COURSE OVERVIEW IE0600-4D

Metering Pump Selection, Operation, Maintenance & Troubleshooting

Course Title

Metering Pump Selection, Operation, Maintenance & Troubleshooting

Course Reference

IE0600-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	January 08-11, 2024	Boardroom, Warwick Hotel Doha, Doha, Qatar
2	February 05-08, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
3	March 04-07, 2024	Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of metering pump selection, operation, maintenance and troubleshooting. It covers the latest technology on metering pumps; the systematic tools, procedures and operating principles of its construction; the assembly and design considerations; and the various types of metering pumps covering bellows pumps, diaphragm pumps, piston pumps, travelling cylinder pumps and polymer feed systems.

Further, the course will also discuss the general characteristics and metering pumps operating principles; the pump drivers; the pump and motor combinations; the accumulator for metering pump; and the metering pumps selection and technical specification data.

During this interactive course, participants will learn the intakes and suction piping; the metering pumps and automation works; the pump control and valves; the metering pumps mounting and installation; the commissioning, start-up and testing; the maintenance and troubleshooting; and the pump performance curve and performance evaluation.

Course Objectives

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

- Apply proper technology on metering pumps and the systematic tools, procedures and operating principles of its construction, assembly and design
- List the types of metering pumps and differentiate their general characteristics
- Identify pump drivers, pump and motor combinations and the accumulator for metering pump
- Employ systematic methodology on metering pumps selection by using technical specification data
- Discuss intakes and suction piping, metering pumps and automation works as well as pump controls and valves
- Perform proper strategies on metering pumps commissioning, start-up and testing, metering pumps maintenance and troubleshooting
- Use pump performance curve and operate performance evaluation

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 metering pump selection, operation, maintenance and troubleshooting for those who are using metering pumps in process or laboratory such as process engineers, instrumentation engineers, metering engineers, reliability engineers, maintenance engineers, plant engineers, operation and production teams, technicians and laboratory staff.

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.

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 **24 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.

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. Mahmoud Fattah, is a **Senior Instrumentation & Control Engineer** with over **35 years** of extensive experience within the **Oil & Gas**, **Petrochemical** and **Fertilizer** industries. His expertise widely covers the **Process Control Loop**, **Control Valves**, **Control Systems**, **Actuators & Valve Selection**, **Process Control & Automation**, **Batch Process & Sequential Control**, **Analog Control**, **Operator Interfaces**, **Data Communication**, **System Checkout & Testing**, **Advanced Control** with **PLC's**, **Ladder Logic**, **Process Instrumentation & Control**, **Control Valve Maintenance**, **Process Automation & Control Instrumentation**, **Foxboro**, **ABB**, **Rosemount**, **Yokogawa**, **Pneumatic & Electronic**, **Level Measurement**, **Pressure Measurement**, **Temperature & Flow Measurement**, **Actuators & Positioners**, **Control Room Instruments**, **Panel Controllers**, Indicators & Recorders, **Control Systems Installation**, **Control Valves Maintenance**, **Analytical Analyzers**, **Transmitters**, **Controllers**, **Smart Instruments** and **PLC & PID Control**. Further, he is also well-versed in **Turbine**, **Pumps & Compressors**, **Pump Maintenance & Water Tanks**, **Turbines & Generators**, **Pressure Switch & Gauge Cabinet Calibration**, **Lube/Seal Oil Control System** and **Hydrogen Generation**.

During his career life, Mr. Fattah has gained his practical and field experience through his various significant positions and dedication as the **General Manager**, **Technical Director**, **Technical Officer**, **Process Field & Panel Instruments**, **Maintenance Director**, **Maintenance Engineer**, **Instrumentation Trainer**, **Technical Officer**, **Instrument Specialist**, **Instrument Expert/Trainer**, **Instructor/Trainer** for El Mansourah Main Water Plant, SEMADCO, Creol Production Service International (CPSI), Saudi Consilidated Electric Co. (SCECO), Delta Co., General Fertilizer Company (GFC) and International Expertise Association (INTEX).

Mr. Fattah has a **Bachelor** degree in **Mechanical Power Engineering**. Further, he is a **Certified Instructor/Trainer**, an active member of Egyptian Engineering Syndicate and delivered numerous trainings, courses, workshops, conferences and seminars internationally.

Course Fee

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

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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Metering Pumps Construction, Assembly & Design Considerations***
0930 – 0945	*Break*
0945 – 1100	***Metering Pumps Construction, Assembly & Design Considerations (cont'd)***
1100 – 1230	***Types of Metering Pumps*** *Bellows Pumps ● Diaphragm Pumps ● Piston Pumps*
1230 – 1245	*Break*
1245 – 1420	***Types of Metering Pumps (cont'd)*** *Travelling Cylinder Pumps ● Polymer Feed Systems*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***General Characteristics & Metering Pumps Operating Principles***
0930 – 0945	*Break*
0945 – 1100	***General Characteristics & Metering Pumps Operating Principles (cont'd)***
1100 – 1230	***Pump Drivers***
1230 – 1245	*Break*
1245 – 1420	***Pump & Motor Combinations***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Accumulator for Metering Pump***
0930 – 0945	*Break*
0945 – 1100	***Metering Pumps Selection & Technical Specification Data***
1100 – 1230	***Intakes & Suction Piping***
1230 – 1245	*Break*
1245 – 1420	***Metering Pumps & Automation Works***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

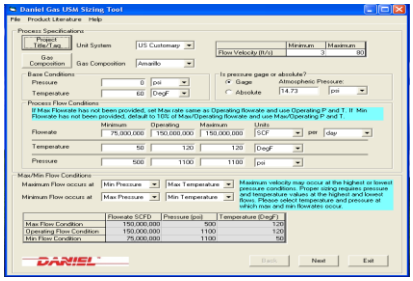
Day 4

0730 – 0930	***Pump Controls & Valves***
0930 – 0945	*Break*
0945 – 1100	***Metering Pumps Mounting & Installation***
1100 – 1230	***Metering Pumps Commissioning, Start-Up & Testing***
1230 – 1245	*Break*

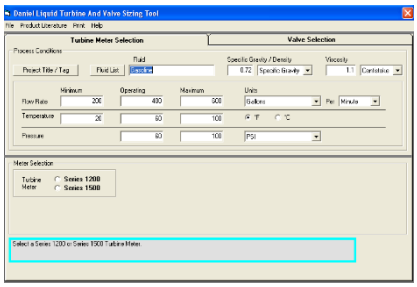
1245 – 1315	***Metering Pumps Maintenance & Troubleshooting***
1315 - 1345	***Pump Performance Curve & Performance Evaluation***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

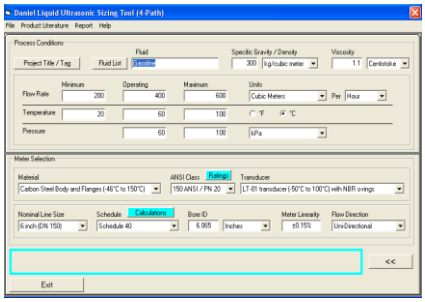
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using one of our state-of-the-art simulators "Gas Ultrasonic Meter Sizing Tool", "Liquid Turbine Meter and Control Valve Sizing Tool", "Liquid Ultrasonic Meter Sizing Tool", "Orifice Flow Calculator" and "Centrifugal Pumps and Troubleshooting Guide 3.0"



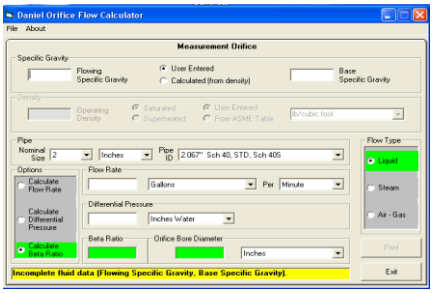
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



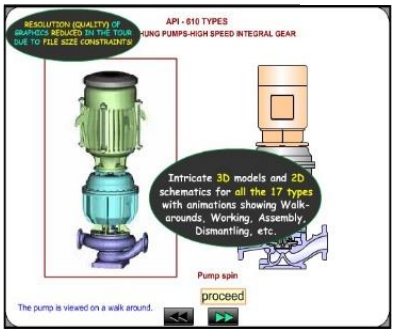
Liquid Turbine Meter and Control Valve Sizing Tool Simulator



Liquid Ultrasonic Meter Sizing Tool Simulator



Orifice Flow Calculator Simulator



Centrifugal Pumps and Troubleshooting Guide 3.0

Course Coordinator

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