



COURSE OVERVIEW HE2311

Process Hazard Analysis Methods Mainly HAZOP & LOPA

Course Title

Process Hazard Analysis Methods Mainly HAZOP & LOPA

Course Date/Venue

July 26-30, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Course Reference

HE2311

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Process Hazard Analysis Methods Mainly HAZOP and LOPA. It covers the process safety management (PSM), process hazard analysis (PHA) and hazard identification fundamentals; the risk assessment principles, process information requirements for PHA and the purpose and scope of HAZOP and LOPA; the HAZOP methodology and structure and HAZOP team roles and responsibilities; the guide words and process parameters, deviation analysis techniques, HAZOP documentation and reporting; and the risk ranking within HAZOP and safeguard identification and evaluation.



During this interactive course, participants will learn the human factors in HAZOP studies, specialized HAZOP applications and common HAZOP challenges and best practices; the layer of protection analysis (LOPA) and initiating events analysis; the independent protection layers (IPLs), consequence scenarios and risk criteria; the probability of failure on demand (PFD), LOPA calculations and documentation and safety instrumented systems (SIS) fundamentals; the SIL determination using LOPA, advanced LOPA applications and integration of HAZOP and LOPA; and the PHA revalidation and continuous improvement.



Course Objectives/Outcomes & Benefits for the Participants

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on process hazard analysis methods mainly HAZOP and LOPA
- Carryout process safety management (PSM), process hazard analysis (PHA) and hazard identification fundamentals
- Discuss risk assessment principles, process information requirements for PHA and the purpose and scope of HAZOP and LOPA
- Recognize HAZOP methodology and structure, HAZOP team roles and responsibilities and defining nodes and study boundaries
- Identify guide words and process parameters as well as apply deviation analysis techniques, HAZOP documentation and reporting
- Apply risk ranking within HAZOP and safeguard identification and evaluation
- Identify human factors in HAZOP studies, specialized HAZOP applications and common HAZOP challenges and best practices
- Carryout layer of protection analysis (LOPA) and initiating events analysis
- Discuss independent protection layers (IPLs), consequence scenarios and risk criteria as well as probability of failure on demand (PFD)
- Apply LOPA calculations and documentation and discuss safety instrumented systems (SIS) fundamentals
- Carryout SIL determination using LOPA, advanced LOPA applications and integration of HAZOP and LOPA
- Employ PHA revalidation and continuous improvement covering revalidation requirements, tracking action items, lessons learned incorporation and performance monitoring

Exclusive Smart Training Kit - H-STK®



*Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of process hazard analysis methods mainly HAZOP and LOPA for risk assessment and risk management professionals, process safety engineers, production supervisors and managers, maintenance engineers and supervisors, HSE personnel and other technical staff.

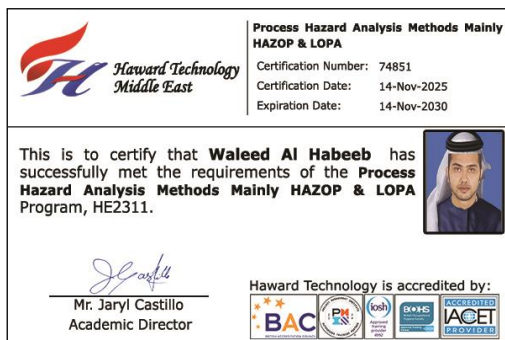
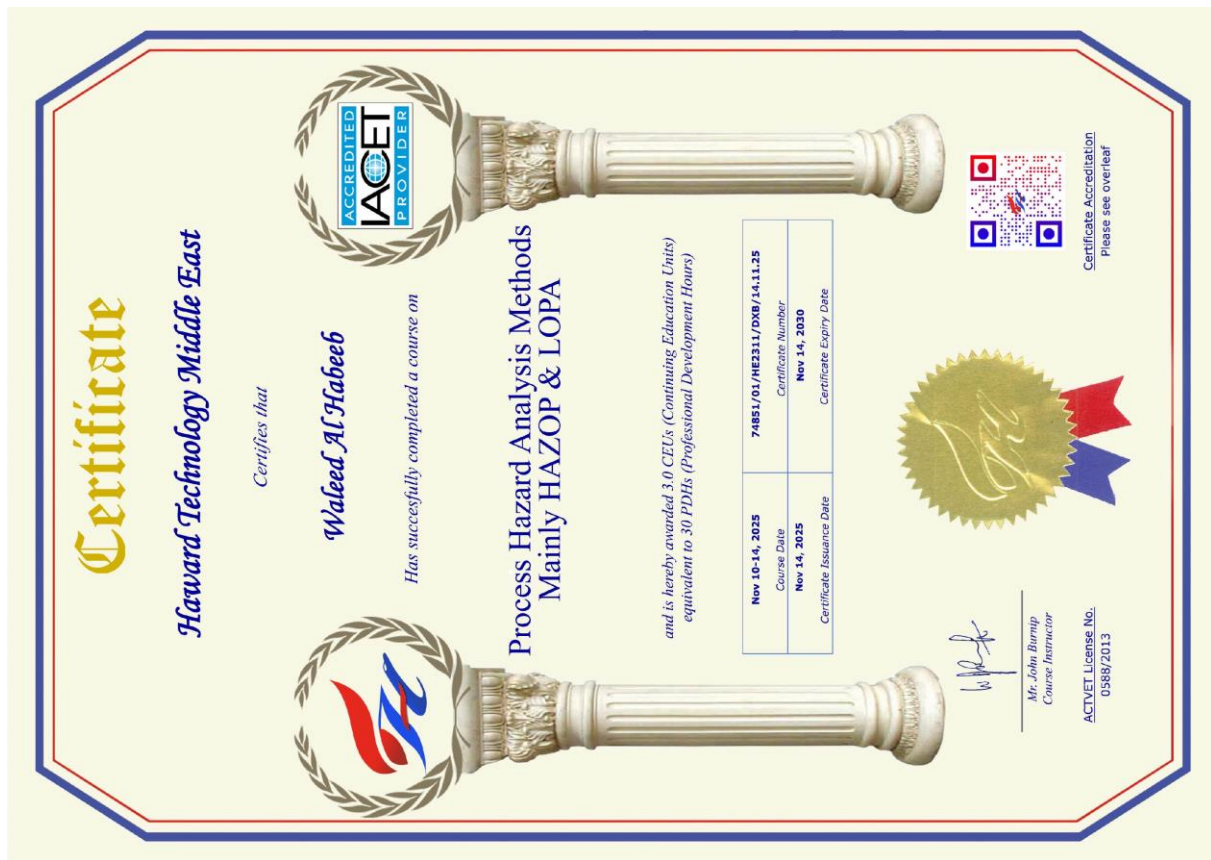
Course Certificate(s)

- (1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:-





- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course

* Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology *

 **Haward Technology Middle East**
Continuing Professional Development (HTME-CPD)

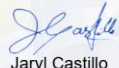
CEUs

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-25
HTME No. 74851
Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
HE2311	Process Hazard Analysis Methods Mainly HAZOP & LOPA	Nov 10-14, 2025	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY

Jaryl Castillo
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 Standard.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking Continuing Education Units (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology is accredited by

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Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations: -

-  British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

-  The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.



Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. John Burnip, EHS, SAC, STS, NEBOSH-ENV, NEBOSH-IGC, NEBOSH-IFC, NEBOSH-PSM, NEBOSH-IOG, TechIOSH, is a **NEBOSH Approved Instructor** and a **Senior HSE Consultant** with over **30 years** of practical **Offshore & Onshore** experience within **Oil, Gas, Refinery, Petrochemical** and **Nuclear** industries. His wide experience covers **NEBOSH** International General Certificate in Occupational Health & Safety, **NEBOSH** National Certificate in Construction Health & Safety, **NEBOSH** Certificate in Process Safety Management, **NEBOSH** Environmental Management Certificate, **NEBOSH** Certificate in Fire Safety, **NEBOSH** International Oil & Gas Certificate, **PHA, HAZOP, HAZCOM, HAZMAT, HAZID, Hazard & Risk Assessment, Emergency Response Procedures** Behavioural Based Safety (BBS), **Confined Space Entry, Fall Protection, Emergency Response, H₂S, Safety Management System (ISO 45001), Accident/Incident Investigation System and Report PSM, Risk Assessment, SCE FMEA Failure Investigations, Site Management Safety Training (SMSTS), Occupational Health & Safety and Industrial Hygiene, Crisis Management & Damage Control in Oil & Gas Industry, Enhancing HSSE Safety Performance & Effectiveness, Overhead & Gantry Crane Safety, HSSE Principles & Practices Advanced, Lifting & Rigging Equipment Lifting Tackles Inspection License/Relicense, API 780 Security Risk Assessment Methodology for Petroleum & Petrochemical, Advanced Process Safety Management with PHA, Quantitative and Qualitative Risk Assessment, IADC/API Mobile Drilling Rig Inspections, Maintenance and Audits, H₂s Training and Rescue with Respiratory Equipment, Job Safety Analysis (JSA), Work Permit & First Aid, Project HSE Management System, Health & Hygiene Inspection, PTW Control, Process Modules Fire & Gas Commissioning, MSDS, Ergonomics, Lockout/Tagout, Fire Safety & Protection, Spill Prevention & Control, Tower & Scaffold Inspection, Scaffolding Operations, Scaffolding Equipment, Bracket Scaffolds, Scaffolding Labelling, Pre-fab Scaffolding; Erecting, Maintaining & Dismantling Scaffolding in accordance with the **British Standards Code of Practice 5973; Heavy Lifting** operations, Cantilevered Hoists, **Offshore Operations, Offshore Construction, Basic Offshore Safety** Induction & Emergency Training (BOSIET), **Onshore Fabrication & Offshore Pipelaying & Hook-Up, Crane Inspection, Crane Operations, Oilfield Startup & Operation, Steel Fabrication, OSHA, ISO 9001, ISO 14001, OHSAS 18001 and IMO (SOLAS) Regulations.** Mr. Burnip has greatly contributed in upholding the highest possible levels of safety for numerous International Oil & Gas projects, Generation Systems & Platform Revamp, LPG & Gas Compression, Marine, Offshore and Power Plant Construction. Currently, he is the **HSE Advisor** of Solvay wherein he is responsible in planning and implementation of the corporate safety program (OSHA codes).**

During Mr. Burnip's long career life, he had successfully carried out numerous projects in **Europe, North America, South America, Southeast Asia, Middle East** and the **North Sea**. He had worked for Delta Offshore Group, Solvay Asia Pacific, Likpin Dubai, SADRA/DOT, **ZADCO, McDermott International (USA, Qatar, Egypt, India, Oman, Dubai and Abu Dhabi), PDO, Shell, ARAMCO, Salman Field, Leman Offshore Gas Field, GEC, Harland & Wolff PLC Belfast in North Ireland, Howard Doris – Kishorn in Scotland, Westinghouse Electric in Brazil and South Korea and Chevron Oil in Scotland** as the **Commissioning Project Engineer, Project & Safety Engineer, Estimating Engineer, Senior Instrument Engineer, Instrument Field Engineer, Lead Instrument Engineer, Instrument Engineer, Engineer, Emergency Response Training Manager, HSE Advisor, HSE Instructor, HSE Supervisor, Instrumentation Supervisor, Instrumentation Specialist, Project Coordinator, Instrumentation Technician** and **Tank Farm Instrumentation Technician**.

Mr. Burnip has a **Bachelor's degree in Business Studies** from the **Somerset University (UK)**. He is a **Certified/Registered Tutor** in **NEBOSH Certificate in Environmental Management, NEBOSH International General Certificate, NEBOSH International Certificate in Fire Safety & Risk Management, NEBOSH Process Safety Management Certificate and NEBOSH International Oil & Gas Certificate; a Certified Safety Auditor (SAC); a Certified ISO 45001 Auditor; an Environmental Health and Safety Management Specialist** on Fall Protection, Elevated Structures, Material Handling, Trenching & Excavations; a **Welding Brazing Safety Technician; a Certified Safety Administrator (CSA) - General Industry; a Safety Manager/Trainer – General Industry; a Petroleum Safety Manager (PSM) - Drilling & Servicing; a Petroleum Safety Specialist (PSS) - Drilling & Servicing; a Safety Planning Specialist; a Safety Training Specialist; a Certified Instructor/Trainer; a Certified Internal Verifier/Assessor/Trainer by the Institute of Leadership & Management (ILM) and further holds a Certificate in Mechanical Engineering Craft Practice from the City & Guilds of London Institute; a NEBOSH Level 3 Construction Certificate (UK); and holds a Cambridge Teaching Certificate.** He is a well-regarded member of the **National Association of Safety Professionals, the Association of Cost Engineers (UK), Institution of Occupational Safety & Health (TechIOSH)** and an **Associate Member of World Safety Organization**. Further, he has conducted innumerable trainings, workshops and conferences worldwide.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: Sunday, 26th of July 2026

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Process Safety Management (PSM) Principles of Process Safety • Major Accident Hazards and Consequences • Regulatory and Industry Requirements • Relationship Between PSM and PHA
0930 – 0945	Break
0945 – 1030	Overview of Process Hazard Analysis (PHA) Definition and Objectives of PHA • Types of PHA Methodologies • Lifecycle Application of PHA • Benefits and Limitations of PHA Studies
1030 – 1130	Hazard Identification Fundamentals Hazard Versus Risk Concepts • Sources of Process Hazards • Energy and Chemical Release Scenarios • Incident Causation Models
1130 – 1215	Risk Assessment Principles Risk Terminology and Definitions • Consequence Assessment Concepts • Likelihood Estimation Techniques • Risk Matrix Applications
1215 – 1230	Break
1230 – 1330	Process Information Requirements for PHA Process Flow Diagrams (PFDs) • Piping and Instrumentation Diagrams (P&IDs) • Process Safety Information (PSI) • Operating and Design Parameters

1330 – 1420	Basics of HAZOP & LOPA <i>Purpose and Scope of HAZOP • Purpose and Scope of LOPA • Differences Between HAZOP and LOPA • Integration Within the Risk Management Framework</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	<i>Lunch & End of Day One</i>

Day 2: Monday, 27th of July 2026

0730 – 0830	HAZOP Methodology & Structure <i>History and Development of HAZOP • Systematic Examination Approach • HAZOP Workflow and Process • Applications Across Industries</i>
0830 – 0930	HAZOP Team Roles & Responsibilities <i>HAZOP Leader Responsibilities • Team Composition Requirements • Subject Matter Expert Contributions • Documentation and Recording Duties</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Defining Nodes & Study Boundaries <i>Selection of HAZOP Nodes • Determining Study Scope • Establishing Process Boundaries • Node Segmentation Techniques</i>
1100 – 1215	Guide Words & Process Parameters <i>Standard HAZOP Guide Words • Process Parameters Identification • Combining Guide Words and Parameters • Generating Meaningful Deviations</i>
1215 – 1230	<i>Break</i>
1230 – 1330	Deviation Analysis Techniques <i>Identifying Causes of Deviations • Evaluating Potential Consequences • Reviewing Existing Safeguards • Determining Recommendations</i>
1330 – 1420	HAZOP Documentation & Reporting <i>HAZOP Worksheets and Templates • Recording Study Findings • Recommendation Tracking Systems • Final Report Preparation</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	<i>Lunch & End of Day Two</i>

Day 3: Tuesday, 28th of July 2026

0730 – 0830	Risk Ranking within HAZOP <i>Qualitative Risk Assessment • Risk Matrix Utilization • Severity Categorization • Likelihood Estimation Methods</i>
0830 – 0930	Safeguard Identification & Evaluation <i>Types of Safeguards • Prevention Versus Mitigation Measures • Human and Administrative Controls • Reliability Considerations</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Human Factors in HAZOP Studies <i>Human Error Mechanisms • Operator Actions and Responses • Procedural Deficiencies • Ergonomic Considerations</i>
1100 – 1215	Specialized HAZOP Applications <i>Batch Process HAZOP • Utility Systems HAZOP • Startup and Shutdown HAZOP • Management of Change (MOC) Reviews</i>
1215 – 1230	<i>Break</i>

1230 – 1330	Common HAZOP Challenges & Best Practices Avoiding Team Bias • Managing Large Study Scopes • Improving Recommendation Quality • Enhancing Study Efficiency
1330 – 1420	Practical HAZOP Workshop Node Selection Exercise • Deviation Generation Practice • Cause-Consequence Analysis • Recommendation Development
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Three

Day 4: Wednesday, 29th of July 2026

0730 – 0830	Layers of Protection Analysis (LOPA) Purpose and Objectives of LOPA • Semi-Quantitative Risk Assessment • Relationship to HAZOP Findings • LOPA Workflow Overview
0830 – 0930	Initiating Events Analysis Definition of Initiating Events • Sources of Initiating Event Data • Frequency Estimation Methods • Data Quality Considerations
0930 – 0945	Break
0945 – 1100	Independent Protection Layers (IPLs) Definition and Criteria for IPLs • Independence Requirements • Effectiveness and Reliability • Examples of Valid IPLs
1100 – 1215	Consequence Scenarios and Risk Criteria Scenario Development Process • Consequence Severity Categories • Risk Tolerance Criteria • Corporate Risk Acceptance Standards
1215 – 1230	Break
1230 – 1330	Probability of Failure on Demand (PFD) PFD Fundamentals • Assigning PFD Values • Industry Data Sources • Common Calculation Methods
1330 – 1420	LOPA Calculations & Documentation Risk Reduction Calculations • Determining Residual Risk • LOPA Worksheets and Forms • Reporting and Documentation Requirements
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Four

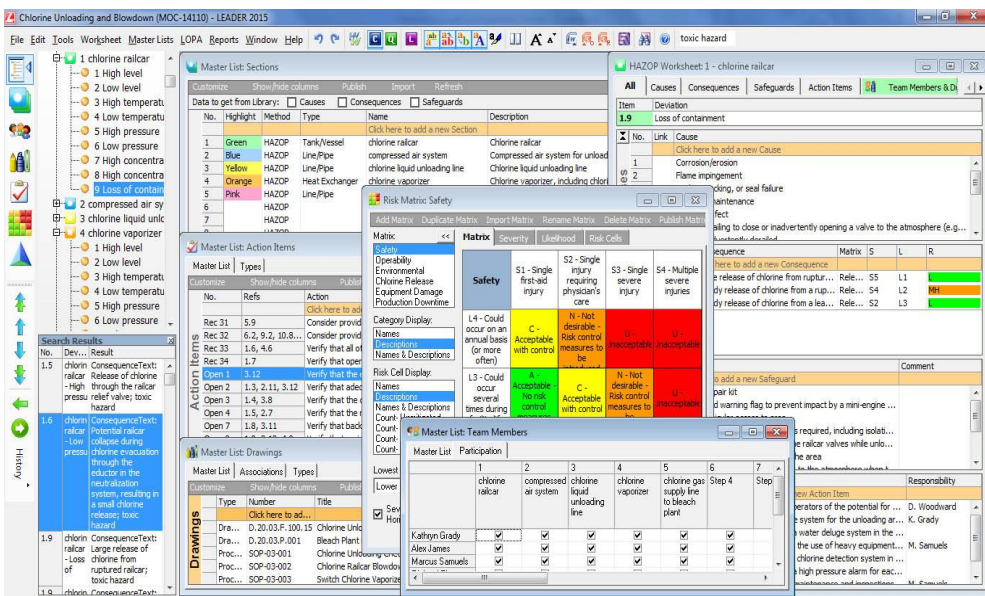
Day 5: Thursday, 30th of July 2026

0730 – 0830	Safety Instrumented Systems (SIS) Fundamentals SIS Architecture Overview • Safety Instrumented Functions (SIFs) • Risk Reduction Objectives • SIS Lifecycle Concepts
0830 – 0930	SIL Determination Using LOPA SIL Concepts and Definitions • Linking LOPA to SIL Selection • Target Risk Reduction Factors • SIL Verification Requirements
0930 – 0945	Break
0945 – 1100	Advanced LOPA Applications Enabling Conditions • Conditional Modifiers • Multiple Consequence Scenarios • Complex IPL Configurations

1100 – 1230	Integration of HAZOP & LOPA <i>Transitioning From HAZOP to LOPA • Selecting Scenarios for LOPA • Managing Recommendations • Maintaining Consistency Between Studies</i>
1230 – 1245	Break
1245 – 1300	PHA Revalidation & Continuous Improvement <i>Revalidation Requirements • Tracking Action Items • Lessons Learned Incorporation • Performance Monitoring</i>
1300 – 1315	Course Conclusion <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course</i>
1315 – 1415	COMPETENCY EXAM
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art Haward “PHA/HAZOP” Simulator.



Haward PHA/HAZOP Simulator

Course Coordinator

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