



COURSE OVERVIEW AI0225 **Integrating AI in Workplace Safety Practices**

Course Title

Integrating AI in Workplace Safety Practices

Course Date/Venue

November 02-06, 2026/TBA Meeting Room,
Royal Rose Hotel Abu Dhabi, a Curio Collection
by Hilton Affiliated Hotel, Abu Dhabi, UAE

Course Reference

AI0225

Course Duration/Credits

Five days/3.0 CEUs/30 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 Integrating AI in Workplace Safety Practices. It covers the artificial intelligence in workplace safety and AI technologies relevant to HSE; the AI-enabled HSE management systems, HSE data fundamentals for AI applications and suitable AI use cases in workplace safety; the algorithmic bias, inaccurate outputs and false predictions and establishing responsible AI principles for safety-critical applications; and the AI-assisted hazard identification, AI-enhanced risk assessment and predictive analytics for safety risk.



Further, the course will also discuss the computer vision for hazard detection, AI applications in process and operational safety and AI-based incident and near-miss analysis; the AI-assisted incident investigation, predictive safety and early-warning systems as well as AI for workplace inspections and safety observations; and the AI for HSE performance monitoring, AI for corrective and preventive action management and generative AI for HSE documentation.

During this interactive course, participants will learn the AI-assisted permit-to-work and job safety analysis including AI for HSE compliance and audit management; the AI-enabled emergency preparedness and response, AI for safety training and competency development and prompt engineering for HSE methods engineers; designing an AI-enabled HSE workflow and the AI risk management and governance for HSE; the cybersecurity, privacy and data protection; and evaluating AI reliability and effectiveness and developing an AI implementation roadmap for HSE.

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 integrating AI in workplace safety practices
- Discuss artificial intelligence in workplace safety and AI technologies relevant to HSE
- Recognize AI-enabled HSE management systems, HSE data fundamentals for AI applications and suitable AI use cases in workplace safety
- Manage algorithmic bias, inaccurate outputs and false predictions and establish responsible AI principles for safety-critical applications
- Carryout AI-assisted hazard identification, AI-enhanced risk assessment and predictive analytics for safety risk
- Employ computer vision for hazard detection, AI applications in process and operational safety and AI-based incident and near-miss analysis
- Apply AI-assisted incident investigation, predictive safety and early-warning systems as well as AI for workplace inspections and safety observations
- Carryout AI for HSE performance monitoring, AI for corrective and preventive action management and generative AI for HSE documentation
- Employ AI-assisted permit-to-work and job safety analysis including AI for HSE compliance and audit management
- Implement AI-enabled emergency preparedness and response, AI for safety training and competency development and prompt engineering for HSE methods engineers
- Design an AI-enabled HSE workflow and apply AI risk management and governance for HSE
- Carryout cybersecurity, privacy and data protection, evaluating AI reliability and effectiveness and developing an AI implementation roadmap for HSE

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 integrating AI in workplace safety practices for HSE methods engineer, occupational health and safety professionals, HSE officers and safety supervisors, safety auditors and safety inspectors, emergency response and crisis management personnel and other technical staff.

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.

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 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

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. Ron Jansen is a **Senior HSE Consultant** with extensive years of experience within the **Oil & Gas** industry. His broad expertise widely covers in the areas of **Workplace Safety Practices, HSE Risk Assessment & Management Concepts, HSE Management Policy & Standards, HSSE Emergency Response & Crisis Management Operations, Controlled-Substance Units (SATCU) Operations, Workplace Substance Abuse Prevention Strategies, Substance Abuse Policy**

Development for Employers, Substance Abuse Testing Unit Management, Controlled Substance Identification and Recognition, HAZMAT, HAZCOM, Process Hazard Analysis (PHA), Process Safety Management (PSM), Process Risk Analysis, Occupational Health, Effective Tool Box Talks, Disaster Management, Firefighting & Fire Safety, Fire Detection & Suppression Systems, Fire Risk Assessments, General Health and Safety, Job Observation, Fire Rescue, Fire Protection, Fire Prevention, Rescue Operations, Firefighting Techniques, Accident/Incident Investigation, HAZOP & HAZID, Permit to Work (PTW) System, Working at Height, Behavioral Based Safety (BBS), Hazard identification and Risk Assessments (HIRA), Authorized Gas Testing, Quantitative & Qualitative Analysis, Fall Protection & Rescue, Defensive Driving, Hazardous Materials & Chemicals Handling, Pollution Control, Environmental & Pollution Management, HSE Industrial Practices, Emergency Response & Crisis Management Operations, Waste Management, Job Safety Analysis (JSA), Confined Space Entry, Confined Space Entry, First Aid & SCBA Management, Manual Handling, Permit-to-Work & Risk Assessment, Crane & Lifting Operation, Forklift Maintenance, Mobile Elevated Work Platform (MEWP), Mobile & Gantry Crane, Banksman/Slinger, Scaffolding, Rigging & Slings, Overhead & Gantry Crane Safety, Lifting & Rigging, Machinery & Hydraulic Lifting Equipment, Rigging & Slings Operation, Scaffolding Inspection, ISO 9001, OSHAS 18001, 19011, Rigging Safety Rules, Machinery & Hydraulic Lifting Equipment and Excavation & Trenching.

During his career life, Mr. Jansen has gained his practical and field experience through his various significant positions and dedication as the **SHEQ Manager, SHEQ System Auditor, Safety Practitioner, Safety Officer** and **Senior Instructor/Consultant** from various international companies such as the WI Corporation, ISO Internal Auditors SHEQ Management Systems, Truibuilt Engineering, TCS Hydraulic Engineering, OR Thambo Airport, Eskom Transmission Section and Aquarius Mine Kroondal Rustenburg.



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: Monday, 02nd of November 2026

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Artificial Intelligence in Workplace Safety Fundamentals of Artificial Intelligence, Machine Learning & Generative AI • Evolution of AI Applications in Occupational Health & Safety • Opportunities for AI-Driven Improvement in HSE Performance • Role of HSE Methods Engineers in AI-Enabled Safety Transformation
0930 – 0945	Break
0945 – 1030	Understanding AI Technologies Relevant to HSE Machine Learning, Deep Learning & Predictive Analytics Concepts • Natural Language Processing (NLP) for Safety Information Analysis • Computer Vision for Workplace Monitoring & Hazard Recognition • Generative AI & Large Language Models (LLMs) for HSE Applications
1030 – 1130	AI-Enabled HSE Management Systems Integrating AI into Existing HSE Management Frameworks • Automating Safety Data Collection, Classification & Reporting • AI-Assisted Monitoring of HSE Objectives, Targets & KPIs • Developing Intelligent Dashboards for Safety Performance Visibility
1130 – 1215	HSE Data Fundamentals for AI Applications Identifying Structured & Unstructured HSE Data Sources • Incident, Inspection, Audit, Permit & Observation Data • Data Quality, Completeness, Consistency & Standardization Requirements • Preparing Historical HSE Data for AI Analysis & Modeling
1215 – 1230	Break
1230 – 1330	Identifying Suitable AI Use Cases in Workplace Safety Selecting High-Value Safety Activities Suitable for AI Integration • Assessing Technical Feasibility, Risk & Expected Business Value • Prioritizing Proactive versus Reactive AI Applications • Developing an AI-for-HSE Use-Case Portfolio
1330 – 1420	Responsible, Ethical & Human-Centered AI for HSE Human Oversight & Accountability in AI-Supported Safety Decisions • Managing Algorithmic Bias, Inaccurate Outputs & False Predictions • Privacy, Confidentiality & Workforce Surveillance Considerations • Establishing Responsible AI Principles for Safety-Critical Applications
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 One

Day 2: Tuesday, 03rd of November 2026

0730 – 0830	AI-Assisted Hazard Identification Using AI to Recognize Recurring Workplace Hazards • Analyzing Historical Incidents, Observations & Inspection Findings • Identifying Hidden Hazard Patterns through Machine Learning • Generating Preliminary Hazard Lists Using AI-Assisted Tools
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0830 – 0930	AI-Enhanced Risk Assessment Supporting Likelihood & Consequence Assessment with AI • Dynamic versus Conventional Static Risk Assessment Approaches • AI-Assisted Risk Ranking & Prioritization Methodologies • Maintaining Competent Human Review of AI-Generated Risk Outputs
0930 – 0945	Break
0945 – 1100	Predictive Analytics for Safety Risk Understanding Leading & Lagging Indicators for Predictive Modeling • Identifying Precursors to Incidents & Unsafe Conditions • Developing Predictive Safety Risk Scores • Interpreting Probabilities, Confidence Levels & Model Limitations
1100 – 1215	Computer Vision for Hazard Detection AI-Based Detection of PPE Compliance & Unsafe Behaviors • Identifying Restricted-Area Entry & Unsafe Proximity Conditions • Monitoring Work-at-Height, Lifting & Mobile Equipment Activities • Managing False Alarms, Camera Limitations & Environmental Constraints
1215 – 1230	Break
1230 – 1330	AI Applications in Process & Operational Safety AI Support for Abnormal Operating Condition Detection • Identifying Deviations from Established Safe Operating Parameters • Integrating Sensor, Alarm & Operational Data for Early Warnings • Supporting Process Hazard Analysis through AI-Assisted Information Review
1330 – 1420	Practical Workshop – AI-Assisted Risk Assessment Selecting a Representative Workplace Activity or HSE Scenario • Developing Structured Prompts for Hazard Identification • Comparing AI-Generated Hazards against Conventional Assessments • Validating Findings & Developing Appropriate Control Measures
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, 04th of November 2026

0730 – 0830	AI-Based Incident & Near-Miss Analysis Processing Incident Reports Using NLP Techniques • Automatically Categorizing Incident Types & Contributing Factors • Identifying Recurring Trends across Multiple Events • Detecting Weak Signals from Near-Miss & Safety Observation Data
0830 – 0930	AI-Assisted Incident Investigation Organizing Evidence, Timelines & Event Sequences with AI • Supporting Causal Factor Identification & Root Cause Analysis • Using AI to Identify Similarities with Previous Incidents • Verifying AI-Generated Conclusions against Factual Evidence
0930 – 0945	Break
0945 – 1100	Predictive Safety & Early-Warning Systems Developing Indicators for Emerging Workplace Risks • Combining Real-Time & Historical Information for Prediction • Establishing Risk Thresholds, Triggers & Safety Alerts • Escalating High-Risk Conditions to Responsible Personnel

1100 – 1215	AI for Workplace Inspections & Safety Observations Developing AI-Assisted Inspection Checklists • Analyzing Inspection Findings & Recurring Deficiencies • Prioritizing Corrective Actions Based on Risk Significance • Automating Follow-Up, Tracking & Closure Verification
1215 – 1230	Break
1230 – 1330	AI for HSE Performance Monitoring Analyzing Incident Frequency, Severity & Exposure Information • Identifying Trends across Locations, Activities & Departments • Using AI to Analyze Leading Safety Performance Indicators • Developing Predictive HSE Dashboards & Management Insights
1330 – 1420	AI for Corrective & Preventive Action Management Extracting Corrective Actions from Incidents, Audits & Inspections • Prioritizing Actions According to Risk & Urgency • Tracking Overdue, Recurring & Ineffective Corrective Actions • Evaluating Action Effectiveness Using AI-Supported Analysis
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, 05th of November 2026

0730 – 0830	Generative AI for HSE Documentation Drafting Safety Procedures, Instructions & Checklists Using AI • Summarizing Complex HSE Standards & Technical Information • Reviewing Documents for Inconsistencies, Omissions & Unclear Requirements • Establishing Competent Review & Approval of AI-Generated Documentation
0830 – 0930	AI-Assisted Permit-to-Work & Job Safety Analysis Reviewing Job Safety Analysis (JSA/JHA) Information with AI • Identifying Missing Hazards & Controls in Work Permits • Cross-Checking Work Activities against Safety Requirements • Supporting Simultaneous Operations & Conflicting Activity Assessment
0930 – 0945	Break
0945 – 1100	AI for HSE Compliance & Audit Management Mapping HSE Requirements against Organizational Procedures • AI-Assisted Compliance Gap Identification • Analyzing Audit Findings, Observations & Nonconformities • Prioritizing Compliance Actions Based on Risk & Significance
1100 – 1215	AI-Enabled Emergency Preparedness & Response Using AI for Emergency Scenario Analysis • Predicting Potential Escalation Pathways & Consequences • Supporting Emergency Resource Allocation & Decision-Making • Using AI-Generated Scenarios for Emergency Exercises & Drills
1215 – 1230	Break
1230 – 1330	AI for Safety Training & Competency Development Identifying Competency Gaps from HSE Performance Information • Personalizing Safety Learning Based on Roles & Risk Exposure • Developing AI-Generated Scenarios, Quizzes & Case Studies • Measuring Training Effectiveness & Competency Improvement



1330 – 1420	Prompt Engineering for HSE Methods Engineers Structuring Effective Prompts for Technical HSE Applications • Providing Appropriate Context, Constraints & Reference Information • Reducing Hallucinations through Verification-Oriented Prompting • Developing Reusable Prompt Templates for Routine HSE Activities
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: Friday, 06th of November 2026

0730 – 0830	Designing an AI-Enabled HSE Workflow Mapping Existing HSE Processes & Identifying Automation Opportunities • Defining AI Inputs, Outputs, Responsibilities & Decision Points • Integrating AI Tools with Existing HSE Processes • Maintaining Human-in-the-Loop Controls for Safety-Critical Decisions
0830 – 0930	AI Risk Management & Governance for HSE Identifying Technical, Operational & Organizational AI Risks • Establishing AI Governance Roles & Responsibilities • Defining Validation, Approval & Monitoring Requirements • Managing Changes to AI Models, Data Sources & HSE Applications
0930 – 0945	Break
0945 – 1100	Cybersecurity, Privacy & Data Protection Protecting Sensitive HSE, Employee & Operational Information • Managing Access Control & Secure Use of AI Platforms • Recognizing Risks Associated with Uploading Confidential Information • Establishing Secure AI Usage Guidelines for HSE Teams
1100 – 1215	Evaluating AI Reliability & Effectiveness Measuring Accuracy, Precision, Recall & False Alarm Performance • Validating AI Recommendations against Competent Professional Judgment • Monitoring Model Drift & Changing Workplace Conditions • Establishing HSE-Specific AI Performance Indicators
1215 – 1230	Break
1230 – 1300	Developing an AI Implementation Roadmap for HSE Assessing Organizational AI Readiness & HSE Maturity • Prioritizing Quick Wins versus Strategic AI Initiatives • Planning Pilot Projects, Testing & Phased Implementation • Establishing Measurable Safety, Operational & Financial Benefits
1300 – 1345	Final Practical Workshop – AI Integration in Workplace Safety Selecting a Real-World HSE Methods Engineering Use Case • Designing an AI-Enabled Safety Workflow & Control Framework • Identifying Data, Governance, Validation & Competency Requirements • Presenting an AI-for-HSE Implementation Action Plan
1345 – 1400	Course Conclusion Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
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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