

COURSE OVERVIEW HE1953-4D Risk Assessment in Oil & Gas Industry

Course Title

Risk Assessment in Oil & Gas Industry

Course Date/Venue

Session 2: November 24-27, 2024/Meeting Plus 3-4, City Centre Rotana Doha, Doha, Qatar

Course Reference

HE1953-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs



Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a detailed and up-to-date overview of Risk Assessment in Oil & Gas Industry. It covers the risk management in Gas-to-Liquid (GTL) operations; the importance of risk assessment in production and panel operations; the key concepts of risk and hazard and the types of risks in GTL processes; the regulatory and compliance requirements; the risk identification techniques, the severity and probability of risks assessment; prioritizing risks in production operations; and the risk mitigation strategies, process hazard analysis (PHA) and operational risk management.



Further, the course will also discuss the HAZOP (hazard and operability study) and what-if and failure mode and effect analysis (FMEA) in GTL operations; planning and preparing for process safety incidents; developing and implementing emergency response plans; the human factors and panel operator responsibilities in risk management; aligning risk management with operational excellence goals; the continuous improvement in process safety; and the role of automation in risk mitigation and techniques for reducing process-related risks.

During this interactive course, participants will learn the preventive maintenance and techniques for identifying equipment failure risks and preventive measures; the role of safety instrumented systems (SIS) in managing high-risk operations and the basics of SIL (safety integrity level) and its application; the risk communication, reporting and behavioral safety and leadership in risk management; the risk monitoring and tracking, risk auditing and frequency; the types of inspections required in high-risk operations; the incident reporting and investigation, maintaining and updating a risk register and accurate documentation in risk management; developing corrective and preventive actions (CAPAs) in response to identified risks; ensuring continuous improvement in risk mitigation efforts; the advanced risk assessment techniques and risk management in project planning and execution; the emerging technologies in risk management; and the sustainability and environmental risk management, business continuity and crisis management.

Course Objectives

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

- Apply and gain an in-depth knowledge on risk assessment in oil & gas industry
- Discuss risk management in Gas-to-Liquid (GTL) operations and the importance of risk assessment in production and panel operations
- Identify the key concepts of risk and hazard and the types of risks in GTL processes
- Review regulatory and compliance requirements and apply risk identification techniques
- Assess the severity and probability of risks and prioritize risks in production operations
- Employ risk mitigation strategies, process hazard analysis (PHA) and operational risk management
- Apply HAZOP (hazard and operability study) and what-if and failure mode and effect analysis (FMEA) in GTL operations
- Plan and prepare for process safety incidents as well as develop and implement emergency response plans
- Recognize the human factors and panel operator responsibilities in risk management
- Align risk management with operational excellence goals and apply continuous improvement in process safety
- Discuss the role of automation in risk mitigation and techniques for reducing process-related risks covering isolation, substitution and engineering controls
- Carry out preventive maintenance and techniques for identifying equipment failure risks and preventive measures
- Interpret the role of safety instrumented systems (SIS) in managing high-risk operations and the basics of SIL (safety integrity level) and its application

- Employ risk communication, reporting and behavioral safety and leadership in risk management
- Apply risk monitoring and tracking, risk auditing and frequency and types of inspections required in high-risk operations
- Carryout incident reporting and investigation, maintaining and updating a risk register and accurate documentation in risk management
- Develop corrective and preventive actions (CAPAs) in response to identified risks and ensure continuous improvement in risk mitigation efforts
- Employ advanced risk assessment techniques and risk management in project planning and execution
- Discuss the emerging technologies in risk management as well as apply sustainability and environmental risk management, business continuity and crisis management

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 risk assessment in oil and gas industry for production supervisors and panel operators.

Course Fee

US\$ 5,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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 Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

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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 **2.4 CEUs** (Continuing Education Units) or **24 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.

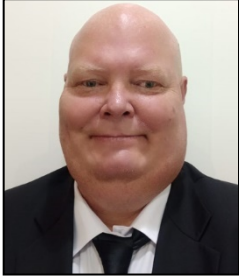
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British Accreditation Council (BAC)

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.

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 & Hydro-processing, 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, Process Safety Design, Certified Process Plant Operations, Control & Troubleshooting, Operator Responsibilities, Storage Tanks Operations & Measurements, Tank Design, Construction, Inspection & Maintenance, Atmospheric Tanks, 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, Plant & Equipment Integrity, 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), Material Cataloguing, Specifications, Handling & Storage, Steam Trap Design, Operation, Maintenance & Troubleshooting, Steam Trapping & Control, Column, Pump Technology, Pump Selection & Installation, Centrifugal Pumps Troubleshooting, Pumps Design, Selection & Operation, 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, Environmental Management System (EMS), Supply Chain, Purchasing, Procurement, Logistics Management & Transport & Warehousing & Inventory, 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 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, 24th of November 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0900	Overview of Risk Management in Gas-to-Liquid Operations Introduction to GTL's Risk Management Framework • Importance of Risk Assessment in Production & Panel Operations
0900 – 0930	Key Concepts of Risk & Hazard Understanding Risks, Hazards, & their Differences • Types of Risks in GTL Processes: Operational, Safety, Environmental, & Financial
0930 – 0945	Break
0945 – 1030	Regulatory & Compliance Requirements Overview of Qatar's Energy Sector Regulations • Compliance with International Safety Standards (ISO, OSHA, etc.)
1030 – 1130	Risk Identification Techniques Tools for Identifying Risks in GTL Operations: HAZID, HAZOP, What-If Analysis • Case Studies from GTL Plants
1130 – 1215	Risk Ranking & Prioritization How to Assess the Severity & Probability of Risks • Methods for Prioritizing Risks in Production Operations
1215 – 1230	Break
1230 – 1330	Basics of Risk Mitigation Strategies General Approaches for Risk Control & Mitigation • Preventive versus Reactive Risk Management
1330 – 1420	Understanding Process Hazards Key Hazards in the GTL Process: Gas Handling, High-Pressure Systems etc • Sources of Process Hazards & their Implications
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 25th of November 2024

0730 – 0830	PHA Tools & Techniques Detailed Exploration of HAZOP (Hazard & Operability Study) • Applying What-If & Failure Mode & Effect Analysis (FMEA) in GTL Operations
0830 – 0930	Emergency Response & Preparedness Planning & Preparing for Process Safety Incidents • Developing & Implementing Emergency Response Plans
0930 – 0945	Break

0945 – 1100	Human Factors in Risk Management <i>Role of Human Error in GTL Operational Risks • Improving Decision-Making Processes in High-Risk Environments</i>
1100 – 1215	Panel Operator Responsibilities in Risk Management <i>Monitoring & Managing Process Parameters to Minimize Risks • Real-Time Decision-Making During Critical Operations</i>
1215 – 1230	<i>Break</i>
1230 – 1330	Operational Excellence in Risk Management <i>Aligning Risk Management with Operational Excellence Goals • Continuous Improvement in Process Safety</i>
1330 – 1400	Risk Control Systems <i>Overview of Safety Systems in GTL Plants (Alarms, Shutdowns, Interlocks) • The Role of Automation in Risk Mitigation</i>
1400 - 1420	Risk Reduction Methods <i>Techniques for Reducing Process-Related Risks: Isolation, Substitution, & Engineering Controls • Case Study: Reducing Gas Leakage Risks in Oryx GTL Operations</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3: Tuesday, 26th of November 2024

0730 – 0830	Preventive Maintenance as a Risk Management Tool <i>Importance of Preventive Maintenance in GTL Risk Management • Techniques for Identifying Equipment Failure Risks & Preventive Measures</i>
0830 – 0930	Safety Instrumented Systems (SIS) <i>Role of SIS in Managing High-Risk Operations • Basics of SIL (Safety Integrity Level) & Its Application</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Risk Communication & Reporting <i>Best Practices for Communicating Risks to Management & the Workforce • Developing an Effective Risk Reporting System</i>
1100 – 1215	Behavioral Safety & Leadership in Risk Management <i>Encouraging a Culture of Safety Among Production Supervisors & Panel Operators • Role of Leadership in Fostering Risk Awareness</i>
1215 – 1230	<i>Break</i>
1230 – 1330	Risk Monitoring & Tracking <i>Tools & Techniques for Ongoing Risk Monitoring • Key Performance Indicators (KPIs) for Risk Management in Production</i>
1330 – 1400	Risk Auditing & Inspections <i>How to Conduct Risk Audits in GTL Facilities • Frequency & Types of Inspections Required in High-Risk Operations</i>
1400 - 1420	Incident Reporting & Investigation <i>Best Practices for Reporting Incidents • Techniques for Root Cause Analysis & Lessons Learned from Past Incidents</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>



Day 4: Wednesday, 27th of November 2024

0730 – 0800	Risk Registers & Documentation Maintaining & Updating a Risk Register for GTL Processes • Importance of Accurate Documentation in Risk Management
0800 - 0830	Corrective & Preventive Actions (CAPA) Developing CAPAs in Response to Identified Risks • Ensuring Continuous Improvement in Risk Mitigation Efforts
0830 - 0900	Review of Risk Management Case Studies Case Studies of Successful Risk Mitigation Strategies in the GTL Industry • Lessons Learned from High-Profile Incidents in Gas-To-Liquids Operations
0900 – 0930	Advanced Risk Assessment Techniques Exploring Quantitative Risk Assessment (QRA) & Layer of Protection Analysis (LOPA) • Utilizing Advanced Risk Assessment Software Tools
0930 – 0945	Break
0945 – 1100	Risk Management in Project Planning & Execution Integrating Risk Management into Project Design & Execution Phases • Managing Risks in the Construction & Startup of GTL Facilities
1100 – 1230	Emerging Technologies in Risk Management Role of AI, Machine Learning, & IoT in Enhancing Risk Management • Predictive Maintenance & Risk Forecasting in GTL
1230 – 1245	Break
1245 – 1300	Sustainability & Environmental Risk Management Managing Environmental Risks: Emissions, Spills & Waste Management • Regulatory Compliance in Environmental Risk Management
1300 - 1345	Business Continuity & Crisis Management Developing Business Continuity Plans for GTL Operations • Crisis Management & Recovery Strategies for Major Incidents
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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