation
- process simulation using HYSYS
- process economic analysis
- process optimisation using HYSYS

### Who will benefit:

Engineers employed in the chemical, petrochemical, water, oil and gas industries.

### Course director:

Dr Meihong Wang, Cranfield University

### Dates:

23–27 January 2012

### Location:

Cranfield, UK

### Fees:

£1500.00 + VAT

### Contact:

Samantha Skears, Department of Process and Systems Engineering, Cranfield University, UK

Tel: +44 (0)1234 754766, Fax: +44 (0)1234 754685

Email: [s.skears@cranfield.ac.uk](mailto:s.skears@cranfield.ac.uk)

[www.cranfield.ac.uk/soe/shortcourses](http://www.cranfield.ac.uk/soe/shortcourses)

## Production, process and emergency systems on oil and gas installations

This intensive course offers both an introduction to, and a comprehensive overview of, the production, processing and emergency systems on offshore platforms and floating production facilities.

### Key topics:

- hydrocarbon engineering
- disposals
- reservoir characteristics and well fluids
- reservoir drive and artificial lift
- well design
- oil and gas separation
- produced water
- gas compression and treatment
- water injection
- utility systems
- emergency shutdown systems
- fire and gas systems

### Who will benefit:

Engineers and operations personnel, recent graduates, engineers moving into, or within, the industry and regulatory officials and inspectors.

### Course director:

Bob Hodder, ESD Simulation Training

### Locations, dates and fees:

Aberdeen, UK	6–8 February 2012 £1840.00 + VAT
Perth, Australia	29 February–2 March 2012 Fees available on request
Houston, USA	14–16 May 2012 Fees available on request
Brisbane, Australia	1–3 August 2012 Fees available on request
Aberdeen, UK	3–5 September 2012 £1840.00 + VAT
Kuala Lumpur, Malaysia	10–12 October 2012 Fees available on request
Aberdeen, UK	10–12 December 2012 £1840.00 + VAT

### Contact:

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Tel: +44 (0)1467 634934, Fax: +44 (0)1467 634949

Email: [fae.milne@esd-simulation.com](mailto:fae.milne@esd-simulation.com)

[www.esd-simulation.com](http://www.esd-simulation.com)



## Project engineering

Provides a step-by-step description and illustration of a project's lifecycle in the chemical industry from concept, through front end design, detailed design, construction management, commissioning and finally final handover and plant start up activities. Beginning with an introduction to the role, it then follows with life in an engineering house, covering proposals and contract types, greenfield projects, estimating (cost and resource) tools, planning and scheduling, cut and carve projects, construction, commissioning leading to plant start-up and operation. Each module contains numerous case studies so that the practicalities of the module content can be emphasized, explored and applied to real life situations.

### Key topics:

At the end of the course participants should be able to:

- plan and schedule activities and resources for a project
- determine suitable contract types for different project types
- construct a detailed proposal
- interface with clients
- organise teams and roles for project engineering
- understand the role of the project engineer in the different stages of a project lifecycle for different project types
- use tools for various project engineering tasks
- understand the fundamentals required in construction and handover a plant
- understand the fundamentals required to commission (startup) a plant

### Who will benefit:

- all industry sectors including oil and gas, petrochemical, pharmaceutical, design and contracting and consultancy.
- chemical engineers who have a background in operating companies looking to understand the project industry (how the EPC contractors work)
- young chemical engineers en route to achieving chartered status
- chemical engineers want to learn and understand a broader perspective and how the chemical engineer fits into the project team at different stages of the project lifecycle.

### Course director:

Joe Eades, Ispahan Pty Ltd

**Dates:** 12–14 November 2012

**Location:** Melbourne, Australia

**Fees:** IChemE member – \$1800.00 (GST inc)  
Non-member – \$2300.00 (GST inc)

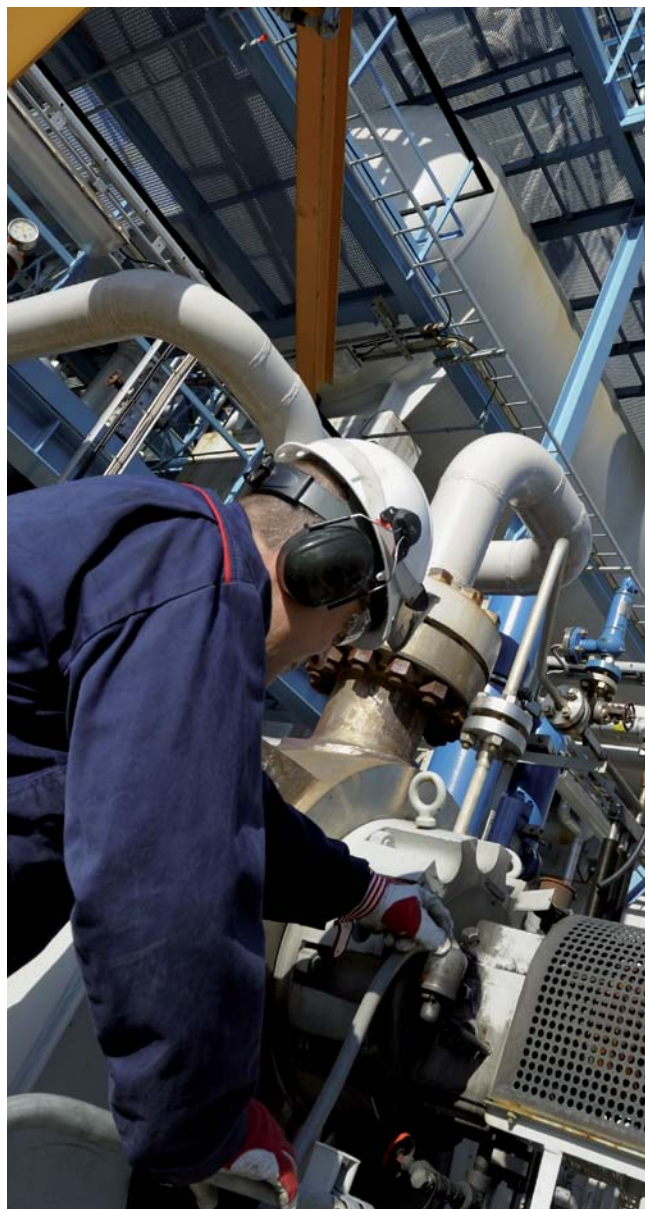
### Contact:

Nicole French, IChemE, Australia

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**Email:** [austcourses@icheme.org](mailto:austcourses@icheme.org)

[www.icheme.org/projeng](http://www.icheme.org/projeng)



## Pumps and pumping systems for the process industry

Introduces the design principles of major components, pumps, compressors and valves and discusses the selection, application and operation of this equipment.

### Key topics:

- system analysis
- pump principles
- pump operation
- pump selection
- drives
- flow and pressure control elements
- fluid transient
- case studies

### Who will benefit:

Engineers employed in the process industries (including oil, gas and water) who are involved in pump and equipment selection, application and operation.

### Course director:

Professor Hoi Yeung, Cranfield University

**Dates:** 30 April–4 May

**Location:** Cranfield, UK

**Fees:** £1500.00 + VAT

### Contact:

Samantha Skears, Department of Process and Systems Engineering, Cranfield University, UK

**Tel:** +44 (0)1234 754766, **Fax:** +44 (0)1234 754685

**Email:** [s.skears@cranfield.ac.uk](mailto:s.skears@cranfield.ac.uk)

[www.cranfield.ac.uk/soe/shortcourses](http://www.cranfield.ac.uk/soe/shortcourses)

## Quality by design for effective bioprocess characterisation and validation

This course offers expert guidance on choosing cost-effective validation strategies. It is part of the UCL-accredited short courses programme in bioprocessing, designed specifically for industrialists.

### Key topics:

Delegates will be able to:

- learn about the latest FDA and EMEA regulations with regards to QbD, PAT, process characterisation and validation studies
- understand how to adopt a lifecycle approach to process characterisation and validation to obtain deeper process understanding
- understand current and future perspectives of the impact of QbD and PAT on the effort required for process characterisation
- learn how to perform risk assessments to determine Critical Quality Attributes (CQAs) and Critical Process Parameters (CPPs)
- see examples of how to combine scale-down models with historical knowledge and DoE to map out design space
- understand the principles behind the characterisation and validation of unit operations, such as fermentation, filtration and chromatography
- select appropriate techniques to validate cleaning of bioprocess equipment and determine whether disposable components are an option

### Who will benefit:

Those wishing to understand the regulations on bioprocess validation, how to prepare a useful Validation Master Plan and how to choose cost-effective validation strategies.

### Course director:

Suzy Farid, University College London

**Dates:** 27 February–1 March 2012

**Location:** London, UK

**Fees:** £1550.00 + VAT

### Contact:

The Advanced Centre for Biochemical Engineering, University College London, UK

**Tel:** +44 (0)207 679 1316, **Fax:** +44 (0)207 9163943

**Email:** [mbi-training@ucl.ac.uk](mailto:mbi-training@ucl.ac.uk)

[www.ucl.ac.uk/biochemeng/industry/mbi](http://www.ucl.ac.uk/biochemeng/industry/mbi)



## SIL determination and hazard assessment

This course is designed for those who need to understand the causes and sequence of failure that can lead to significant hazardous events occurring, and be able to identify the key contributors to the level of risk. It discusses how to quantify hazardous event likelihood using a range of techniques, in order to assess whether the level of risk is sufficiently low and, if not, where to focus attention for cost-effective improvement. It also considers instrumented protective systems and other risk reduction measures, and assesses their actual benefit.

### Key topics:

- logical analysis using fault tree techniques for scenarios leading to hazardous events
- use of data and their application to predict the likelihood of a hazardous event
- development of practical hazard criteria
- handling of dependent or common mode failures
- basic human error assessment
- applying basic hazard assessment in a variety of situations to help in making more effective decisions
- IEC 61508 and IEC 61511 – an overview of their key aspects and their importance in the assessment of risk reduction

### Who will benefit:

- process design engineers
- electrical, control and instrument engineers
- safety managers and advisers
- works or technical managers with responsibility for managing risk
- leaders of HAZOP studies

### Course director:

Alan King, ABB Engineering Services

### Dates:

14–18 May 2012  
19–23 November 2012

### Location:

Cheshire, UK  
Edinburgh, UK

### Fees:

IChemE member – £1900.00 + VAT  
Non-member – £2050.00 + VAT

### Contact:

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Tel: +44 (0)1642 372121, Fax: +44 (0)1642 372296  
Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)  
[www.abb.com](http://www.abb.com)

## SIL determination IEC 61508/61511

This is a practical training course in the appreciation of safety integrity level (SIL) determination to the technical requirements of IEC 61508/61511. It is aimed at responsible managers, engineers and designers, and provides an introduction to the standard, the basics of risk, methodologies for SIL determination, and some of the important factors involved including common pitfalls.

### Key topics:

- introduction to the standard and its background
- IEC 61508/61511 basic principles refresher
- the concept and importance of SIL determination
- risk and criteria
- hazard identification
- risk graph approach
- introduction to demand trees and fault trees
- equipment failure and data
- human error
- dependency demands
- comparison of SIL determination tools
- introduction to the CASS scheme

### Who will benefit:

- process design engineers
- electrical, control and instrument engineers and designers
- safety managers and advisers
- works or technical managers with responsibility for managing risk

### Course director:

Alan King, ABB Engineering Services

### Dates:

7–8 March 2012  
13–14 June 2012  
5–6 September 2012  
28–29 November 2012

### Location:

Cheshire, UK  
Edinburgh, UK  
York, UK  
Cork, Ireland

### Fees:

IChemE member – £995.00 + VAT  
Non-member – £1075.00 + VAT

### Contact:

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Tel: +44 (0)1642 372121, Fax: +44 (0)1642 372296  
Email: [jackie.kendall@gb.abb.com](mailto:jackie.kendall@gb.abb.com)  
[www.abb.com](http://www.abb.com)

## Sustainable design workshop

By incorporating sustainable design into your innovation processes, your business will be better able to ensure future profitable growth and strategic portfolio development. This workshop will introduce:

- the drivers, opportunities and benefits of sustainable design
- application to your business
- key tools such as 'CCaLC'

### Key topics:

- introduction to the sustainable design guide process
- overview of global trends and drivers
- introducing the functional unit: understanding what the product really delivers
- introduction to two key tools: Life Cycle Analysis (LCA) and the Eco-Design Compass
- interactive case study exercise: defining success factors
- case studies in delivering sustainable innovation

### Who will benefit:

Influencers of product specification and design, e.g. executives, managers, engineers. Those looking to understand and use life cycle thinking.

### Course directors:

Ben Pearce, Michael Pitts and John Henderson

**Dates:** 25 January 2012  
**Location:** London, UK

**Fees:**  
IChemE member – £250.00 + VAT  
Non-member – £350 + VAT

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**Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833**  
**Email: [courses@icheme.org](mailto:courses@icheme.org)**  
**[www.icheme.org/susguide](http://www.icheme.org/susguide)**

## What every engineer should know about contracts

When managing projects, whether large or small, a clear understanding of the law of contract is essential. Failure to understand the basics can prove very expensive. This course explains, in simple terms, what engineering contracts are all about. Suitable for engineers of all disciplines, it provides an overview of the law of contract and of tort within which engineering and construction contracts are made and operate, as well as explaining why the standard forms of contract say what they say.

### Key topics:

- the law of contract (contract formation, terms, discharge, breach) and its application to engineering and construction work
- an outline of the tort of negligence
- risk allocation and its links with payment
- the essentials of engineering, construction and process plant contracts
- dispute resolution

### Who will benefit:

- project and contract managers
- contract administrators
- engineers and administrators
- consultants, consulting engineers, quantity surveyors
- sales and purchasing managers/personnel
- general managers
- graduate engineers

### Course director:

Gordon H Bateman, consultant and chair of IChemE's contracts drafting committee

**Dates:** 2–3 May 2012  
10–11 October 2012  
**Location:** Rugby, UK  
London, UK

**Fees:**  
IChemE member – £900.00 + VAT  
Non-member – £950.00 + VAT

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**[www.icheme.org/contracts](http://www.icheme.org/contracts)**

# e-learning – a flexible way to learn new skills

## HAZOP study training for team members

### Fees:

IChemE member – £650.00 + VAT  
Non-member – £750.00 + VAT

Provides a similar level of training to the conventional courses but, because it is web-based, individuals can work through it in their workplace - or wherever they have internet access – and at a time when the training is most appropriate. It is designed for graduates from a relevant discipline, off-shore operations personnel, or those with considerable operational experience who expect to be joining a HAZOP team.

The course has been created in the Moodle software system, a popular framework in higher education, including the Open University. Our web site provides an introductory course for newcomers to Moodle.

### Key topics:

All the essential topics needed to understand the principles and practice of HAZOP study are included within the eight modules of the course. Each module covers a particular aspect, which include:

- basics and background to HAZOP study
- relationship to other hazard study methods
- application to continuous and to sequential processes
- recording HAZOP study
- essential features of leading and management of a study
- making decisions in HAZOP study
- a range of examples of increasing complexity

To purchase e-learning courses or for more information:

Visit [www.icheme.org/elearning](http://www.icheme.org/elearning) or contact the Sales team:

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The following courses can be accessed as many times as you like over a period of 12 months.

They all include:

- a short introductory section
- descriptive texts and visual exercises
- quizzes to test understanding
- easy movement back and forward through the course
- glossaries to explain technical aspects
- book-marking for easy navigation and return

#### Fees:

IChemE member – £95.00 + VAT

Non-member – £110.00 + VAT

## Exothermic reaction hazards

Explains how seemingly simple changes in operating procedures, equipment design or process conditions/chemistry can lead to loss or injury of personnel, plant and product.

#### Key topics:

- batch and semi-batch accident statistics
- isothermal calorimetry
- worst credible maloperations and the undesired reaction
- worst credible maloperations and the basis of safety
- desktop methods of screening

## Fire and explosions

Aims to provide the skills necessary to identify and control the risk of fires and explosion hazards.

#### Key topics:

- flammability of liquids and solids
- flammability of gases and vapours
- saturated vapour pressure
- flash point
- control of ignition sources for liquids and gases

## HAZOP and multistage hazard study

Provides structured training in the main hazard identification techniques and where they fit into the project life cycle.

#### Key topics:

- regulatory requirements – including COMAH (Seveso II) and US PSM standards
- project life cycle
- failure mode and effective analysis (FMEA)
- preliminary computer HAZOP (CHAZOP)
- duties under HASAWA
- fault tree analysis (FTA)
- Dow and Mond Index

## Introduction to fire fighting foam and how to use foam

Presents guidelines on conducting the most common foam concentrate and foam system tests that can be carried out either 'in the field' or at a specially constructed test centre.

#### Key topics:

- introduction to foam
- foam sampling techniques
- foam concentrates tests and foam system tests
- design guides, approvals and standards
- foam systems and testing
- foam fire testing
- interpretation of foam test results

## Occupational health

Learn important techniques in the assessment of risk of exposure to hazardous chemicals.

#### Key topics:

- how chemicals affect health
- routes of entry
- harmful effects
- hierarchy of control
- monitoring and occupational exposure limits
- local exhaust ventilation
- personal protective equipment

## Pressure and temperature control

Learn how to enhance the use and maintenance of important elements of the process control system.

### Key topics:

- common forms of pressure measurement and devices
- pressure units of measurement
- temperature units of measurement and devices
- thermometers and thermocouples

## Risk assessment techniques

Examines both the cost and consequences of risk and how it can be minimised.

### Key topics:

- regulatory requirements
- quantitative risk assessment
- Seveso II and US PSM standards
- assessing environmental risk
- qualitative risk assessment
- consequence analysis
- safety legislation
- the blast wave

## Safer maintenance

Provides training in planning, implementing and completing all types of maintenance in the safest possible manner.

### Key topics:

- legal requirements/pre-planning
- testing and monitoring
- use of contractors
- work permit issues
- isolation/decontamination
- reinstallation and recommissioning

## Safety auditing

Structured training in the full audit process and the value of auditing – aimed at anyone preparing to conduct or participate in a formal safety audit.

### Key topics:

- key objectives
- legislative criteria
- management criteria
- costs of accidents

## Safety management systems online

Introductory training in safety management for operators, contractors, engineers and management.

### Key topics:

- policy development
- self-assessment and regulation
- planning and implementation
- legislative requirements

## Storage tank and bund protection systems

Training in how to protect against and prevent storage tank fires.

### Key topics:

- monitors for spill fires, storage tanks and bunds
- fixed foam pourer installations for cone roof storage tanks
- semi-subsurface protection of cone roof storage tanks
- subsurface protection of cone roof storage tanks
- foam pourer protection of open top floating roof tanks
- catenary system protection of open floating roof tanks
- coflexip system protection of open top floating roof tanks
- covered floating roof tanks

The time required is around 12-15 hours, roughly the equivalent of a two day full-time course.

# Registration form

For courses organised by IChemE

**Complete this form and fax it to: +44 (0) 1788 560833. To register on any other course, contact the course organiser.**

I wish to book a place on the.....  
course, running on .....

I am a member of IChemE:  Yes  No membership number:.....

Last name: .....

First name: .....

Title (Dr/Mr/Miss/Mrs/Ms/Prof/Eur Ing): ..... Gender:  Male  Female

Work details – company: .....

EC VAT registration number: .....

Job title: ..... Department: .....

Country: ..... Post/zip code: .....

Address: .....

Town/city: ..... County/state: .....

Direct telephone: ..... Direct fax: .....

Email (for pre-course correspondence): .....

## Data protection

In accordance with the Data Protection Act IChemE (and companies processing data on its behalf) will hold and use the data contained on this form for administration purposes, to keep you informed of its activities, and offer goods and services provided by the Institution. If you would prefer not to receive IChemE product and service literature please mark the box

If you would prefer not to receive emails on IChemE product and service literature please mark the box  The Institution is fully registered under the Data Protection Act as both a data user and a computer bureau.

## Method of payment (payment must be received in full before the event date otherwise admission cannot be guaranteed)

Cheque enclosed (made payable to Institution of Chemical Engineers).  
Send to IChemE, accounts department, Davis Building, Railway Terrace, Rugby, Warwickshire, CV21 3HQ, UK

Debit my credit/debit card: (payment in £ sterling only):

Cardholder name (as it appears on the card): .....

Billing address (if different from above): .....

.....

Cardholder's signature: ..... Telephone number: .....

Visa  Visa Debit  MasterCard  UK Maestro  Solo  AMEX

Card number:

Valid from date:   /   Expiry date:   /   Issue number:  CVC code:

(3 digits on reverse of (debit card only) card or 4 digits on the front of AMEX)  
This is mandatory for VISA and MasterCard

Invoice my company quoting purchase order number: .....

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in Kuala Lumpur,  
London,  
Melbourne,  
Rugby, Shanghai  
and Wellington**

**Please note that a registration cannot be processed unless a copy of your purchase order is received with your registration form. Your booking will be confirmed by IChemE on receipt of either: an official purchase order or cleared funds. By submitting this form you have agreed to our terms and conditions and cancellation policy. Terms and conditions are available at: [www.icheme.org/terms](http://www.icheme.org/terms)**

## Cancellation policy

Cancellations received in writing 28 days prior to the event will be subject to an administration charge of 10% of the fees plus VAT. No refunds will be given for non-attendance or cancellations received less than 28 days prior to the event. Substitutions are welcomed at any time. We reserve the right to cancel or alter the programme.

*IChemE's VAT registration no is GB 661 5413 48*

## IChemE offices

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