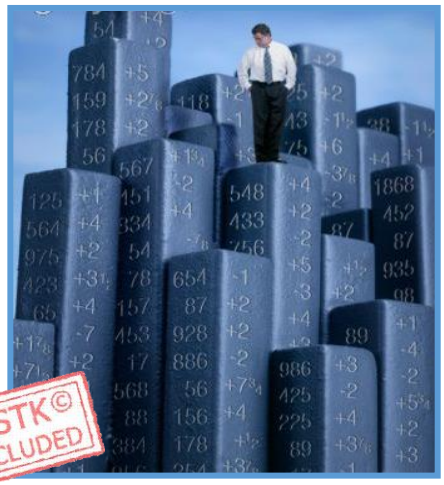
COURSE OVERVIEW DE0315

Uncertainties and Geo Statistics

Course Title
Uncertainties and Geo Statistics

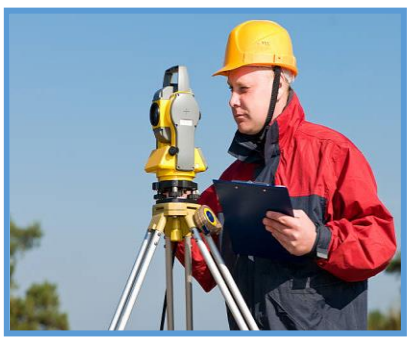


Course Date/Venue
Session 1: May 12-16, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: November 02-06, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
DE0315

Course Duration
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 contains detailed techniques for data analysis, experimental design and economic analysis using statistical and probability methodology. Topics included are: design vs. analysis; prior knowledge and Bayes' theorem; data fitting; comparing data; regression analysis; empirical and mechanistic modeling; probability and its application to petroleum economics; expected values; risk and uncertainty; understanding confidence limits. This course has been successfully presented in-house for Mobil, ARCO, and Chevron.

The purposes of this course are to give you a working vocabulary such that you will be able to converse easily with people who are experts in the areas of statistics and probability and will be able to read and comprehend most textbooks and well-written journal articles. The course will give you the ability to recognize what category a particular problem falls into thereby narrowing the number of possible techniques which might apply. It will provide you with a good working knowledge of several of the more common techniques which should cover a high percentage of the types of problems you are likely to run into.

This course is designed to give you enough background and theoretical knowledge to recognize when a technique is applicable and when assumptions from which the technique was derived have been so grossly violated and that will lead to incorrect conclusions. It will give you a feel for what to do when your particular problem has violated major assumptions but you need an answer anyway. It will provide you with a manual containing enough worked out examples to serve as a useful future reference and will provide you with a reasonable reference guide so that you will be able to find more detailed information on the techniques we have introduced. The course will leave you with a comfortable feeling about the use of statistical and probability techniques.

Course Objectives

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

- Apply the latest and detailed techniques for data analysis, experimental design, economic analysis and exploration using statistical and probability methodology
- Recognize what category a particular problem falls and employ possible and applicable techniques
- Carryout more common techniques that covers various types of problems with high percentage
- Acquire enough background and theoretical knowledge to recognize when a technique is applicable
- Avoid wrong assumptions in using the techniques in order to prevent incorrect conclusions
- Identify particular problem that has violated by major assumption and discover the correct techniques

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 is designed for engineers, scientists and managers in the petroleum industry whose job includes a major amount of data analysis. It is especially useful for persons who are responsible for planning and carrying out experimental work or data taking. Participants are encouraged to bring a laptop computer. Participants are also encouraged to bring their own data analysis problems. The instructor will work individually with participants on any problems or data they bring.

Course Fee

US$ 8,000 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day

Accommodation

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

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.

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. Saber Hussein a **Senior Geologist & Reservoir Engineer** with over **40 years** of extensive experience within the **Oil** & **Gas**, **Petrochemical** and **Refinery** industries. His specialization widely covers in the areas of **Open Hole Logging** Methods, Open & Cased Hole Logging, Applied **Production Logging & Cased Hole & Production Log** Evaluation, **Cased Hole Logging & Formation** Evaluation, **Cased Hole** Logging, **Wireline** Logging, **Mud** Logging, **Production** Logging, **Reservoir** Management, **Reservoir** Appraisal & Development, **Carbonate Reservoir** Management, **Fractured Reservoirs** Evaluation & Management, **Naturally Fractured Reservoir**, Integrated **Carbonate Reservoir** Characterization, **Core & Log Integration**, **Water Saturation**, **Coring & Core Analysis**, **Special Core Analysis**, **Log** Interpretation, **Core Calibration**, **Geological Modelling for Integrated Reservoir Studies**, **Reservoir Characterization**, **Geomodelling**, Development **Geology**, **Petroleum Geology**, **Exploration Production**, **Structural Geology**, **Wellsite Geology**, **Geologic** Modelling, Analytic Modelling Methods, Economic Evaluation, **Geophysics**, **Geophysical Exploration**, Advanced **Petrophysics**, **Petroleum Exploration**, **Petroleum Economics**, **Petroleum Engineering**, **Reservoir Modelling**, **Reserve Estimation**, **Reserve Evaluation**, Uncertainty Calculations, **Reservoir Management**, **Reservoir** Engineering, **Tectonics & Structural Development**, Petroleum Systems, **Reservoir Characterization**, **Clastic Reservoir**, **Carbonate Reservoir**, Subsurface Facies Analysis, **Borehole Images, Geophysical Methods**, **Oil & Gas Exploration**, **Exploration Geochemistry**, **Reservoir Performance** Using Classical Methods, **Fractured Reservoir** Evaluation & Management, **Reservoir** Surveillance & Management, **Reservoir** Engineering & Stimulation, **Reservoir Monitoring**, **Pressure Transient Testing & Reservoir** Performance Evaluation, **Reservoir Characterization**, **Reservoir** Engineering Applications, **Reservoir Volumetrics**, **Water Drive Reservoir**, **Reservoir Evaluation**, **Slick Line**, **Coil Tubing**, **Horizontal Wells**, **Well Surveillance**, **Well Testing**, Design & Analysis, **Well Testing** & Oil Well Performance, Well Log Interpretation (**WLI**), Formation Evaluation, Well Workover Supervision, **Pressure Transient Analysis**, **Petrophysical Log Analysis**, **Drilling**, **Core Analysis**, Core-to-Log Data Integration (**SCAL**), Basin Modelling & Total Petroleum System (**TPS**), **Seismic** Interpretation, **Seismic** Methods**, Seismic** Coherence Techniques, **Seismic Attribute Analysis**, **Seismic Inversion** Techniques, **Well Logging**, Rock Physics & Seismic Data, **Formation Evaluation**, **Well Testing** & Data Interpretation, **Pore Pressure** Prediction and **Oil & Gas Reserves Estimations**.

During his career life, Mr. Saber has gained his practical and field experience through his various significant position and dedication as the **Exploration General Manager & Board Member**, **Geology General Manager**, **Geological Studies Assistant General Manager**, **Mud Logging Assistant General Manager**, **Geological Operations Department Head**, **Geological Operations Section Head**, **Geologist**, **Well-Site Geologist**, **Mud Logger**, **Reservoir Engineer**, **Pressure Engineer**, **Expert** and **Senior Technical Consultant/Instructor** for various international companies such as the Suez Oil Company, DECO, DISUCO, Segulled, Geoline, Ltd.

Mr. Saber has a **Bachelor's** degree in **Geology**. Further, he is a **Certified Instructor/Trainer** and an active member of Egyptian Petroleum Exploration Society (**EPEX**), American Association of Petroleum Geologists (**AAPG**), Government Sponsored Enterprise (**GSE**) and the Petroleum and Scientific Professional Syndicate. He has further delivered numerous trainings, 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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction*** *Overall Objectives ● Probability vs. Statistics ● Experimental Design vs. Data Analysis ● Prior Knowledge and Bayesian Statistics ● Data Fitting ● Experimentation by Objectives ● Sequential Approach to Experimentation*
0930 – 0945	*Break*
0945 – 1100	***Comparing Data*** *Terminology*
1100 – 1230	***Comparing Data (cont'd)*** *Analyzing a Single Set of Data*
1230 – 1245	*Break*
1245 – 1430	***Comparing Data (cont'd)*** *Comparing Two Sets of Data*
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Regression Analysis*** *Linear, Non-Linear & Order*
0900 – 0915	*Break*
0915 – 1100	***Regression Analysis (cont'd)*** *"Best Fit"*
1100 – 1230	***Regression Analysis (cont'd)*** *Minimum Variance", "Maximum Likelihood" & "Least Squares"*
1230 – 1245	*Break*
1245 – 1430	***Regression Analysis (cont'd)*** *Diagnostic Checking*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0900	***Regression Analysis (cont'd)*** *When Constants have Physical Meaning*
0900 – 0915	*Break*
0915 – 1100	***Regression Analysis (cont'd)*** *When Predictability is Important*
1100 – 1230	***Regression Analysis (cont'd)*** *Understanding Confidence Intervals*
1230 – 1245	*Break*
1245 – 1430	***Regression Analysis (cont'd)*** *Weighted Least Squares and Transformations*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0900	***Regression Analysis (cont'd)*** *Empirical vs. Theoritical Models*
0900 – 0915	*Break*
0915 – 1100	***Regression Analysis (cont'd)*** *Mechanistic Modeling*
1100 – 1230	***Regression Analysis (cont'd)*** *Model Adequancy*
1230 – 1245	*Break*
1245 – 1430	***Regression Analysis (cont'd)*** *Non-Linear Regression*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Probability Application to Petroleum Economics*** *Properties of Distributions ● Expected Values*
0930 – 0945	*Break*
0945 – 1100	***Probability Application to Petroleum Economics (cont'd)*** *Risk and Uncertainty*
1100 – 1215	***Probability Application to Petroleum Economics (cont'd)*** *Variance ● Bidding Theory*
1215 – 1230	*Break*
1230 – 1400	***Probability Application to Petroleum Economics (cont'd)*** *Ratios and other Transformations*
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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