

### **COURSE OVERVIEW HE0002S5**

# **Certified HAZOP Leader**

# Advanced Process Hazard Analysis (PHA) Methods & Leadership (HAZOP, What-if, FMEA)

#### **Course Title**

Certified HAZOP Leader: Advanced Process Hazard Analysis (PHA) Methods & Leadership (HAZOP, What-if, FMEA)

#### Course Date/Venue

September 09-13, 2024/Boardroom 3, Southern Sun Abu Dhabi Hotel, Abu Dhabi, UAE

### Course Reference

HE0002S5

# Course Duration/Credits

Five days/3.0 CEUs/30 PDHs









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

Old approaches to safe design in the process industry relied on the application of codes of practice and the design was usually based upon experience from specialists and operators in the industry. Such methods were able only to take into account problems and accidents that had already happened. With introduction of new technologies, unconventional design, complex plants and short operating experience, a proper PHA study is now a mandatory tool to identify potential hazards and operability problems.

PHA is a systematic multidisciplinary team study intended to identify and analyze the significance of potential process hazards and make initial recommendations for eliminating hazards, for reducing the consequences of potential accidents and for improving general facility safety.

PHA methods are used for new plants as well as for modifications to existing design. The methods have been developed primarily for the process industry and have been applied in great scale in the Oil and Gas sector. However, the PHA techniques are now applied with success for other industries such as offshore construction, power and water projects, space and military industries, and environment studies.





















This course is designed to provide the participants with the knowledge and group leadership skills to lead teams in effective Process Hazards Analysis (PHA) studies. The course is based on OSHA 29CFR Part 1910 Process Safety Management (PSM) regulations and was developed using instruction techniques and audio-visual materials specifically designed for engineers and supervisors. There is a focus on developing a practical understanding of what it takes to plan and lead a successful study and on practicing new skills. Participants will be provided with comprehensive training and resource materials.

### **Course Objectives**

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

- Get a certificate as a "Certified HAZOP Leader"
- Apply the methodology of the PHA review techniques in general and the HAZOP technique in particular based on the International Standard IEC 61882 and identify the role of the independent chairman and the HAZOP team
- Determine the minimum Engineering Documents and drawings required to complete a satisfactory HAZOP report and illustrate the structure and content of such Report
- Apply the HAZOP tool to process design of existing or new facilities including interface, start up and commissioning of a plant
- Assess the risk level/criticality associated with control loop/equipment failure and practice the major techniques for hazard identification
- List the responsibilities involved in the PHA leadership and the skills necessary for leading PHA studies
- Practice the various PHA techniques including What-If, HAZOP and FMEA using real life cases and use commercial software as useful tools in the facilitation of **Process Hazards Analysis**

#### 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, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a Tablet PC.

### Who Should Attend

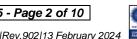
This course provides an overview of all significant aspects and considerations of PHA for those who are involved in the management, engineering (design, process, chemical, facilities, instrumentation and control), operations and safety of process operations. Engineers, safety/environment personnel, plant operators, area managers, projects and maintenance personnel will benefit from the practical approach presented in this course.

















### **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. Successful candidate will be certified as a "Certified HAZOP Leader". 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

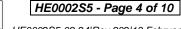






















#### **Certificate Accreditations**

Haward Technology is accredited by the following international accreditation organizations:-

• 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.



#### British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. 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.

#### **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.

















## **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. Andrew Ladwig is a Senior Process & Mechanical Engineer with over 25 years of extensive experience within the Oil & Gas, Refinery, Petrochemical & Power industries. His expertise widely covers in the areas of Ammonia Manufacturing & Process Troubleshooting, Distillation Towers, Crude Oil Distillation, Fundamentals of Distillation for Engineers, Distillation Operation and Troubleshooting, Advanced Distillation Troubleshooting, Distillation Technology, Vacuum Distillation, Ammonia Storage & Loading Systems, Ammonia Plant Operation, Troubleshooting & Optimization, Ammonia Recovery, Ammonia Plant Safety, Hazard of Ammonia Handling, Storage & Shipping, Operational Excellence in Ammonia Plants, Fertilizer Storage Management

(Ammonia & Urea), Fertilizer Manufacturing Process Technology, Sulphur Recovery, Phenol Recovery & Extraction, Wax Sweating & Blending, Petrochemical & Fertilizer Plants, Nitrogen Fertilizer Production, Petroleum Industry Process Engineering, Refining Process & Petroleum Products, Refinery Planning & Economics, Safe Refinery Operations, Hydrotreating & Hydroprocessing, Separators in Oil & Gas Industry, Gas Testing & Energy Isolations, Gas Liquor Separation, Industrial Liquid Mixing, Wax Bleachers, Extractors, Fractionation, Operation & Control of Distillation, Process of Crude ATM & Vacuum Distillation Unit, Water Purification, Water Transport & Distribution, Steam & Electricity, Flame Arrestors, Coal Processing, Environmental Emission Control, R&D of Wax Blending, Wax Molding/Slabbing, Industrial Drying, Principles, Selection & Design, Certified Process Plant Operations, Control & Troubleshooting, Operator Responsibilities, Storage Tanks Operations & Measurements, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Performance, Efficiency & Optimization, Continuous Improvement & Benchmarking, Process Troubleshooting Techniques, Oil & Gas Operation/Introduction to Surface Facilities, Pressure Vessel Operation, Process Equipment Performance & Troubleshooting, Plant Startup & Shutdown, Startup & Shutdown the Plant While Handling Abnormal Conditions, Flare & Relief System, Process Gas Plant Start-up, Commissioning & Problem Solving, Process Liquid and Process Handling & Measuring Equipment. Further, he is also well-versed in Compressors & Turbines Operation, Maintenance & Troubleshooting, Heat Exchanger Overhaul & Testing Techniques, Balancing of Rotating Machinery (BRM), Pipe Stress Analysis, Valves & Actuators Technology, Inspect & Maintain Safeguarding Vent & Relief System, Certified Inspectors for Vehicle & Equipment, Optimizing Equipment Maintenance & Replacement Decisions, Certified Maintenance Planner (CMP), Certified Planning and Scheduling Professional (AACE-PSP), Tank Design, Construction, Inspection & Maintenance, Material Cataloguing, Specifications, Handling & Storage, Steam Trap Design, Operation, Maintenance & Troubleshooting, Steam Trapping & Control, Column, Pump & Exchangers, Troubleshooting & Design, Rotating Equipment Operation & Troubleshooting, Control & ESD System, Detailed Engineering Drawings, Codes & Standards, Budget Preparation, Allocation & Cost Control, Root Cause Analysis (RCA), Production Optimization, Permit to Work (PTW), Project Engineering, Data Analysis, Process Hazard Analysis (PHA), HAZOP Study, Sampling & Analysis, Training Analysis, Job Analysis Techniques, Storage & Handling of Toxic Chemicals & Hazardous Materials, Hazardous Material Classification & Storage/Disposal, Dangerous Goods, Risk Monitoring Authorized Gas Tester (AGT), Confined Space Entry (CSE), Personal Protective Equipment (PPE), Fire & Gas, First Aid and Occupational Health & Safety.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the Mechanical Engineer, Project Engineer, Reliability & Maintenance Engineer, Maintenance Support Engineer, Process Engineer, HSE Supervisor, Warehouse Manager, Quality Manager, Business Analyst, Senior Process Controller, Process Controller, Safety Officer, Mechanical Technician, Senior Lecturer and Senior Consultant/Trainer for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma** in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)** and has delivered various trainings, workshops, seminars, courses and conferences internationally.



















#### **Accommodation**

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

### 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.

### **Course Program**

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

Day 1: Monday, 09th of September 2024

Monday, 09" or September 2024
Registration & Coffee
Welcome & Introduction
PRE-TEST
PHA-HAZOP Leadership & Management Facilitation & Competency
Break
Secrets of Successful HAZOP Facilitating & Scribing  Be Prepared • Anticipate Issues • Manage Expectations • Consider Pre- Populating • Stay Focused • Look Ahead • Clarify & Confirm • Adapt to Different Styles • Conclusion
Building Competency in Internal PHA/HAZOP Leaders  Developing & Maintaining Organization • Developing, Measuring & Maintaining Individual Competency • Content & Goal of Each Training Module and Follow-on Coaching
Break
Building Competency in Internal PHA/HAZOP Leaders (cont'd)  Case Studies – Examples of Results Achieved on Building PHA/HAZOP  Competency • Acronyms Used • Minimum PHA Leadership Competency  Requirements within PII
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
Lunch & End of Day One

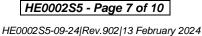
Day 2: Tuesday, 10th of September 2024

Day Z.	ruesuay, 10 or september 2024
	PHA-HAZOP Leadership & Management, Leadership Principles &
0730 - 0930	Management
	HAZOP Leadership Principles
0930 - 0945	Break
0945 – 1100	PHA-HAZOP Leadership & Management, Leadership Principles &
	Management (cont'd)
	HAZOP Management
1100 – 1230	PHA-HAZOP Study Preparations
	What is Hazard • What is Risk? • Likelihood of Occurrence (Qualitative &
	Quantitative) • Severity Definitions (Qualitative) • Process Hazard Analysis •
	Hazard Reduction Techniques • Risk Assessment Options
1230 – 1245	Break

















1245 – 1315	PHA-HAZOP Study Preparations (cont'd)  8 Steps for Risk Management ● Layers of Protection ● Triggers for Early Management Risk Review ● Information Required for Early Reviews ● Prepare for the Review ● More Detailed List of Desired Information ● Detailed List
1315 – 1420	Fundamentals of Risk Assessment  Hazard Classification & Control • PSM Summary • Risk Management • What  Do we mean by "Risk"? • As Low as Reasonably Practicable (ALARP) • Risk  Concepts • Risk Significance • 100% Safe?
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 Two

Day 3:	Wednesday, 11 <sup>th</sup> of September 2024
0730 - 0930	Risk Assessment Process Risk Assessment • When/Why do Risk Assessment? • The Basic Steps of a PRA
	• The Basic Steps of a QRA • Frequency Analysis • The Fault Tree, The Event,
	& the Event Tree • Fault Tree Analysis • Sample Event Tree • Sources of Data
0930 - 0945	Break
	Risk Significance (Measure)
	Relative vs. Absolute • The Basic Steps of A QRA • Risk Measure • Fatal
	Accident Rate • Common FAR Figures (UK) • Safety Layer of Protection
	Analysis • Risk Acceptability Template • Safety Integrity Level • Risk
	Analysis • Risk Assessment • Fault & Event Trees • Examples of Risk
	Measures • A Multimedia, Multiple Pathway Exposure Model • HIRA
0945 - 1045	Procedure • Risk Management Without or With Numbers • Risk Management
	Without Numbers • As Low as Reasonably Practicable • Meaning of ALARP • Definition of ALARP • Levels of Risk & ALARP • Risk Matrix • Risk
	Significance • Risk Calculator-Easy Program • Risk Acceptance Graph •
	Hazard Effects Management Process (HEMP) • Bow Tie • The Swiss Cheese
	Model of Accident Causation (Reason) • Safety Management Based on the Reason
	Model • Safety Management Cycle • The Basic Steps of a QRA • Acceptability
	of Risk • Risk Mitigation
	HAZID (Hazard Identification)
1045 – 1115	Introduction-HAZID (Hazard Identification) • The Basic Steps of a PHA • The
	Basic Steps of a QRA
	Consequence Analysis
1115 - 1230	The Basic Steps of QRA • Consequence Analysis Process • Consequence Analysis
	Involves Estimating ● Computer Models ● The Basic Steps of a PHA ● HAZID Requirements ● HAZID Approach ● Consultation
1230 - 1245	Break
1250 1245	Conducting the HAZID
1245 – 1420	HAZID Team Selection • HAZID Study Team • HAZID Team Planning •
	Conducting the HAZID – Consider the Past, Present & Future • Conducting the
	HAZID - HAZID Process • HAZID Techniques • Checklists
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: Thursday, 12<sup>th</sup> of September 2024

Brainstorm • What if • HAZOP • Task Analysis • Fault Tree Analysis • Review & Revision • Sources of Additional Information	Day 4:	Thursday, 12 <sup>th</sup> of September 2024
Review & Revision • Sources of Additional Information  The PHA-HAZOP Study Team The PHA-HAZOP Study Team The PHA Team • Selection of the Team • Guidance for PHA Leaders  Preak  The HAZOP Study Origins and Guidance of HAZOP • Purpose of HAZOP • HAZOP Methodology • Most Important Source for study: P & ID Diagram • Example of Line by Line Study • Objectives of HAZOP Studies • Four Basic Steps for HAZOP Studies • A HAZOP Study has 5 Steps • HAZOP Study Procedures • Principle of the HAZOP Examination Phase • Basic Guidewords • Derived Guide Word for Deviations • Examination Phase of HAZOP Study • Choosing the Parts/Nodes for Study • Choosing the "Parts" for Study  The HAZOP Study (cont'd) Concept of Change Paths • Change Path Concepts • Choosing the Parts/Nodes: Guidelines • Deviations Applied to the Change Path • Change Path Example for Assembly Task • Parts & Elements • Examples of Elements in a Part • Getting Started: Choosing the Parts & the Elements • Creating Deviations • Line by Line Study • Creating Deviations: Guideword/Element Matrix Example • HAZOP Procedure  1230 - 1245  Break  1245 - 1300  Video: HAZOP  1300 - 1330  Process Description • Logical Steps in the Processing of Each Deviations Process Description • Examples of Deviation Test • Complete the Following HAZOP Worksheet • Examples of Deviation Sevaluating EUC Risks • Example of a Safeguard in Place: Boiler Drum Level • Example of a Safeguard in Place: Definitions • Worksheet Example for Drum Level Hazard • Recommendation/Actions • Documenting the HAZOP • Conclusions • Points to Note for the Examination Work • What is HAZOP? • When to Perform a HAZOP? • HAZOP Background • Standards & Guidelines • Types of HAZOP Tomorrow  1420 - 1430	0730 - 0800	Conducting the HAZID (cont'd)
The PHA-HAZOP Study Team The PHA Team ● Selection of the Team ● Guidance for PHA Leaders  Break  The HAZOP Study Origins and Guidance of HAZOP ● Purpose of HAZOP ● HAZOP Methodology ● Most Important Source for study: P & ID Diagram ● Example of Line by Line Study ● Objectives of HAZOP Studies ● Four Basic Steps for HAZOP Studies ● A HAZOP Study has 5 Steps ● HAZOP Study Procedures ● Principle of the HAZOP Examination Phase ● Basic Guidewords ● Derived Guide Word for Deviations ● Examination Phase of HAZOP Study ● Choosing the Parts/Nodes for Study ● Choosing the "Parts" for Study  The HAZOP Study (cont'd) Concept of Change Paths ● Change Path Concepts ● Choosing the Parts/Nodes: Guidelines ● Deviations Applied to the Change Path ● Change Path Example for Assembly Task ● Parts & Elements ● Examples of Elements in a Part ● Getting Started: Choosing the Parts & the Elements ● Creating Deviations ● Line by Line Study ● Creating Deviations: Guideword/Element Matrix Example ● Elements First Examination Procedure ● Guideword First Examination Procedure  1230 - 1245 Break  1245 - 1300 Video: HAZOP  1300 - 1330 Poccess Description ● Logical Steps in the Processing of Each Deviations Process Description ● Logical Steps in the Processing of Each Deviations  Identify Causes, Consequences & Actions for Deviations Process Description ● Examples of Element First Examination Method ● Worksheet Fornats ● Causes of Deviations ● Evaluating EUC Risks ● Example of Asafeguard in Place: Boiler Drum Level ● Example of a Safeguard in Place: Definitions ● Worksheet Example for Drum Level Hazard ● Recommendation/Actions ● Documenting the HAZOP ● Conclusions ● Points to Note for the Examination Work ● What is HAZOP? ● When to Perform a HAZOP? ● HAZOP Background ● Standards & Guidelines ● Types of HAZOP Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow		
The PHA Team		
1000 - 1100  Break  The HAZOP Study Origins and Guidance of HAZOP • Purpose of HAZOP • HAZOP Methodology • Most Important Source for study: P & ID Diagram • Example of Line by Line Study • Objectives of HAZOP Studies • Four Basic Steps for HAZOP Studies • A HAZOP Study has 5 Steps • HAZOP Study Procedures • Principle of the HAZOP Examination Phase • Basic Guidewords • Derived Guide Word for Deviations • Examination Phase of HAZOP Study • Choosing the Parts/Nodes for Study • Choosing the "Parts" for Study  The HAZOP Study (cont'd) Concept of Change Paths • Change Path Concepts • Choosing the Parts/Nodes: Guidelines • Deviations Applied to the Change Path • Change Path Example for Started: Choosing the Parts & the Elements • Examples of Elements in a Part • Getting Started: Choosing the Parts & the Elements • Creating Deviations • Line by Line Study • Creating Deviations: Guideword/Element Matrix Example • Elements First Examination Procedure • Guideword First Examination Procedure  1230 - 1245 Break  1245 - 1300 Video: HAZOP  1300 - 1330  Identify Causes, Consequences & Actions for Deviations Process Description • Logical Steps in the Processing of Each Deviations Process Description • Examples of Deviation Test • Complete the Following HAZOP Worksheet • Examples of Element First Examination Method • Worksheet Formats • Causes of Deviations • Evaluating EUC Risks • Example of Recommendation/Actions • Documenting the HAZOP • When to Perform a HAZOP? • HAZOP Background • Standards & Guidelines • Types of HAZOP  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	0800 0945	
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Process Description • Examples of Deviation Test • Complete the Following HAZOP Worksheet • Examples of Element First Examination Method • Worksheet Formats • Causes of Deviations • Evaluating EUC Risks • Example of a Safeguard in Place: Boiler Drum Level • Example of a Safeguard in Place: Definitions • Worksheet Example for Drum Level Hazard • Recommendation/Actions • Documenting the HAZOP • Conclusions • Points to Note for the Examination Work • What is HAZOP? • When to Perform a HAZOP? • HAZOP Background • Standards & Guidelines • Types of HAZOP  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		Developing of Specific Guidewords & Deviations
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	1330 - 1420	Process Description • Examples of Deviation Test • Complete the Following HAZOP Worksheet • Examples of Element First Examination Method • Worksheet Formats • Causes of Deviations • Evaluating EUC Risks • Example of a Safeguard in Place: Boiler Drum Level • Example of a Safeguard in Place: Definitions • Worksheet Example for Drum Level Hazard • Recommendation/Actions • Documenting the HAZOP • Conclusions • Points to Note for the Examination Work • What is HAZOP? • When to Perform a
1430 Lunch & End of Day Four		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
	1430	Lunch & End of Day Four

Day 5: Friday, 13th of September 2024

Day J.	Triday, 15 of September 2024
	HAZOP Team & Meetings
0730 – 0800	<i>Team Members &amp; Responsibilities</i> ● <i>Team Members</i> ● <i>How to Be a Good HAZOP</i>
	Participant ● HAZOP Meeting ● HAZOP Recording
	Process HAZOP
0800 - 0930	Prerequisites • HAZOP Procedure • Modes of Operation • Process HAZOP
	Worksheet • Worksheet Entries
0930 - 0945	Break













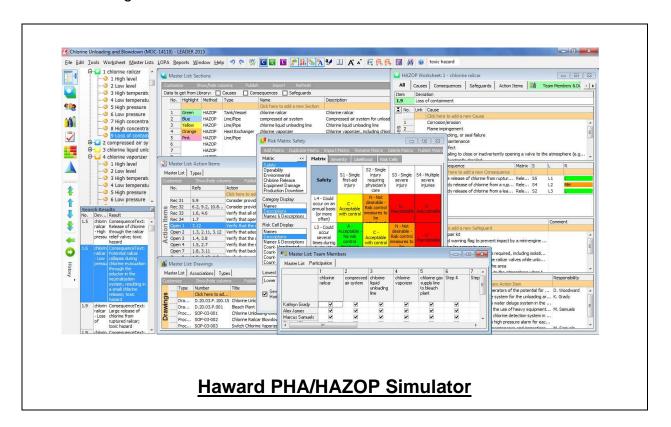




	Process Parameters
0945 – 1100	Examples of Process Parameters • Guidewords • Additional Guidewords •
	Guideword + Parameter
1100 – 1200	Procedure HAZOP
	What is a Procedure HAZOP? • Procedure • Guidewords • Alternative
	Guidewords
1200 – 1230	Reporting & Review
	Report Contents • Review Meetings
1230 - 1245	Break
1245 – 1300	Conclusions
	HAZOP Results • Advantages • Success Factors • Pitfalls and Objections
	Course Conclusion
1300 – 1315	Using this Course Overview, the Instructor(s) will Brief Participants about the
	Course Topics that were Covered During the Course
1315 - 1415	COMPETENCY EXAM
1415 - 1430	Presentation of Course Certificates
1430	Lunch & End of Course

#### 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 Software.



# Course Coordinator

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