

**COURSE OVERVIEW GE0001**  
**Data Analysis (Executive Level)**

**Course Title**

Data Analysis (Executive Level)

**Course Date/Venue**

Session 1: September 27-October 01, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Session 2: December 27-31, 2026/Sur Meeting Room, Royal Tulip Muscat, Muscat, Oman



**Course Reference**

GE0001



**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 “MS Excel” applications.***

Continuous improvement in business efficiencies and reducing operations and maintenance costs require managers, engineers and analysts face an ever-challenging analytical problems and performance targets. Therefore, it is essential to base decisions on appropriate analysis and interpretation of numerical data.



The purpose of this course is 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 basic 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.



This course will provide you with a good working knowledge of several of the more common statistical techniques which should cover a high percentage of the types of problems you are likely to run into.

It will 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 that use of the technique will lead to incorrect conclusions.

The course 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. It 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. Finally, the course will leave you with a comfortable feeling about the use of statistical and probability techniques.

This course contains detailed techniques for data analysis, experimental design and modelling using statistical and probability methodology. Topics included are: the importance of statistics; probability and Bayes' theorem; applications of probability theory; random variables and their distributions; model fitting; understanding confidence limits; hypothesis testing; experimental design; regression analysis; statistical process control. The theory is extensively illustrated with practical applications.

### **Course Objectives/Outcomes & Benefits for the Participants**

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

- Gain an in-depth knowledge on data analysis techniques and their applications in science and engineering
- Discuss applied statistics, its importance and the basic statistical concepts
- Acquire knowledge on probability and learn more on its rules and how to calculate it
- Identify discrete and continuous random variables and identify their distributions
- Carryout experiments and the scientific method in data analysis techniques
- Recognize the shortcomings of one-factor-at-a-time experiments and understand the guidelines for designing experiments
- Acquire knowledge on experimental design, two-sample experiments, analysis of variance designs and factorial designs
- Explain the scope of two-level factorial designs and as well as the analysis of the fractional factorial designs
- Describe correlation vs. regression and analyze count and categorical data
- Carryout statistical process control in data analysis 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 provides an overview of all significant aspects and considerations of data analysis techniques for engineers, scientists, technologists and managers 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. Further, the course is ideal for laboratory managers, chemists and analysts. 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 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: -

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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**. 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.

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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 **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. Nikolas Karnavos, MSc, BSc, is a Senior Electrical & Instrumentation Engineer with 30 years of extensive experience within the Oil, Gas, Petrochemical, Refinery & Power industries. His expertise widely covers Basics of Instrumentation & Control, Instrumentation & Control Program, General Instrumentation & Process Control from Industrial Applications, Practical Process Instrumentation & Automatic Control, Automatic Control & Instrumentation Systems, Boiler Control and Instrumentation, Field Instruments, Instrument Control Safety System (ICSS), Instrumentation for Operators, Instrumentation & Control Troubleshooting, Instrument Calibration, Instrument Design. Further, he is also well-versed in Meter Flow Performance Monitoring & Data Validation, Liquid & Gas Flowmetering & Meter Calibration, Fuel Quality Monitoring System, Data Interpretation & Analysis, Analytical Instrumentation & Equipment Calibration, Analytical Methods & Procedures, Industrial Analytical Chemistry & Process Analyzers, Data & Method Validation, Data Analysis Techniques, Hydro-treating Technology, Unit Operations Monitoring, Hydro Processing, Catalysts, Hydrogenation-Dehydrogenation Equilibrium, Multicatalyst Systems, Process Design, Typical Processing Conditions, Reactor Systems, Flow Schemes, Design Considerations, Feedstock & Applications, Hydrogen Utilization, Product Qualities, Catalyst & Hydrogen Consumption, Utilities, Costs & Economics, Chemical Analysis & Testing, Crude Sampling Procedure, Infrared Spectroscopy, Crude & Water Quality Reporting, Crude Oil & Effluent Water Quality Parameters, Quality Product Blending Techniques, Well Production with Export Specification, Petroleum Product Testing, Gas Testing for Natural Refinery Gases, Gas & Liquid Chromatograph Process Analysers, Gas Chromatography Operation & Method Validation, Process Analyzer Techniques (Online & Offline) & Sampling Systems, Laboratory Information Management System (LIMS), Laboratory Automation Techniques, Water Audit & Leak Detection, Biological Wastewater Treatment Processes and Nanotechnology & Nanosensors Application, Environmental Online Analyzers (Air & Water), Gas Chromatography and various instrumental methods of analysis such as Water Analysis & Quality Control, Water and Wastewater Chemical Analysis, Qualitative Fuel Analysis, Environmental Chemical Analysis, Laboratory Environmental Analysis including Process Water & Wastewater Effluents, Oily Sludge Treatment, Atomic Absorption & Spectroscopic Methods in Analytical Chemistry, Methods of Environmental Measurements (Water, Air, Liquid & Solid Wastes), Hazardous Waste Management & Pollution Prevention, Oil Spill & Pollution Control and Industrial Hygiene.**

Mr. Karnavos was the **Laboratory Manager** of **Exxon** wherein he was responsible for **ISO 17025 certification**, upgrading laboratory equipment in **refinery, petrochemical** and **polypropylene** plants, upgrading and extending LIMS, handling the transition plan process of the existing laboratory to a new as well as formulating and executing the plans for applied research and technology transfer. During his career life, he had occupied several significant positions as the **Process Engineering Manager, Mechanical Maintenance Supervisor, Associate Engineer, Laboratory Analyst, Laboratory Professor, Quality Manager, Partner & Managing Director, Environmental Engineer, Process Engineer, Environmental Management Corporate Department Head, Quality Control & Plastics Application Head, International Environmental Auditor, HSE & Quality Consultant, Coordinator, Visiting Lecturer, Project Head Consultant/Lecturer** and **Trainer** with different international companies like the **AQUACHEM, Hellenic Petroleum (EXXON), Elpe** and **Technological Institute**.

Mr. Karnavos holds a **Master** degree in **Chemical Engineering** and **Bachelor** degrees in **Mechanical Engineering** and **Petroleum Engineering** from the **Aristotelian University of Thessaloniki, Technological Institute** and **KATEE Kavala** respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, an **Accredited Trainer** for the Organization for the Certifications & Vocational Guidance (**EOPPEP**), a **Registered Associate Environmental Auditor** from the **IEMA** and an **EARA Approved** in **Environmental Auditing**. Moreover, he is an active member of various professional engineering bodies internationally like the **Institute of Environmental Management & Assessment (IEMA)**, **Greek Association of Chemical Engineers** and the **Technical Chamber** of Greece. He has further **published numerous books** and **scientific papers** and delivered various trainings, workshops, seminars and conferences worldwide.

**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.

**Course Fee**

**US\$ 5,500** per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), 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 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	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Statistics</b> <i>What is Statistics? • Importance of Statistics • Basic Statistical Concepts</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Probability</b> <i>Rules of Probability • Probabilities of Joint Events • Reliability Engineering • Reliability Systems</i>
1100 – 1230	<b>Probability (cont'd)</b> <i>Parallel Systems • Conditional Probabilities • Bayes Theorem • Calculating Probabilities</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Discrete Random Variables</b> <i>Bernoulli Distribution • Binomial Distribution • Poisson Distribution • Applications to Practical Problems</i>
1420 - 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>



**Day 2**

0730 – 0900	<b>Continuous Random Variables</b> Uniform Distribution • Exponential Distribution • Lifetime Distributions • Machine Maintenance • Skew Distributions
0900 – 0915	Break
0915 – 1045	<b>Continuous Random Variables (cont'd)</b> Normal Gaussian Distribution • The Lognormal Distribution • Population and Samples • Random Sampling
1045 – 1230	<b>Experiments and the Scientific Method</b> Purpose of the Experiment • Importance of Experimental Design • Experimental Design Principles
1230 – 1245	Break
1245 – 1420	<b>Experiments and the Scientific Method (cont'd)</b> One Factor-at-a-Time vs Designed Experiments • Guidelines for Designing Experiments
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0900	<b>Experimental Design</b> Single-Sample Experiments
0900 – 0915	Break
0915 – 1045	<b>Two-Sample Experiments</b> Independent Samples • Paired Samples
1045 – 1230	<b>Analysis of Variance designs</b> Single Factor • Randomized Blocks • Two Factor Designs
1230 – 1245	Break
1245 – 1420	<b>Factorial and other Designs</b> Higher-Way Factorial Designs • Balanced Incomplete Blocks Designs • Nested (Hierarchical) Designs
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

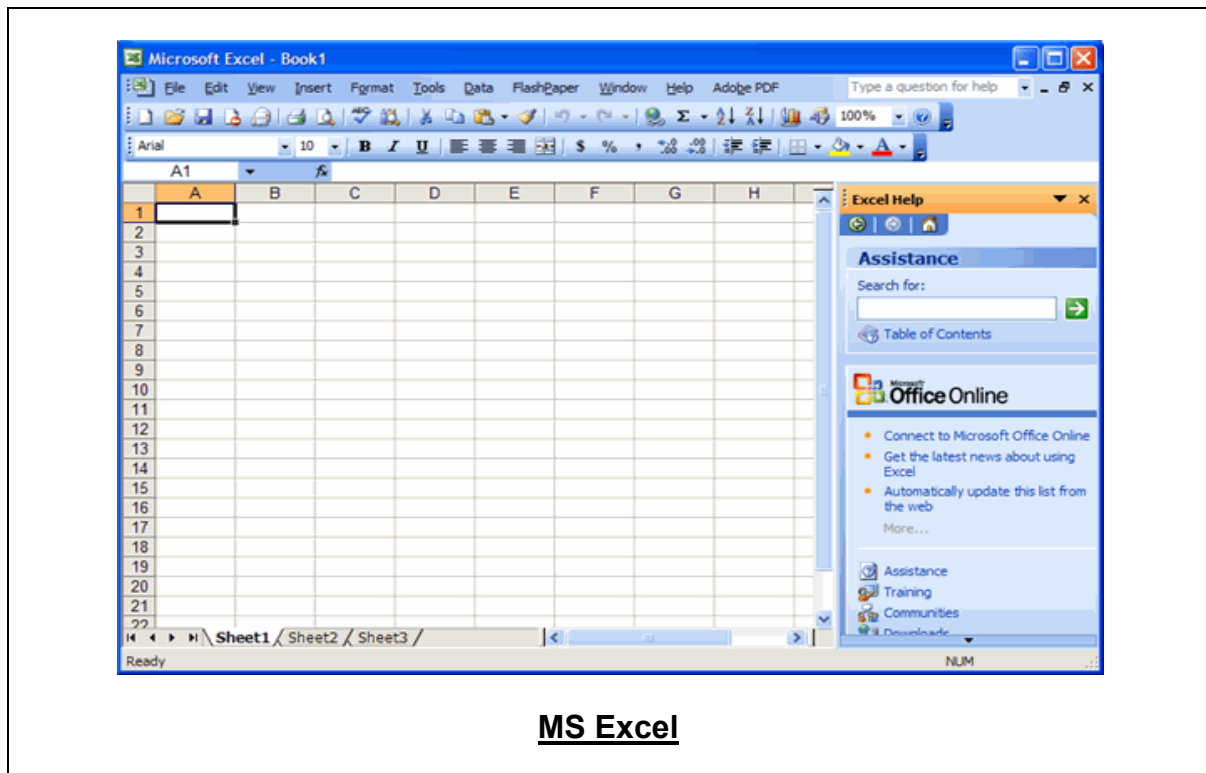
0730 – 0900	<b>Two-level Factorial Designs</b> $2^k$ Factorial Designs • Analysis of Two-Level Designs
0900 – 0915	Break
0915 – 1100	<b>Fractional Factorial Designs</b> $2^{k-p}$ Fractional Factorial Designs • Generation and Analysis of Fractional Factorials
1100 – 1230	<b>Correlation</b> Correlation Coefficient • Correlation vs Causation
1230 – 1245	Break
1245 – 1420	<b>Regression</b> Simple Regression • Multiple Regression • Response Surface Design and Optimization
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0900	<b>Analyzing Count Data</b> <i>Hypergeometric Distribution • Binomial Data • Poisson Data</i>
0900 – 0915	<i>Break</i>
0915 – 1045	<b>Categorical Data</b> <i>Chi-Squared Test for Contingency Tables • Linear Logistic Regression</i>
1045 – 1200	<b>Statistical Process Control</b> <i>Shewhart Control Charts • X-Bar and SD-Charts</i>
1200 – 1215	<i>Break</i>
1215 – 1345	<b>Statistical Process Control (cont'd)</b> <i>CUSUM (Cumulative Sum) Charts • Process Capability</i>
1345 - 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

Practical sessions will be arranged for all participants throughout the course using “MS Excel applications”.



**Course Coordinator**

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