

COURSE OVERVIEW HE1412
Introduction to Safety Data Analysis

Course Title

Introduction to Safety Data Analysis

Course Date/Venue

August 02-06, 2026/Al Yasmine Meeting Room,
 Cristal Amaken Hotel, Riyadh, KSA

Course Reference

HE1412

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 Introduction to Safety Data Analysis. It covers the importance of safety data, types of safety data, roles in risk management, regulatory and organizational context; the safety metrics and KPIs, data sources in safety management and data collection methods; the data quality and integrity, data analysis tools and data cleaning techniques; the data structuring and organization, exploratory data analysis (EDA) and descriptive statistics; and the data visualization basics, safety data classification and probability concepts in safety.



During this interactive course, participants will learn the trend analysis, correlation and relationships, root cause analysis techniques, risk analysis methods, benchmarking and comparison; the predictive safety analytics, regression analysis basics, incident trend forecasting and human factors analysis; the safety performance dashboards, data integration, safety reporting techniques, data-driven decision making and tailoring communication to audience; storytelling with data, visual communication strategies and how to overcome resistance; the continuous improvement in safety and OSHA; and the international standards, regulatory reporting requirements, audit readiness and documentation practices.



Course Objectives/Outcomes & Benefits for the Participants

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

- Apply and gain a fundamental knowledge on safety data analysis
- Discuss the importance of safety data, types of safety data, roles in risk management, regulatory and organizational context
- Recognize safety metrics and KPIs, data sources in safety management and data collection methods
- Carryout data quality and integrity, data analysis tools and data cleaning techniques
- Apply data structuring and organization, exploratory data analysis (EDA) and descriptive statistics
- Employ data visualization basics, safety data classification and probability concepts in safety
- Carryout trend analysis, correlation and relationships, root cause analysis techniques, risk analysis methods and benchmarking and comparison
- Apply predictive safety analytics, regression analysis basics, incident trend forecasting and human factors analysis
- Carryout safety performance dashboards, data integration, safety reporting techniques and data-driven decision making
- Tailor communication to audience, apply storytelling with data and visual communication strategies and overcome resistance
- Implement continuous improvement in safety and review OSHA and international standards, regulatory reporting requirements, audit readiness and documentation practices

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard 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 safety data analysis for HSE engineers and advisors, safety supervisors and inspectors, risk and compliance officers, health and safety officers, operations and maintenance personnel, quality assurance and control staff, incident investigation team members and other technical staff.

Course Fee


US\$ 7,500 per Delegate + **VAT**. This rate includes H-STK® (Howard 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

Howard’s certificates are accredited by the following international accreditation organizations: -

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British Accreditation Council (BAC)

Howard Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Howard’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, Howard Technology meets all of the international higher education criteria and standards set by BAC.

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

Howard 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, Howard 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, Howard Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Howard 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.

Howard 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 Howard Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Howard Technology. Howard 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. Mohamed Bayoumy, NEBOSH-IGC, NASP, ILM is a **Senior Fire & HSE Consultant** with over **25 years** of extensive experience within the **Oil, Gas, Petrochemical** and **Refinery** industries. He is a **NEBOSH Approved Instructor** and his expertise widely include in the areas of **NEBOSH International General Certificate in Occupational Health and Safety (IG), Incident Investigation & Reporting, Occupational Safety & Security, Incident Investigation & Reporting, Certified Environment Impact Assessment, Certified Occupational Health, Safety & Industrial Hygiene, Environmental Impact Assessment, International Basic Scaffolder Program, Fire Fighting Techniques, Fire Officer Responsibilities, Fire Fighter Rescue Missions, Fire Protection Methods, Fire Safety & Fire Risk, Advanced Fire Fighting Techniques, Active & Positive Fire Fighting, Fire & Gas Detection Systems, Fire Fighting Systems & Fire Proofing, Risk Management, Fire System Integrity Assurance, Fire Prevention & Safety, , Fire Fighting & Rescue Operations, Emergency Response Management, Safety Audit & Hazards Identification, OHSAS 18001: 2007 Occupational Health and Safety Introduction, Safety Hazards Handling Management, Slinging, Lifting, Scaffolding & Ladder Safety, Rigging & Crane Operation, Lifting Supervision, Working at Heights, Scaffolding Supervision, Safety Management System, Contamination Control, Lean Six Sigma, EMS 14001, ISO 45001, Rigging & Crane, Basic Life Support, Personal Protective Equipment, Machinery & Work Equipment, Manual Handling, Accident Incident Reporting & Investigation, Cause Tree Analysis (CTA), Fault Tree Analysis (FTA), HSE Emergency Planning, Crisis Management, HSSE Practices, Emergency Response Plans and Emergency Preparedness.**

During Mr. Mohamed’s career life, he held significant position and dedication such as the **Health, Safety & Environmental Director, HSE Manager, Senior Safety Officer, HSE Engineer, Safety Supervisor** and **Safety Officer** for various companies like the **Al Darwish Engineering, Doosan Heavy Industries and Construction, SATCO, STS Electro/Mechanical, Al Habtoor Engineering Enterprises, Dolphin Energy, United Engineers, Contrack Company, Hyundai for Engineering & Construction, C.C.C JV ORASCOM, BSIX-ORASCOM JV Company, Campenon Bernard SGE Company** just to name a few.

Mr. Mohamed has an **International Diploma Level VI in Safety & Health** from the **National Association of Safety Professionals, UK**. Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, an **Approved Tutor** in **NEBOSH International General Certificate in Occupational Health & Safety (IG)**, a **Certified ISO 45001 Lead Auditor** and a **Certified ISO 9001 Internal Auditor**. He has further delivered numerous courses, trainings, conferences, workshops and seminars globally.

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 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, 02nd of August 2026

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Safety Data <i>Definition and Importance of Safety Data • Types of Safety Data (Incident, Audit, Observation) • Role in Risk Management • Regulatory and Organizational Context</i>
0930 – 0945	<i>Break</i>
0945 – 1030	Safety Metrics & KPIs <i>Leading versus Lagging Indicators • Common KPIs (TRIR, LTIFR, Near-Miss Rates) • Measuring Safety Performance • Limitations of Traditional Metrics</i>
1030 – 1130	Data Sources in Safety Management <i>Incident Reports and Logs • Safety Audits and Inspections • Sensor and IoT Data • Employee Reporting Systems</i>
1130 – 1215	Data Collection Methods <i>Manual versus Automated Data Collection • Designing Effective Reporting Forms • Data Validation at Entry Point • Common Collection Errors</i>

1215 – 1230	Break
1230 – 1330	Data Quality & Integrity Accuracy, Completeness, Consistency • Data Cleaning Basics • Handling Missing Data • Ensuring Reliability
1330 – 1420	Basics of Data Analysis Tools Overview of Excel and Spreadsheets • Introduction to Databases • Basic Statistical Tools • Visualization Platforms Overview
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: Monday, 03rd of August 2026

0730 – 0830	Data Cleaning Techniques Identifying Duplicates • Handling Missing Values • Standardizing Formats • Error Detection Methods
0830 – 0930	Data Structuring & Organization Tabular Data Structures • Data Normalization Basics • Coding and Categorization • Metadata Importance
0930 – 0945	Break
0945 – 1100	Exploratory Data Analysis (EDA) Purpose of EDA • Identifying Patterns and Trends • Outlier Detection • Initial Insights Generation
1100 – 1215	Descriptive Statistics Mean, Median, Mode • Variance and Standard Deviation • Frequency Distributions • Percentiles and Quartiles
1215 – 1230	Break
1230 – 1330	Data Visualization Basics Types of Charts (Bar, Line, Pie) • Selecting Appropriate Visuals • Visual Storytelling Principles • Common Visualization Mistakes
1330 – 1420	Safety Data Classification Incident Severity Levels • Risk Categories • Root Cause Categories • Industry Classification Standards
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: Tuesday, 04th of August 2026

0730 – 0830	Probability Concepts in Safety Basic Probability Principles • Event Likelihood Estimation • Conditional Probability • Risk Probability Interpretation
0830 – 0930	Trend Analysis Time Series Data Basics • Identifying Trends and Seasonality • Moving Averages • Trend Forecasting Basics



0930 – 0945	Break
0945 – 1100	Correlation & Relationships Correlation versus Causation • Scatter Plot Analysis • Correlation Coefficients • Misinterpretation Risks
1100 – 1215	Root Cause Analysis Techniques 5 Whys Method • Fishbone (Ishikawa) Diagram • Fault Tree Analysis • Barrier Analysis
1215 – 1230	Break
1230 – 1330	Risk Analysis Methods Risk Matrices • Likelihood versus Consequence • Risk Scoring Systems • Prioritization Techniques
1330 – 1420	Benchmarking & Comparison Internal Benchmarking • Industry Benchmarking • Performance Gap Analysis • Continuous Improvement Insights
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, 05th of August 2026

0730 – 0830	Predictive Safety Analytics Introduction to Predictive Models • Identifying Leading Indicators • Predicting Incidents • Limitations of Prediction
0830 – 0930	Regression Analysis Basics Linear Regression Concepts • Independent versus Dependent Variables • Model Interpretation • Practical Safety Examples
0930 – 0945	Break
0945 – 1100	Incident Trend Forecasting Forecasting Methods • Seasonal Trend Analysis • Scenario-Based Forecasting • Risk Anticipation
1100 – 1215	Human Factors Analysis Behavioral Safety Data • Human Error Classification • Fatigue and Performance Data • Organizational Culture Impact
1215 – 1230	Break
1230 – 1330	Safety Performance Dashboards Designing Dashboards • KPI Visualization • Real-Time Monitoring • User-Focused Design
1330 – 1420	Data Integration Combining Multiple Data Sources • Data Pipelines Basics • Interoperability Challenges • Data Governance Principles
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, 06th of August 2026

0730 – 0830	Safety Reporting Techniques <i>Writing Effective Reports • Structuring Findings • Visual Reporting • Executive Summaries</i>
0830 – 0930	Data-Driven Decision Making <i>Translating Data into Action • Prioritizing Interventions • Cost-Benefit Analysis • Decision Frameworks</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Communicating Safety Insights <i>Tailoring Communication to Audience • Storytelling with Data • Visual Communication Strategies • Overcoming Resistance</i>
1100 – 1230	Continuous Improvement in Safety <i>PDCA Cycle (Plan-Do-Check-Act) • Monitoring Improvements • Feedback Loops • Lessons Learned Systems</i>
1230 – 1245	<i>Break</i>
1245 – 1345	Compliance & Standards <i>OSHA and International Standards • Regulatory Reporting Requirements • Audit Readiness • Documentation Practices</i>
1345 – 1400	Course Conclusion <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course</i>
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

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



Course Coordinator

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