COURSE OVERVIEW HE0142(AD6)

Quantitative Risk Assessment (QRA) in Production Operations

Risk Assessment, Hazard Identification, Consequence & Frequency Analysis

Course Title

Quantitative Risk Assessment (QRA) in Production Operations: *Risk Assessment, Hazard Identification, Consequence & Frequency Analysis*

Course Date/Venue

May 25-29, 2025/The Victoria Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Course Reference

HE0142(AD6)

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.

Quantitative Risk Assessment (QRA) is the process through which the risks associated with any system or process are assessed and managed. Risk is always associated with uncertainty and undesirability of certain states of the system of process of interest. QRA methods are used to identify the risk scenarios and estimate the corresponding probabilities.

QRA methods identify system vulnerabilities, and rank them according to their occurrence frequencies and severity of the consequences. In addition, uncertainties associated with the data and models used to quantify the levels of risk are identified and factored into measures of risk.

This course is designed to provide delegates with detailed and up-to-date overview of Quantitative Risk Assessment (QRA). It will cover quantitative risk assessment; hazard identification; consequences analysis including loss of containment calculation, explosion modelling, fire modelling and dispersion modelling; frequency analysis; and quantifying risk using of probit analysis.

Course Objectives

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

- Apply and gain an in-depth knowledge on quantitative risk assessment in production operations including consequence and frequency analysis
- Carryout proper methodology on risk assessment as well as the step-by-step approach
- Identify hazards and employ consequence and frequency analysis including loss of containment calculation, explosion modeling, fire modeling and dispersion modeling
- Apply quantifying risk by using systematic techniques including probit 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 conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspect and considerations of quantitative risk assessment in production operations for safety management staff, team leaders, engineers, supervisory roles and middle management. The course is essential for those managing the production operations in process plants and oil/gas fields.

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.

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: -

- 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.

- 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:

Dr. John Petrus, PhD, MSc, BSc, is a **Senior HSE Consultant** with over **30 years** of **onshore & offshore** experience within the **Oil & Gas**, **Refinery** and **Petroleum** industries. His wide experience covers in the areas of **HAZOP & HAZID**, **HAZMAT & HAZCOM** Storage & Disposal, As Low as Reasonably Practicable (**ALARP**), Process Hazard Analysis (**PHA**), Process Safety Management (**PSM**), **Hazardous Materials & Chemicals** Handling, **Pollution Control**, **Environment, Health & Safety** Management, **Process Risk** Analysis, Effective Tool Box Talks, Construction Sites Safety, **HSSE Management** System, **HSSE Audit & Inspection**, **HSEQ Procedures**, **Authorized Gas** Testing, **Confined Space Entry & Rescue**, **Risk** Management, **Quantitative & Qualitative Risk** Assessment, **Working at Height**, **Firefighting** Techniques, **Fire** & **Gas** Detection System, **Fire Fighter & Fire** Rescue, **Fire Risk** Assessment, **HSE Industrial Practices**, **Manual Handling**, **Rigging Safety Rules**, **Machinery & Hydraulic Lifting Equipment**, **Warehouse Incidents & Accidents Reporting**, **Incident & Accident Investigation**, **Emergency Planning**, **Emergency Response & Crisis** Management Operations, **Waste Management** Monitoring, **Incident Command**, Job Safety Analysis (**JSA**), Quantitative Risk Assessment (**QRA**), Behavioral Based Safety (**BBS**). Further he is also well versed in Materials for **Construction & Repair of Concrete**, **Concrete Structures & Building Rehabilitation**, **Reinforced Concrete Structures** Protection, **Building Construction** Technology, **Construction Operations & Civil Engineering** Services, **Building** Management, **Building Maintenance**, **Construction & Concrete** Works, **Construction** Management, **Construction** Materials & Testing, **Construction Safety**, **Predictive Maintenance** in Construction, **Construction & Facilities** Development, **Buildings & Diverse Plant Infrastructure**, **Planning & Monitoring** the Progress & Quality of Work, Physical **Planning & Operations**, **Rotating Machinery** Principles & Applications, **Rotating Equipment** Selection, Operation, Maintenance, Inspection & Troubleshooting, **Rotating Machine/Equipment** in Industry, **Control Valves & Actuators**,**Data Analytics** for Managerial Decision Making, **Business Process Analysis**, Mapping & Modeling, **Research Methods & Analysis**, **Statistical Data Needs Analysis**, Oil & Gas Industry **Business Environment & Competitive Intelligence Gathering & Analysis**, Petroleum **Economics & Risk Analysis**, Certified **Data Analysis**.

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director**, **Senior Geoscience Advisor**, **Exploration Manager**, **Project Manager**, **Manager**, **HSE Engineer**, **Mechanical Engineer**, **Maintenance Engineer**, **Chief Geologist**, **Chief** of **Exploration**, **Chief** of **Geoscience**, **Senior Geosciences Engineer**, **Senior Explorationist**, **Senior Geologist**, **Geologist**, **Senior Geoscientist**, **Geomodeller**, **Geoscientist**, **CPR Editor**, **Resources Auditor**, **Project Leader**, **Technical Leader**, **Safety Supervisor**, **Team Leader**, **Senior HSE Consultant**, **Scientific Researcher** and **Senior Instructor/Trainer** from various international companies and universities such as the Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Standford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies, just to name a few.

Dr. Petrus has a **PhD** in **Geology** and **Tectonophysics** and **Master** and **Bachelor** degrees in **Earth Sciences** from the **Utrecht University**, **The Netherlands**. Further, he is a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**), a Secretary and Treasurer of Board of Directors of Multicultural Centre, Association Steunfonds SSH/SSR and Founding Member of Sfera Association. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars and conferences internationally.

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: ***Sunday, 25th of May 2025***

0730 – 0745	*Registration & Coffee*
0745 - 0800	*Welcome & Introduction*
0800 - 0830	***PRE-TEST***
0830 - 0930	***Quantitative Risk Assessment***
0930 - 0945	*Break*
0945 - 1100	***Quantitative Risk Assessment (cont'd)***
1100 – 1230	***Hazard Identification***
1230 - 1245	*Break*
1245 - 1420	***Hazard Identification (cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 26th of May 2025***

0730 - 0930	***Consequences Analysis*** *Loss of Containment Calculation*
0930 - 0945	*Break*
0945 - 1100	***Consequences Analysis (cont'd)*** *Loss of Containment Calculation (cont'd)*
1100 – 1230	***Consequences Analysis (cont'd)*** *Explosion Modelling*
1230 - 1245	*Break*
1245 - 1420	***Consequences Analysis (cont'd)*** *Explosion Modelling (cont'd)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Tuesday, 27th of May 2025***

0730 - 0930	***Consequences Analysis (cont'd)*** *Fire Modelling*
0930 - 0945	*Break*
0945 - 1100	***Consequences Analysis (cont'd)*** *Fire Modelling (cont'd)*
1100 – 1230	***Consequences Analysis (cont'd)*** *Dispersion Modelling*
1230 - 1245	*Break*
1245 - 1420	***Consequences Analysis (cont'd)*** *Dispersion Modelling (cont'd)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: ***Wednesday, 28th of May 2025***

0730 - 0930	***Frequency Analysis***
0930 - 0945	*Break*
0945 - 1100	***Frequency Analysis (cont'd)***

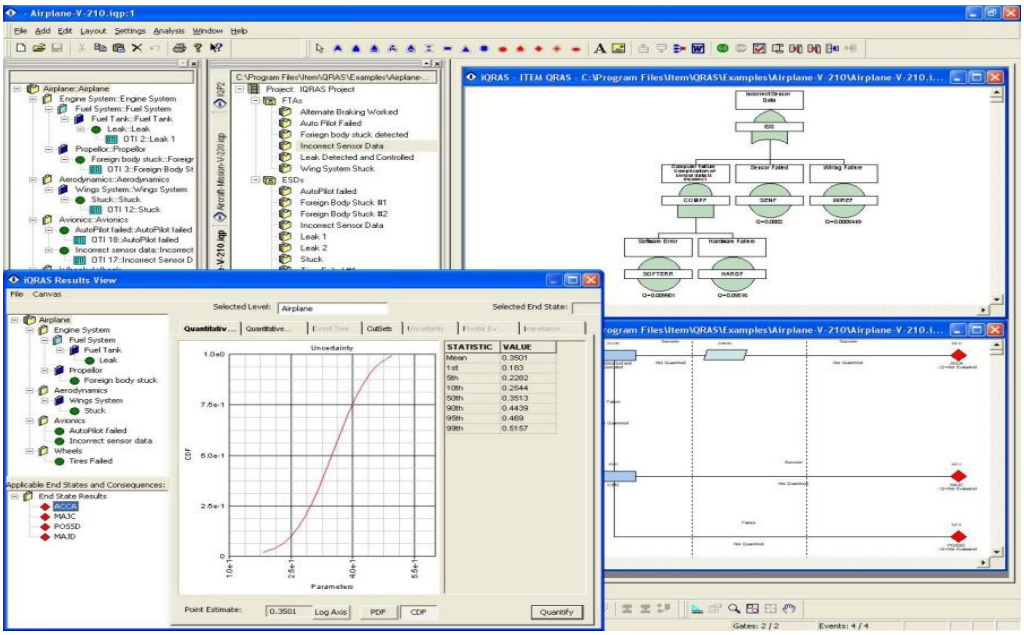
1100 – 1230	***Frequency Analysis (cont'd)***
1230 - 1245	*Break*
1245 - 1420	***Frequency Analysis (cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5: ***Thursday, 29th of May 2025***

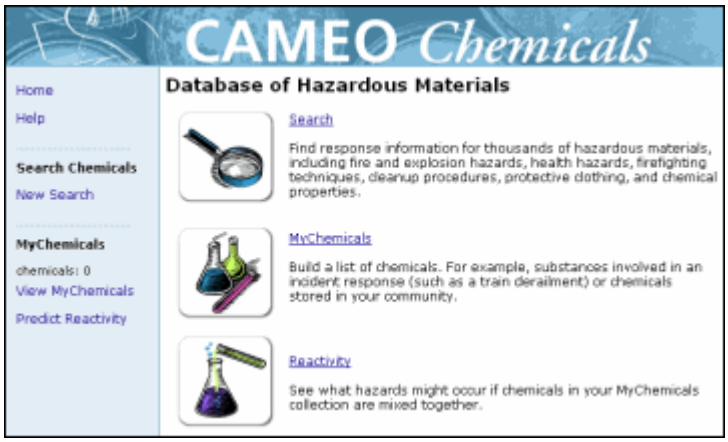
0730 - 0930	***Quantifying Risk*** *Using of Probit Analysis*
0930 - 0945	*Break*
0945 - 1100	***Quantifying Risk (cont'd)*** *Using of Probit Analysis (cont'd)*
1100 – 1230	***Quantifying Risk (cont'd)*** *Using of Probit Analysis (cont'd)*
1230 - 1245	*Break*
1245 - 1345	***Quantifying Risk (cont'd)*** *Using of Probit Analysis (cont'd)*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
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 simulators "QRA System Software" and "CAMEO Chemicals Suite Software".



QRA System Software



CAMEO Chemicals Suite Software

Course Coordinator

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