

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

Course Title

Crude Metering System (Certification Training Program)

Course Date/Venue

Session 1: July 05-09, 2026/Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA
 Session 2: August 19-23, 2026/Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA



Course Reference

IE0671(KJ1)

Course Duration/Credits

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.

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/Outcomes & Benefits for the Participants

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®



Participants of this course will receive the exclusive “Howard 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 intended for PRD & FMD engineers, supervisors, foreman, senior operators & other personnel involved in production operations and metering system.

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 Certificate(s)

- (1) Internationally recognized Competency 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.

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Haward Technology Middle East

Continuing Professional Development (HTME-CPD)



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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Certificate Accreditations

Haward's 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**. 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.

-  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 Fee

US\$ 5,500 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 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. Barry Pretorius is a **Senior Instrumentation Engineer** with almost **30** years of extensive experience within the **Oil, Gas, Petrochemical, Refinery & Power** industries. His expertise widely covers in the areas of **Flowmetering & Custody Measurement, Multiphase Flowmetering, Measurement & Control, Distributed Control System (DCS), DCS Operations & Techniques, Plant Control and Protection Systems, Process Control & Instrumentation, Cascade Control Loops, Split-Range Control Loops, Capacity Control & Other Advanced Control Schemes, Safety Instrumented Systems, Plant**

Automation Operations & Maintenance, Programmable Logic Controller (PLC), Siemens PLC Simatic S7-400/S7-300/S7-200, PLC & SCADA for Automation & Process Control, Artificial Intelligence, Allen Bradley PLC Programing and Hardware Trouble Shooting, Schneider SCADA System, Wonder Ware, Emerson, Honeywell, Honeywell Safety Manager PLC, Yokogawa, Advanced DCS Yokogawa, Endress & Hauser, Field Commissioning and Start up Testing Pre Operations, System Factory Acceptance Test (FAT), FactoryLink ECS, Modicon 484, Rockwell Automation, System Site Acceptance Test (SAT), SCADA HMI & PLC Control Logic, Cyber Security Practitioner, Cyber Security of Industrial Control System, IT Cyber Security Best Practices, Cybersecurity Fundamentals, Ethical Hacking & Penetration Testing, Cybersecurity Risk Management, Cybersecurity Threat Intelligence, OT Whitelisting for Better Industrial Control System Defense, NESA Standard and Compliance Workshop, OT, Cyber Attacks Awareness - Malware/Ransom Ware / Virus /Trojan/ Phishing, Information Security Manager, Security System Installation and Maintenance, Implementation, Systems Testing, Commissioning and Startup, Foxboro DCS & Triconics, SIS Systems, Advanced DC Drives, Motion Control, Hydraulics, Pneumatics and Control Systems Engineering, Electrical & Automation Control Systems, HV/MV Switchgear, LV & MV Switchgears & Circuit Breakers, High Voltage Electrical Safety, LV & HV Electrical System, HV Equipment Inspection & Maintenance, LV Distribution Switchgear & Equipment, Electrical Safety, Electrical Maintenance, Transformers, Medium & High Voltage Equipment, Circuit Breakers, Cable & Overhead Line Troubleshooting & Maintenance, Electrical Drawing & Schematics, Voltage Distribution, Power Distribution, Filters, Automation System, Electrical Variable Speed Drives, Power Systems, Power Generation, Diesel Generators, Power Stations, Uninterruptible Power Systems (UPS), Battery Chargers, AC & DC Transmission, CCTV Installation, Data & Fire Alarm System, Evacuation Systems and Electrical Motors & Variable Speed Drives, & Control of Electrical and Electronic devices.

During Mr. Pretorius's career life, he has gained his practical experience through several significant positions and dedication as the **Senior Technical Analyst, Team Leader, Pre-operations Startup Engineer, Automation System's Software Manager, Automation System's Senior Project Engineer, PLC Specialist, Site Manager, Senior Project & Commissioning Engineer, Technical Director, Project Engineer, Radio Technician, A T E Technician** and **Senior Instructor/Trainer** from various companies like the ADNOC Sour Gas, Ras Al Khair Aluminum Smelter, Johnson Matthey Pty. Ltd, Craigcor Engineering, Unitronics South Africa Pty (Ltd), Bridgestone/Firestone South Africa Pty (Ltd) and South African Defense Force.

Mr. Pretorius's has a Higher Diploma in **Electrical Engineering Heavy Current**. Further, he is a **Certified Instructor/Trainer** and delivered numerous trainings, courses, workshops, 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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Introduction & Definitions</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Accuracy & Measurement</i>
1100 – 1230	<i>Flow Measurement</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<i>Level Measurement</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

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

Day 3

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

Day 4

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

Day 5

0730 – 0930	Correlations
0930 – 0945	Break
0945 – 1100	Safety & Future Trends
1100 – 1215	Course Overview
1215 – 1230	Break
1230 – 1300	Questions & Answers
1300 – 1315	Wrapping
1315 – 1415	COMPETENCY EXAM
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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