



Process Safety Management Training

Leverage state-of-the-art resources and practical know-how to learn about proven management system concepts and techniques. IHS trainers are subject matter experts who can teach you and your teams how to identify, analyze, mitigate and monitor process safety risks and hazards across your enterprise.

BENEFITS:

Process Safety

Management training is an integral part of the IHS Risk Assessment Solution, which enables you to:

- Lead PHA teams and initiatives
- Improve workplace safety with a goal of zero harm
- Ensure compliance with process safety regulations and standards
- Design and develop customized PHA solutions for our company
- Mitigate risk
- Understand the various risk assessment methodologies

All courses provide expert instruction in the best-practice professional methodologies to analyze and minimize risk. The training sessions are taught at your location or an IHS office and cover these topics:

- **Process Hazards Analysis (PHA) Methodology and Leadership**
- **Layers of Protection Analysis (LOPA) Methodology and Leadership**
- **Job Safety Analysis (JSA) Methodology**
- **Failure Modes and Effects Analysis (FMEA) Methodology and Leadership**

Courses include instruction on both the various study methodologies and the configuration and use of Desktop Pro software for documentation of the studies. Additional details for each course may be found on the following pages.

Delivery Options

You may attend any of the open enrollment courses scheduled at various times and locations throughout the year. If your organization has a large group of personnel who require training, IHS can arrange to provide training at your site, exclusively for your personnel

Cost & Schedule

The costs and schedule of the open enrollment training are included on the last page of this brochure, and may vary by both course and location. For information on training provided at your location, please speak directly with your account manager.

Open enrollment training fees include training materials, as well as lunch and refreshments each day.

IHS does reserve the right to cancel scheduled courses, and will do so no later than two weeks prior to the scheduled start date of the course.

Questions: Please contact RiskTrainingSupport@ihs.com to learn more about content and availability.

How Will You Benefit?

This PHA Leadership course will empower you, and enable your organization through you, to identify, analyze, mitigate, and monitor hazards and risks across your organization. You will use state-of-the-art risk management systems from IHS for hands-on exercises and facilitation practice under the guidance of experienced professional instructors. You will learn tips and tricks to generate high quality risk studies in efficient and effective ways.

Prerequisite

It is mandatory that you have either technical background and/or experience in the oil, gas, chemicals, power, mining, pharmaceuticals, biotech or other process industries.

Who Should Attend?

This is an introductory level course, aimed at those new to the process safety arena, and to those with some experience looking to improve their knowledge, including:

- Risk professionals
- HSE professionals
- Consultants
- PHA Team members;
Facilitators and Scribes
- Contractors
- Managers
- Engineers
- Supervisors
- Operators
- Maintenance
- Project Managers
- Technicians

Course Content

Day 1 - Introduction to Hazards and Risk

Introduction to hazards, hazardous scenarios, and risk; differentiation between process and workplace hazards; industrial accidents and lessons learned; Regulatory developments and process safety management; Identification of hazards and assessment of Risks; ALARP and Closing Risk Gaps; Overview of structured hazard analysis tools (PrHA; Checklists; What If; FMEA; HAZOP); Study Nodes (Concept, Development, Organization); HAZOP Deviations (Parametric; Operational)

Day 2 - Detailed Methodology and Leadership

Causes (Definition; failure of safeguards vs. failure of safeguards to act on demand; causes as “black boxes”, human errors, double jeopardy); Consequences (development, inherently safe design, system trips as consequences, process utilities); Safeguards (safeguard definition and qualification; knock-on effects); Accurate risk ranking; Recommendations (development, challenges, risk justification); Facilitator qualities, roles, and duties; Determining documentation requirements; Defining nodes and estimating time; Selection of team members; Effects of P&ID quality on study progress; Conducting PHA meetings (order of discussion, documentation, team personalities); Reports.

Day 3 - PHA Pro Software End User Training (Study Documentation & Management)

IHS software walk-through and navigation, file management, walkthrough of preformatted standard PHA templates, comprehensive study and practice of end-user functions, hands-on end-user functions exercises.

Day 4 – PHA Pro Software Advanced User Training (Template Construction)

Introduction to IHS software template configuration engine, walk-through of a PHA template creation, and hands-on exercises, comprehensive study of advanced user functions and template user interface layout design.

How Will You Benefit?

This course will provide you with the information required to begin successfully identifying, constructing, and analyzing scenarios using the Layers of Protection Analysis technique. Based on industry standard approaches and updated in 2016 to incorporate new information based on IHS' many years of successfully conducting LOPA studies for its clients, this refreshed and updated course will provide risk professionals with greater insight and understanding into the LOPA technique, with focus on how to use the results to improve overall process safety management. Whether using LOPA for SIL Assignment activities, or as a general process safety management tool, this training is of benefit to all process safety professionals already familiar with standard PHA techniques such as HAZOP and What If.

Prerequisite

Previous PHA/HAZOP experience and/or training is a recommended pre-requisite for participants who take this course.

Who Should Attend?

A wide variety of professionals and organizations will benefit from taking the LOPA training course including:

- Process safety personnel
- Contractors
- Operators
- HSE/ Risk professionals
- Managers
- Maintenance personnel
- Project managers
- Engineers
- Instrumentation professionals responsible for SIS
- Consultants
- Supervisors

Course Content

Day 1 - LOPA Methodology

Definition of LOPA; Understanding Hazardous Scenario Development; Relationship between PHA and LOPA; Different LOPA Approaches (CCPS vs. IEC); Concept of "Detect, Decide, Do"; LOPA Consequence Development and Identification of Conditional Modifiers; LOPA Initiating Event Identification and use of Enabling Events / Time at Risk.

Day 2 - LOPA Methodology

Independent Protection Layers: Definition, Review of IPL Types; Characteristics of IPLs; Knock-On Effects; Post-Release IPLs; Using LOPA to Make Effective Risk Based Decisions; Application of LOPA.

Day 3 - PHA Pro Software End User Training (Study Documentation & Management)

IHS software walk-through and navigation, file management, walkthrough of preformatted standard PHA templates, comprehensive study and practice of end-user functions, hands-on end-user functions exercises.

Day 4 – PHA Pro Software Advanced User Training (Template Construction)

Introduction to IHS software template configuration engine, walk-through of a PHA template creation, and hands-on exercises, comprehensive study of advanced user functions and template user interface layout design.

An optional fifth day is available, which includes discussion on the origins and application of LOPA, an introduction to functional safety, and an overview of SIL Verification and the Safety Lifecycle. Please enquire for more details.

How Will You Benefit?

Course content can be chosen from a combination of the two training modules described below. These modules comprise of topics, which will allow the course attendees to develop an understanding of the Job Safety Analysis (JSA) Methodology as well as getting them well acquainted with the documentation process, using a documentation tool. Course certificates that indicate the training modules covered are issued to participants who complete this course.

Module One – Methodology Training

- What are & Why use JSAs
- Related JSA standards
- Steps of a JSA
- Risk Criteria
- Evaluating Existing Controls and Safeguards
- Determining Preventive Measures
- WHMIS (Workplace Hazardous Materials Information System)

Module Two – Software Training

- Creating a new file
- Related JSA standards
- Administrative Data Overview
- Entry of Data - Basic Navigation
- Describing all Icons/Functions
- Project Settings
- Libraries
- Report Generation and Customization

Prerequisite

It is mandatory that you have a technical background and more than two years of experience in the process, oil, gas, chemicals, power, mining, pharmaceutical or other process industries.

Who Should Attend?

- Process safety personnel
- HSE professionals
- Others who need to apply or understand Job Safety Analysis
- Supervisors and managers responsible for safety instrumented systems



**2016 Open Enrollment Training Schedule
PHA, Quality Methodology, and Desktop Software**

PHA Methodology (Two Days) and PHA Pro Software (Two Days)		
23 February to 26 February, 2016	Calgary, Canada	USD 2,500
22 March to 25 March, 2016	Mumbai, India	USD 1,500
29 March to 1 April, 2016	Istanbul, Turkey	USD 2,500
19 April to 22 April, 2016	Houston, USA	USD 2,500
10 May to 13 May, 2016	Dusseldorf, Germany	USD 2,500
24 May to 27 May, 2016	Delhi, India	USD 1,500
21 June to 24 June, 2016	Toronto, Canada	USD 2,500
16 August to 19 August, 2016	Nijmegen, Netherlands	USD 2,500
20 September to 23 September, 2016	Houston	USD 2,500
19 September to 22 September, 2016	Dubai, UAE	USD 2,500
4 October to 7 October, 2016	Nijmegen, Netherlands	USD 2,500
11 October to 14 October, 2016	Toronto	USD 2,500
22 November to 25 November, 2016	Houston	USD 2,500
15 November to 18 November, 2016	Melbourne	USD 2,500
13 December to 16 December, 2016	Singapore	USD 2,500

LOPA Methodology (Two Days) and PHA Pro Software (Two Days)		
1 March to 4 March, 2016	San Francisco, USA	USD 2,500
19 April to 22 April, 2016	Calgary, Canada	USD 2,500
17 May to 20 May, 2016	Dusseldorf, Germany	USD 2,500
21 June to 24 June, 2016	Houston, USA	USD 2,500
22 August to 25 August, 2016	Dubai, UAE	USD 2,500
18 October to 21 October, 2016	Houston	USD 2,500
22 November to 25 November, 2016	Melbourne	USD 2,500

FMEA Methodology (Two Days) and FMEA Pro Software (Two Days)		
15 March to 18 March, 2016	Detroit, USA	USD 2,500
15 November to 18 November, 2016	Toronto	USD 2,500

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