COURSE OVERVIEW EE0259

Bulk & Sub Meter Complaints

Course Title
Bulk & Sub Meter Complaints

Course Date/Venue
May 25-29, 2025/Boardroom 1, Elite Byblos Hotel, Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
EE0259

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.

Energy efficiency systems can increase property values, facilitate resale and boost rental occupancy rates and yields. Many such systems are also cost effective to set up and guarantee rapid return on investment. One thing that all energy-efficiency measures have in common is the need for reliable, accurate metering and monitoring of energy consumption. When it comes to industrial facilities and commercial buildings, installing an effective WAGES (water, air, gas, electricity, steam) metering system can be a source of substantial energy and cost savings.

This course will help participants to examine WAGES metering as the essential first step toward achieving greater energy efficiency in industrial facilities and
commercial buildings. The course covers metering technology, metrics and metering points including submeters and bulk meters.

Course Objectives

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

- Apply and gain an in-depth knowledge on sub-meter and bulk-meter complains
- Discuss energy cost allocation, energy sub-billing and energy usage analysis
- Carryout building energy performance benchmarking and electrical distribution asset management
- Illustrate bill auditing or shadow metering, energy procurement and demand/response
- Apply regulatory or certification compliance and define performance metrics
- Determine the metering points and discuss what data must be gathered
- Illustrate measurement method and meter location
- Recognize metering point per energy usage including lighting, heating and cooling
- Identify the refrigerant fluid - split and multi-split systems
- Describe air system, water system, independent electric boiler, independent central gas boiler, space heating and solar heating
- Differentiate main electric meters, water meters and gas meters and apply data for energy management
- Employ data for electrical distribution monitoring that covers installation monitoring or power quality measurement
- Identify the requirements for specific applications like sub-billing or shadow metering and perform local or remote reading

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 sub-meters and bulk-meters complains for energy managers, consultants, site engineers, facilities management personnel and other technical staff.

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 **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.

- 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$ 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.

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. Herman Eksten, PE, PgDiP, is a **Senior Electrical Engineer** with over **40 years** of extensive experience within the **Petrochemical**, **Oil & Gas** and **Power** industries specializing in **Electrical Safety**, Certified **HV Electrical Safety**, **Low Voltage Electrical Safety**, **Electrical Circuits**: Series and Parallel Connection, **Electrical Faults & Protective Devices**, Risk Control Methods, **LOTO – Breakers** Operation in Electricity Substation, **LOTO** Principles and Procedures, **Arc Flash Risk Assessment**, Safety in **Power Electronic Equipment & Lasers**, **Circuit Breakers & Switchgears**, **Switchgear Assets Management**, **Circuit Breakers Control Circuits**, **Substation Maintenance** Techniques, **High Voltage Operation, Electrical Protection**, **Overhead Lines & Substation**, **Power Supply**, **High Voltage Substation**, **Electrical Protection Design**, **Earthing & Lightning Protection Design, Underground Equipment**, **Distribution Network Maintenance & Construction**, **Transformers Operation & Maintenance**, **Electric Power System, Power Plant Management**, **Substation Commissioning & Troubleshooting**, **Cable Splicing & Termination, Electrical Installation & Maintenance**, **Power Generation Operation & Control, Switchgear Life Assessment**, **Structured Cabling, Electric Power System, Power System Stability, Power System Planning & Economics**, **Power Flow** Analysis, **Combined Cycle Power Plant**, **UPS & Battery System, Variable Speed Drives,** and **HV Motors & Transformers**. He is currently the **Lead Electrical Engineer** of **SNC-LAVALIN** wherein he is responsible for basic designs and successful implementation of electrical engineering to plant overhead lines and substations.

During his career life, Mr. Eksten held various positions such as the **Lead Electrical Engineer**, **Operations Manager**, **Project Engineer**, **Technical Specialist**, **Customer Executive**, **District Manager**, **Electrical Protection Specialist**, **High-Voltage Operator** and **Apprentice Electrician** for FOX Consulting, UHDE (ThyssenKrupp Engineering), TWP Projects/Consulting (EPMC-Mining), ISKHUS Power, Rural Maintenance (PTY) Energia de Mocambique Lda., Vigeo (PTY) Ltd and ESKOM.

Mr. Eksten is a **Registered Professional Engineering Technologist** and has a Postgraduate Diploma in Management Development Programme and a National Higher Diploma (NHD) in Electrical Power Engineering. Further, he is a **Certified Instructor/Trainer**, a Senior member of the South African Institute Electrical Engineers (**SAIEE**) and holds a Certificate of Registration Membership Scheme from the Engineering Council of South Africa (**ESCA**). He has further delivered numerous trainings, courses, seminars, workshops and conferences internationally.

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 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, 25th of May 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0845	***Energy Cost Allocation***
0845 - 0930	***Energy Sub-billing***
0930 – 0945	*Break*
0945 – 1045	***Energy Usage Analysis***
1045 – 1230	***Building Energy Performance Benchmarking***
1230 – 1245	*Break*
1245 – 1330	***Electrical Distribution Asset Management***
1330 - 1420	***Bill Auditing (Shadow Metering)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 26th of May 2025***

0730 – 0830	***Energy Procurement***
0830 - 0930	***Demand/Response***
0930 – 0945	*Break*
0945 – 1045	***Regulatory or Certification Compliance***
1045 – 1230	***Performance Metrics***
1230 – 1245	*Break*
1245 - 1330	***Determine the Metering Points***
1330 - 1420	***What Data Must be Gathered?***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

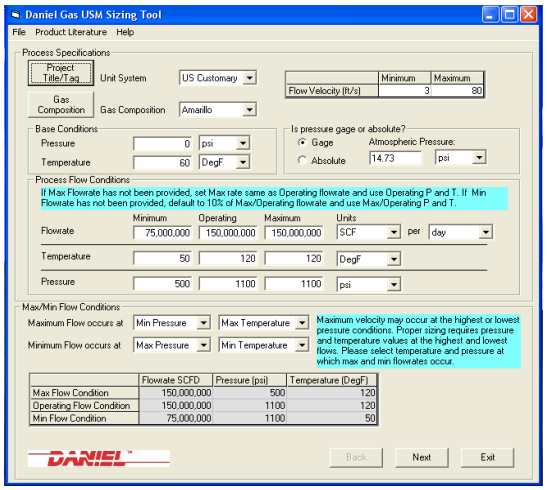
Day 3:	Tuesday, 27th of May 2025
0730 – 0830	Measurement Method & Meter Location
0830 – 0930	Metering Point Per Energy Usage
0930 – 0945	Break
0945 – 1145	Lighting
1145 – 1230	Heating & Cooling
1230 – 1245	Break
1245 – 1330	Refrigerant Fluid-Split & Multi-Split Systems
1330 - 1420	Refrigerant Fluid-VRF/VRV
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4:	Wednesday, 28th of May 2025
0730 – 0830	Air System
0830 – 0930	Water System
0930 – 0945	Break
0945 - 1045	Independent Electric Boiler
1045 - 1230	Independent Central Gas Boiler
1230 – 1245	Break
1245 - 1330	Combine with Space Heating
1330 - 1420	Solar Heating
1420 – 1430	Recap
1430	Lunch & End of Day Four

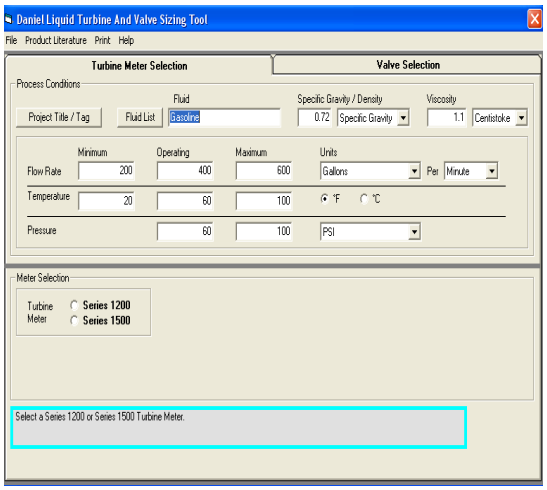
Day 5:	Thursday, 29th of May 2025
0730 – 0830	Main Electric Meters
0830 - 0930	Water & Gas Meters
0930 – 0945	Break
0945 - 1045	Data for Energy Management
1045 – 1130	Data for Electrical Distribution Monitoring: Installation Monitoring or Power Quality Measurement
1130 - 1230	Requirements for Specific Applications like Sub-Billing or Shadow Metering
1230 - 1245	Break
1245 - 1345	Local or Remote Reading
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Simulators (Hands-on Practical Sessions)

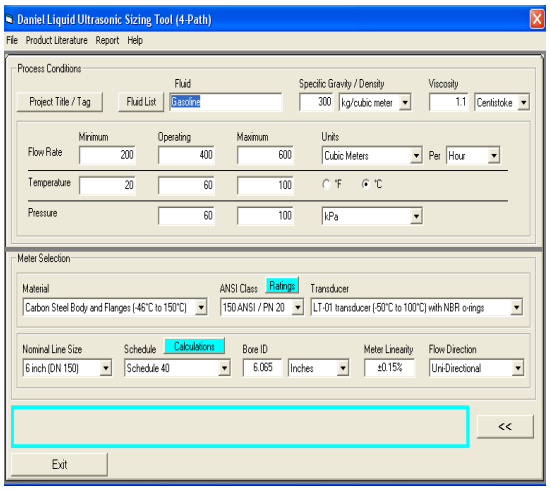
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art "Gas Ultrasonic Meter Sizing Tool", "Liquid Turbine Meter and Control Valve Sizing Tool", "Liquid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



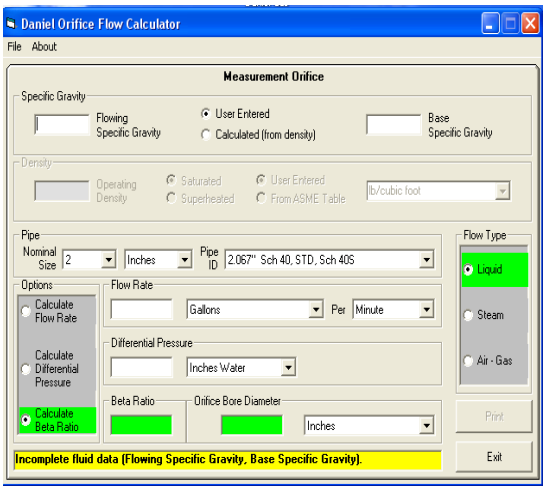
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



Liquid Turbine Meter and Control Valve Sizing Tool Simulator



Liquid Ultrasonic Meter Sizing Tool Simulator



Orifice Flow Calculator Simulator

Course Coordinator

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