

**COURSE OVERVIEW IE0671(KJ1)**  
**Crude Metering System**  
*(Certification Training Program)*

**Course Title**

Crude Metering System (Certification Training Program)

**Course Reference**

IE0671(KJ1)

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs



**Course Date/Venue**

Session(s)	Date	Venue
1	January 28-February 01, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
2	April 14-18, 2024	Cheops Meeting Room, Radisson Blu Hotel, Istanbul Sisli, Turkey
3	July 08-12, 2024	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
4	October 06-10, 2024	Jubail Hall, Signature Al Khobar Hotel, Al Khobar, KSA

**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.***



Fluid Dynamics covers basic definitions, such as viscosity, repeatability, cavitation etc; flow profiles and the effects on measurement; volumetric and mass flow rate. Accuracy is important in terms of uncertainty of measurement; calibration; technical specifications and process requirements.



Flow Measurement including orifice plate and DP transmitter; multi-beam ultrasonic flowmeter; coriolis mass meter; turbine meters amongst others. Level Measurement, traditional methods such as capacitance and hydrostatic techniques are covered together with more modern technologies such as ultrasonic and radar measurements.

Upon completion of this course, participants will learn more about level measurement including traditional and radar measurement. Flow measurement including orifice plate, Dp transmitter, multi-beam ultrasonic and turbine meters. Also accuracy in terms of uncertainty, calibration, technical specifications and process requirements.

### Course Objectives

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

- Apply and gain an in-depth knowledge on crude metering system
- Explain level measurement including traditional methods and modern technologies such as ultrasonic and radar measurement
- Describe flow measurement including orifice plate, Dp transmitter, multi-beam ultrasonic and turbine meters as well as discuss the accuracy in terms of uncertainty, calibration, technical specifications and process requirements
- Illustrate calibration and prover systems and discuss the methods of calibration
- Analyze the various types of prover as well as tank gauging and quality assessment
- Demonstrate pipeline flow meters and discuss the selection criteria
- Review flow meter calibrations as well as leak detection and loss control system
- Analyze multiphase flow meter and discuss the advantage and disadvantage
- Determine correlations and analyze the safety and future trends

### Exclusive Smart Training Kit - H-STK<sup>®</sup>



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK<sup>®</sup>). The H-STK<sup>®</sup> 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**.

### Who Should Attend

This course is intended for PRD & FMD engineers, supervisors, foreman, senior operators & other personnel involved in production operations and metering system.

**Training Methodology**

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Workshops & Work Presentations
- 30% Case Studies & Practical Exercises
- 20% Software, Simulators & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

**Course Fee**

Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	<b>US\$ 6,000</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day
Al Khobar	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . 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.

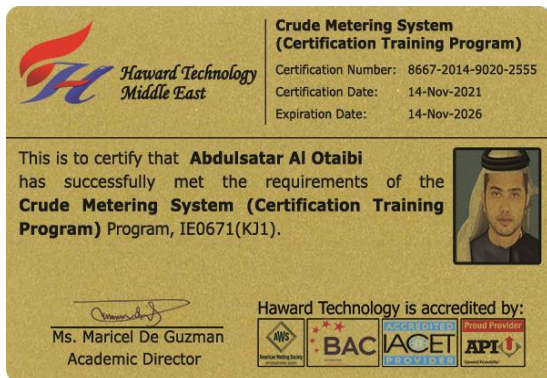
**Course Certificate(s)**

(1) Internationally recognized Wall Competency Certificates and Plastic Wallet Card Certificates will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

**Recertification is FOC for a Lifetime.**

**Sample of Certificates**

The following are samples of the certificates that will be awarded to course participants:-



- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*



**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

CEUs

### CEU Official Transcript of Records

**TOR Issuance Date:** 14-Nov-21  
**HTME No.** 3558-6717-5364-9527  
**Participant Name:** Abdulsatar Al Otaibi

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
IE0671(KJ1)	Crude Metering System (Certification Training Program)	10 Nov-14 Nov, 2021	30	3.0

**Total No. of CEU's Earned as of TOR Issuance Date** **3.0**

**TRUE COPY**



**Maricel De Guzman**  
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by




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\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*

### Certificate Accreditations


Certificates are accredited by the following international accreditation organizations: -

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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.

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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.

### Course Instructor

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. John Vorster, MSc, BTech, is a Senior Instrumentation & Control Engineer with over 20 years of industrial experience within the Oil, Gas, Process, Refinery, Power and Nuclear industries. His wide expertise includes Testing, Calibration & Maintenance of Flow, Level, Pressure & Temperature; Flow Measurement & Custody Measurement, Flow Computer, Turbine Flowmeters, Ultrasonic Flowmeter, Positive Displacement Flowmeter, Coriolis Flowmeter, Flow Rate Corrections, Pressure Flow Transmitters, Pressure Methods, Flow Nozzles, Orifice Plates, Venturi Tubes, Pitot Tubes, Process Control Design & Plant Modelling, Instrumentation, Automation, Process Control Instrumentation, Analyzer Measurement Systems, Pressure Management, Selection & Sizing of all Instrumentation, SIL Criteria, Calibration & Configuration of Installed Instrumentation, PLC & DCS, Bearing Replacement and Control Valves. Further, he is also well-versed in HAZOP, LOPA Studies, Radiation Protection, Hazardous Substances, Hazardous Area Classification, Nuclear Devices Maintenance, Loop Drawings, Loop Calculations, Engineering Drawings, Shutdown Maintenance & Planning, Asset Management, Six Sigma, Energy Management & Measurements, Project Management, Strategic Resource Planning, Budget Preparation, ISO 9001, ISO 14000 and ISO 18000 standards. He is currently the Instrumentation Analyzer & Engineer of Sasolburg wherein he is in-charge of the design and monitoring of the analyzer measurement systems.**

During his career life, Mr. Vorster has gained his practical and field experience through his various significant positions and dedication as the **Project Manager, Trainer, Senior Instrumentation Engineer, Instrumentation Engineer, Green Belt Project Leader, Instrumentation Technologist, Senior Instrumentation/Electrical Artisan, Instrumentation Artisan and Apprentice Instrumentation** for numerous international companies including **Sasolburg, DOW Chemical Company, Safripol and Iscor.**

Mr. Vorster has a **Master degree in Engineering Development & Management**, as well as a **Bachelor of Technology degree** and a **National Diploma in Electrical Engineering** from the **North West University** and **Vaal University of Technology** respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, an **Appointed Radiation Protection Officer** and a **Qualified Instrument Mechanician**. Moreover, he is an active member of **Project Management Institution (PMI)** and **South African Institute of Measure and Control (SAIMC)** and has delivered numerous courses, workshops, conferences and seminars 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	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction &amp; Definitions</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Accuracy &amp; Measurement</b>
1100 – 1230	<b>Flow Measurement</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Level Measurement</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0900	<b>Methods of Measurement &amp; Accuracy</b>
0900 – 0915	<i>Break</i>
0915 – 1100	<b>Calibration &amp; Prover Systems</b>
1100 – 1230	<b>Methods of Calibration</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Types of Prover</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

#### **Day 3**

0730 – 0930	<b>Tank Gauging &amp; Quality Assessment</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Pipeline Flow Meters</b>
1100 – 1215	<b>Selection Criteria</b>
1215 – 1230	<i>Break</i>
1230 – 1420	<b>Flow Meter Calibrations</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Three</i>

#### **Day 4**

0730 – 0930	<b>Leak Detection &amp; Loss Control System</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Leak Detection &amp; Loss Control System (cont'd)</b>
1100 – 1215	<b>Multiphase Flow Meter Advantages</b>
1215 – 1230	<i>Break</i>
1230 – 1420	<b>Multiphase Flow Meter (cont'd) Disadvantage</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Four</i>



**Day 5**

0730 – 0930	<b>Correlations</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Safety &amp; Future Trends</b>
1100 – 1215	<b>Course Overview</b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b>Questions &amp; Answers</b>
1300 – 1315	<b>Wrapping</b>
1315 – 1415	<b>COMPETENCY EXAM</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

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



**Course Coordinator**

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