# COURSE OVERVIEW GE0755-4D
# Data Analysis Techniques

**Course Title**
Data Analysis Techniques


**Course Date/Venue**
October 21-24, 2024/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

2.4 CEUs (24 PDHs) AWARD

**Course Reference**
GE0755-4D

**Course Duration/Credits**
Four days/2.4 CEUs/24 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.***

Corporate ethos which demands continual improvement in work place efficiencies and reduced operating, maintenance, support service and administration costs means that managers, analysts and their advisors are faced with ever-challenging performance targets. In order to make decisions resulting in improved business performance, it is vital to base decision making on appropriate analysis and interpretation of data.

This course adopts an applications-oriented approach, minimizing the time spent on the mathematics of analysis and maximizing the time spent on the use of practical methods and understanding why such methods work. Delegates will explore Excel's functionality and Data Analysis Tool Pack to investigate realistic data from a wide range of technical and non-technical example applications.

Organizations that are able to make optimum decisions will enhance their ability to compete on the global stage.

The participants on this course, and therefore the teams that they work within will, as a result of their training, be better positioned to influence the organization with recommendations based on objective data analysis that in turn produce a higher performing business.

Individuals exposed to this training will develop new insights into the field of data analysis, and they will learn why the best companies in the world see data analysis essential to delivering the right quality products and services at the lowest costs.

Participants will gain an understanding and practical experience of a range of the more common analytical techniques and data representation methods, which have direct relevance to a wide range of issues. The ability to recognize which types of analysis are best suited to particular types of issue. A sufficient background and theoretical knowledge to be able to judge when an applied technique will likely lead to incorrect conclusions.

## Course Objectives

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

- Apply and gain systematic techniques and methodologies in data analysis
- Carryout a range of common analytical techniques and data representation methods which have direct relevance to decision performance monitoring, decision making, and process improvement
- Recognize which types of analysis are best suited to particular types of problems
- Gain background and theoretical knowledge to be able to judge when an applied technique will likely lead to incorrect conclusions
- Employ working vocabulary of analytical terms enabling them to converse with people who are experts in the areas of data analysis, statistics and probability and read and comprehend common textbooks and journal articles in field
- Discuss basic statistical methods and concepts

## Who Should Attend

This course is intended for professionals whose jobs involve the manipulation, representation, interpretation and/or analysis of data. Basic familiarity with PC's and in particular with Microsoft Excel is assumed. The course consists of a large amount of data analysis and therefore delegates will be expected to be numerate and enjoy working with data.

## 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, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.*

## Course Fee

**US$ 4,500** 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:-

- 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 **2.4 CEUs** (Continuing Education Units) or **2.4 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.

- 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.

## 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:

**Dr. Mike Tay**, PhD, MSc, BSc, is a **Senior Electrical**, **Instrumentation & Communications Engineer** with over **40 years** of extensive experience. His expertise widely covers **Protective Devices** Troubleshooting, **Protective Devices** Testing & Maintenance, **Uninterruptible Power Supply** (**UPS**) Design, Industrial **UPS Systems & Battery Power Supplies** Maintenance & Troubleshooting, **UPS & Battery** System, **Battery & Battery Charger & UPS** and Measurement Devices, UPS **System & Battery Chargers** Maintenance & Troubleshooting, **UPS & Battery** Design, Operation, Maintenance & Troubleshooting, UPS **Operation & Alarm Panel** Reading, **Process Control & Instrumentation**, **Process Control** Troubleshooting & Problem Solving, **Process Control System**, Advanced Process Control (**APC**) Technology, **Process Control & Loop Tuning**, **Process Control & Automation**, **Data Accuracy & System Function**, **Control System Interface**, Distributed Control Systems (**DCS**), Programmable Logic Controller (**PLC**), Interruptible Power Systems (**UPS**), Supervisory Control and Data Acquisition (**SCADA**), **Network** Comprehensive, Systems Analysis, **SCADA Security**, ESD System Function, Analysis & Control, Modern **Power Systems Protective Relaying**, **Custody Measurement & Loss Control**, **Fiber Optics** Access Network Planning, **Process Analyzer** & Analytical Instrumentation, **HV/MV Substation** Design & Maintenance, **Combined Cycle Power Generation**, **PLC & SCADA Automation**, Advanced **Online Analyzer**, **Protection Relay** Maintenance, Power System Faults, Current & Voltage **Transformers**, Power System Neutral Grounding, Feeder Overcurrent Protection, **Electrical Protection Systems**, Bus Protection, Motor Protection, **Transformer Protection**, **Generator Protection**, Numerical Relays, **ESD System Analysis** & **Control**, **Custody Measurement**, Safety Instrumented System (**SIS**), Safety Integrity Level (**SIL**), **Power System**, **Power Supply** Design Management, **Diesel Generator**, **Electric Motors** and Basic **Electricity** & **Electrical Codes**. Further, he is also well-versed in **Communications**, **Telecommunications**, Mobile Protocols, 4G LTE, GSM/UMTS, CMDA2000, **WIMAX** Technology, HSPA+, **Alarm** Management System, **Computer Architecture**, Logic & Microprocessor Design, Embedded Systems Design plus **Computer Networking** with **CISCO**, **Network Communication**, **Industrial Digital Communication**, Designing **Telecommunications Distribution System**, Electrical Engineering, **WiMAX Broadband Wireless System**, TT Intranet & ADSL Network, TT Web & Voicemail, Off-site ATM Network, IT Maintenance, Say2000i, IP Phone, National Address & ID Automation, Electricity Distribution Network, Customs Network & Maintenance, **LAN** & **WAN Network**, UYAP Network, **Network Routing Protocols**, Multicast Protocols, Network Management Protocols, Mobile & Wireless Networks and Digital Signal Processing.

During his career life, Dr. Tay worked with various universities and institutions such as the KOC Sistem, Meteksan Sistem, Altek BT, Yasar University, Dokuz Eylul University and METU and occupied significant positions being the **Aegean Region Manager**, **Group Leader**, **Technical Services Manager**, **Field Engineer**, **Instrumentation & Control Engineer**, **Research Assistant**, **Instructor**, **Instrumentation & Control Instructor**, **Technical Advisor**, **Technical Consultant** and **Senior Instructor/Lecturer**.

Dr. Tay has a **PhD**, **Master**'**s** and **Bachelor**'**s** degree in **Electrical & Electronics Engineering** from the **Dokuz Eylul University** and the **Middle East Technical University** (**METU**) respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), a **Certified CISCO** (**CCSP**, **CCDA**, **CCNP**, **CCNA**, **CCNP**) **Specialist**, a **Certified CISCO IP Telephony Design Specialist**, **CISCO Rich Media Communications Specialist**, **CISCO Security Solutions** & **Design Specialist** and **Information Systems Security** (**INFOSEC**) **Professional**. He has further hold certification in Fundamentals of Process Control and Understanding Process Control: An Overview and delivered and presented innumerable trainings, courses, workshops, seminars and conferences worldwide.

## 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: Monday, 21st of October 2024***

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| *0730 – 0800* | *Registration & Coffee* |
| *0815 – 0830* | *Welcome & Introduction* |
| *0830 - 0845* | ***PRE-TEST*** |
| *0845 – 0930* | ***The Basics***<br>*The Need & Role of Data Analysis in Business Today • Types of Data • The Two Data Enemies of Data Analysts • The Data Acquisition Model* |
| *0930 - 0945* | *Break* |
| *0945 – 1100* | ***Charting & Understanding Categorical Data***<br>*Bar Charts & Their Derivatives: What They are & How to Use Them • Pareto Charts. Location Charts* |
| *1100 – 1200* | ***Summarising Data with Descriptive Statistics***<br>*Mean/Average, Median, Mode, Percentiles, Deciles, & Quartiles • Measures of Dispersion: The Range, Standard Deviation & Variance* |
| *1200 – 1215* | *Break* |
| *1245 – 1420* | ***Investigating & Understanding Variation of a Set of Data***<br>*Box & Whisker Plots, Histograms Check Sheets & How to Interpret Them* |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day One* |

***Day 2: Tuesday, 22nd of October 2024***

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| *0730 – 0930* | ***The Basis of Statistical Analysis: The Normal Distribution***<br>*The Normal Distribution* |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***The Basis of Statistical Analysis: The Normal Distribution (cont'd)***<br>*The Origin of Six Sigma, The Z-Score, The Standard Normal Distribution* |
| *1100 – 1200* | ***How to Monitor & Predict Future Process Performance***<br>*Variation in Processes • Common & Special Causes of Variation, Tampering, Statistical Control • Control Charts: What They are & How to Use them* |
| *1200 – 1215* | *Break* |
| *1245 – 1420* | ***How to Monitor & Predict Future Process Performance (cont'd)***<br>*How to Predict Future Performance • Other Uses of the Control Charts* |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day Two* |

***Day 3: Wednesday, 23rd of October 2024***

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| *0730 – 0930* | ***Some Common Data Distributions & their Uses***<br>*Poisson & Binomial Distributions* |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***Some Common Data Distributions & their Uses (cont'd)***<br>*Their Relationship to Other Distributions & Where they are Likely to Occur in Business, Specifically the Occurrence of Time Based Events* |
| *1100 – 1200* | ***Investigating the Relationships Between Variables***<br>*Scatter Diagrams & Their Derivatives • Correlation & the Correlation Coefficient • Covariance* |

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| *1200 – 1215* | *Break* |
| *1245 – 1420* | ***Investigating the Relationships Between Variables (cont'd)*** *Linear Regression Analysis, Least Squares Estimation and the Analysis of Variance • More Complex Regression Models & Transformations* |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day Three* |

***Day 4:*** ***Thursday, 24th of October 2024***

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| *0730 – 0930* | ***Calculating the Ability of Process to Operate within Specification*** *Process Capability • Specification Limits • Calculating Process Capability* |
| *0930 - 0945* | *Break* |
| *0945 – 1100* | ***Estimating Values & Calculating Confidence Intervals*** *Point Estimates & Confidence Intervals for Averages & Standard Deviations* |
| *1100 – 1200* | ***An Introduction to Hypothesis Testing*** *The Hypothesis Testing Model  ANOVA. t, F & Chi-Square Tests & their Uses • Contingency Tables* |
| *1200 – 1215* | *Break* |
| *1230 – 1345* | ***The Data Analysis Model*** *How to Get from Data to Conclusion* |
| *1345 – 1400* | ***Course Conclusion*** |
| *1400 – 1415* | ***POST-TEST*** |
| *1415 – 1430* | *Presentation of Course Certificates* |
| *1430* | *Lunch & End of Course* |

## Practical Sessions

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

## Course Coordinator

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