



COURSE OVERVIEW DE0004

Geomatics Applications in Environmental Assessment

Course Title

Geomatics Applications in Environmental Assessment

Course Date/Venue

Session 1: January 06-10, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: July 27-31, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



H-STK[©] INCLUDED

Course Reference

DE0004

Course Duration

Five days/3.0 CEUs/30 PDHs

Course Description



This hands-on, highly-interactive course includes practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulator.



Geomatics, geodesy and cartography play an important role in surveying and mapping engineering. Geodetic datums refer to the reference surfaces, reference points, and their relevant parameters in surveying and mapping, including coordinate datums, vertical datums, sounding datums, and gravity datums. They are the reference surfaces or points against which measurements are made and they provide the basis for establishing geodetic systems. Geodetic systems are the extension of different types of datums realized through establishment of the nationwide geodetic control networks, which include the geodetic coordinate system, plane coordinate system, height system, and gravimetric system.



Use of incorrect geodetic parameters can cause major errors in positions of wells, pipelines, and seismic surveys, with significant financial losses and sometimes with HSE risks, as demonstrated by case studies. Awareness of geodetic datums, coordinate reference systems, and map projections is provided via interactive demonstrations and hands-on workshop exercises using the online EPSG Geodetic Registry. Students learn how Global Navigation Satellite Systems (GNSS) including GPS work.



This course is designed to provide an overview of the geomatics including the geodesy and cartography. The course will cover the spatial data infrastructure (SDI), the consequences of coordinate errors, the geospatial reference surfaces and the map projection methods. Participants will learn how cartography and geodesy are used to build geospatial data content in a SDI and how to visualize and prepare this information for spatial data viewing, presentation and exploration.

Course participants will learn how Global Navigation Satellite Systems (GNSS) including GPS work, as well as the resultant accuracies obtainable using different receiver types and data processing techniques. Hands-on GPS exercises show potential errors. Google Earth is examined with focus on its strengths and weaknesses for E&P purposes. Lastly, the importance of geospatial metadata is stressed, since often such metadata is implemented at the end of a project. This critical geospatial data component is discussed with recommendations for best practices using current industry references.

Course Objectives

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

- Apply and gain a fundamental knowledge on geodesy and cartography of geomatics
- Identify the bad geodetic parameters within your project data
- Ensure that geodetic parameters provided to you are correct
- Understand advantages and disadvantages of using various map projections
- Apply this course to projects in your specific geoscience software applications
- Evaluations of geospatial metadata; how to generate good geospatial metadata
- Understand the limitations on reasonable use of Google Earth for your own applications
- Understand the accuracy limits of different types of GNSS/GPS receivers and technology
- Discuss geospatial data management and the role of cartography and geodesy in SDI
- Define cartography, the tasks of geodesy and the key geomatics/geodesy
- Identify the nature and sources of spatial data including the cartographic and spatial data storage
- Recognize coordinates and coordinate systems as well as geospatial reference surfaces, geodetic datums, coordinate reference systems and transformations
- Describe vertical datum global navigation satellite systems (GNSS) including GPS
- Illustrate cartography map projection methods and identify the problem of north including the principles, basic introduction and practical demo of GIS
- Recognize ESPG online reference, google earth and google maps associated geospatial data issues
- Explain geospatial metadata and how it can be made part of the normal workflow process

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 geomatics for geologists, geophysicists, exploration and production managers, reservoir engineers, drilling engineers, data acquisition and data managers, GIS specialists and engineer (Pet.Data).

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 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: -

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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**. 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. Saber Hussein is 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 – 0745	Registration & Coffee
0745 – 0800	Welcome & Introduction
0800 – 0815	PRE-TEST
0815 – 0930	An Overview of Geospatial Data Management
0930 – 0945	Break
0945 – 1130	Role of Cartography & Geodesy in SDI
1130 – 1230	What is Cartography?
1230– 1245	Break
1245 – 1420	Tasks of Geodesy
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0900	Key Geomatics/Geodesy Definitions
0900 – 0930	Break
0930 – 1100	Nature & Sources of Spatial Data
1100 – 1230	Cartographic & Spatial Data Storage
1230 – 1245	Break
1245 – 1420	Discussion
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0900	Coordinates & Coordinate Systems
0900 – 0930	Break
0930 – 1100	Geospatial Reference Surfaces
1100 – 1230	Geodetic Datums, Coordinate Reference Systems & Transformations
1230 – 1245	Break
1245 – 1420	The Vertical Datum
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0900	Global Navigation Satellite Systems (GNSS) including GPS
0900 – 0930	Break
0930 – 1100	Cartography & Map Projections
1100 – 1230	The Problem of North
1230 – 1245	Break
1245 – 1420	GIS: Principles, Basic Introduction & Practical Demo (if technically possible)
1420 – 1430	Recap
1430	Lunch & End of Day Four



Day 3

0730 – 0930	EPSG Online Reference (connection to internet required)
0930 - 0945	<i>Break</i>
0945 – 1100	Discussion
1100 – 1230	Google Earth & Google Maps Associated Geospatial Data Issues
1230 – 1245	<i>Break</i>
1245 – 1315	Geospatial Metadata: What is it & How can it be Made Part of the Normal Workflow Process
1315 - 345	Recap & Course References
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

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 the state-of-the-art simulator “**Online EPSG Geodetic Parameter Registry**”.

Online EPSG Geodetic Parameter Registry

Course Coordinator

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