

COURSE OVERVIEW IE0600

Metering Pump Selection, Operation, Maintenance & Troubleshooting

Course Title

Metering Pump Selection, Operation, Maintenance & Troubleshooting

Course Date/Venue

December 15-19, 2024/Oryx Meeting Room, Double Tree by Hilton Al Saad, Doha, Qatar

Course Reference

IE0600

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



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.

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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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 Fee

US\$ 6,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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's 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.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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: Sunday, 15th of December 2024

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
1430	Lunch & End of Day One

Day 2: Monday, 16th of December 2024

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: Tuesday, 17th of December 2024

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	Intakes & Suction Piping (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 17th of December 2024

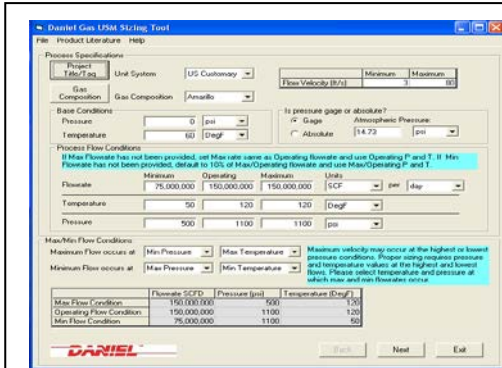
0730 – 0930	Metering Pumps & Automation Works
0930 – 0945	Break
0945 – 1100	Pump Controls & Valves
1100 – 1230	Metering Pumps Mounting & Installation
1230 – 1245	Break
1245 – 1420	Metering Pumps Mounting & Installation (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 18th of December 2024

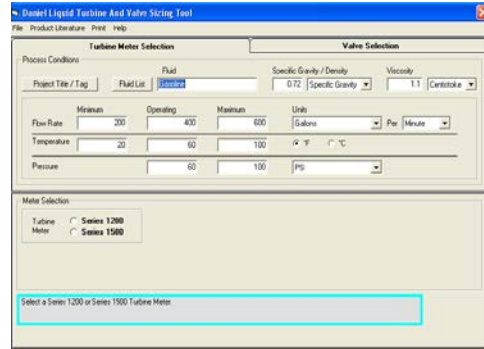
0730 – 0930	Metering Pumps Commissioning, Start-Up & Testing
0930 – 0945	Break
0945 – 1045	Metering Pumps Commissioning, Start-Up & Testing (cont'd)
1045 – 1230	Metering Pumps Maintenance & Troubleshooting
1230 – 1245	Break
1245 – 1345	Pump Performance Curve & Performance Evaluation
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Simulators (Hands-on Practical Sessions)

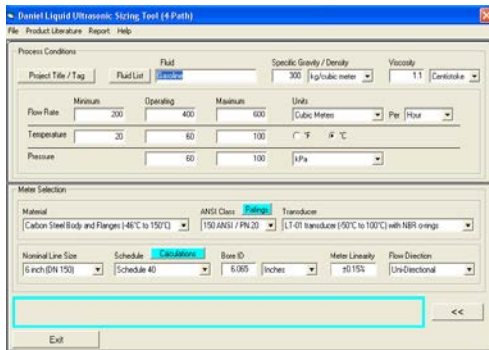
Hands-on practical sessions will be organized throughout the course duration using our state-of-the-art simulators “Gas Ultrasonic Meter Sizing Tool”, “Liquid Turbine Meter and Control Valve Sizing Tool”, “Liquid Ultrasonic Meter Sizing Tool”, “Orifice Flow Calculator” and “Centrifugal Pumps and Troubleshooting Guide 3.0”



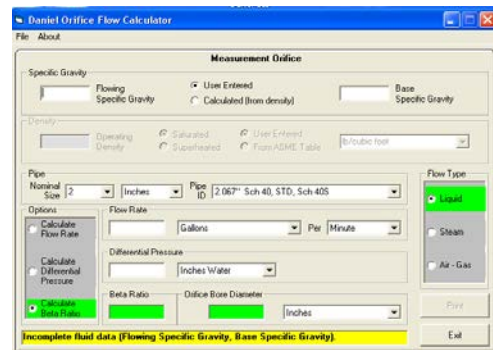
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



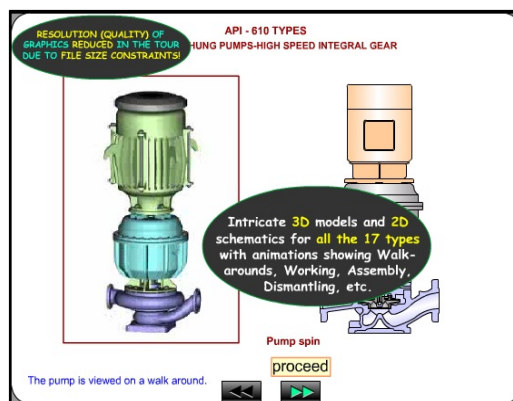
Liquid Turbine Meter and Control Valve Sizing Tool Simulator



Liquid Ultrasonic Meter Sizing Tool Simulator



Orifice Flow Calculator Simulator



Centrifugal Pumps and Troubleshooting Guide 3.0

Course Coordinator

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