COURSE OVERVIEW IE0995
Advanced Certificate in Instrumentation Calibration

Course Title
Advanced Certificate in Instrumentation Calibration

Course Date/Venue
Session 1: April 20-24, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: October 05-09, 2025/Business Meeting, Crowne Plaza Al Khobar, Al Khobar, KSA

Course Reference
IE0995

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 one of our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of instrumentation calibration. It covers the enhancement of the skills and knowledge of the instrumentation fitter in order to increase their productivity and quality in the work; the good understanding of instrumentation calibration; the scope and characteristics of the discrete-state process control; the control loop characteristics and the instrumentation in hazardous areas; and the different types of instrument devices and features in the ship.

During this interactive course, participants will learn to install instruments and the process of tuning and adjustment of control system; calibrate different types of devices; benchmark procedures for float (Fluke 55008), deadweight tester and BEAMEX (MC5); and recognize the controller (PID), transmitter, PLC, pressure and Team controllers.

Course Objectives

Upon successful completion of the course participants will be able to:-

- Apply and gain an advanced knowledge on instrumentation calibration
- Enhance the skills and knowledge of the instrumentation fitter in order to increase their productivity and quality in the work
- Carryout instrumentation calibration and discuss the scope and characteristics of the discrete-state process control
- Determine the control-loop characteristics and apply instrumentation in hazardous areas
- Recognize the different types of instrument devices and features in the ship
- Test, check and install instruments and identify the process of tuning and adjustment of control system
- Perform calibration for different types of devices including benchmarking procedures for float (Fluke 55008), deadweight tester and BEAMEX (MC5)
- Recognize the controller (PID), transmitter, PLC, pressure and Tem controllers

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, 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 provides an overview of all significant aspects and considerations of instrumentation calibration for instrumentation fitters.

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)

(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 Middle East
Continuing Professional Development (HTME-CPD)

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CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-19

HTME No. 8667-2014-9020-2555

Participant Name: Abdulsatar Al Otaibi

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
IE0995	Advanced Certificate in Instrumentation Calibration	November 10-14, 2019	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

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.

Accommodation

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

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. Sydney Thoresson, PE, BSc, is a **Senior Electrical & Instrumentation Engineer** with over **40 years** of extensive experience within the **Petrochemical**, **Utilities**, **Oil**, **Gas** and **Power** industries. His specialization highly evolves in **Electrical Drawing and Schematics**, **Hazardous Area Classification**, **Intrinsic Safety**, **Liquid & Gas Flowmetering**, **Custody Measurement**, **Ultrasonic Flowmetering**, **Loss Control**, **Gas Measurement**, **Process Control Instrumentation**, **Compressor Control & Protection**, **Control Systems**, Programmable Logic Controllers (**PLC**), **SCADA**, Distributed Control Systems (**DCS**) especially in **Honeywell DCS**, **H&B DCS**, **Modicon, Siemens**, **Telemecanique**, **Wonderware** and **Adrioit**. Moreover, he has vast experience in the field of Safety Instrumented Systems (**SIS**), Safety Integrity Level (**SIL**), Emergency Shutdown (**ESD**), **Flowmetering & Custody Measurement**, **Multiphase Flowmetering**, **Measurement and Control**, **Mass Measuring System Batching** (**Philips**), Arc Furnace Automation-Ferro Alloys, Walking Beam Furnace, Blast Furnace, Billet Casting Station, Cement Kiln Automation, Factory Automation and Quality Assurance Accreditation (**ISO 9000** and **Standard BS 5750**).

During Mr. Thoresson's career life, he has gained his thorough and practical experience through various challenging positions such as a **Project Manager**, **Contracts Manager**, **Managing Director**, **Technical Director**, **Divisional Manager**, **Plant Automation Engineer**, **Senior Consulting Engineer**, **Senior Systems Engineer**, **Consulting Engineer**, **Service Engineer** and **Section Leader** from several international companies such as **Philips**, **FEDMIS**, **AEG**, **DAVY International**, **BOSCH** Instrumentation and Control, **Billiton**, **Endress/Hauser**, **Petronet**, **Iscor**, **Spoornet**, **Eskom** and **Afrox**.

Mr. Thoresson is a **Registered Professional Engineering Technologist** and has a **National Higher Diploma** (**NHD**) & a **National Diploma** in **Radio Engineering** from the **Witwatersrand Technikon**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), an active member of the International Society of Automation (**ISA**) and the Society for Automation, Instrumentation, Measurement and Control (**SAIMC**).

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	***Discrete-State Process Control*** *Definition of Discrete-State Control • Characteristic if the System*
0930 – 0945	*Break*

0945 – 1100	***Discrete-State Process Control (cont'd)*** *Relay Controllers & Ladder Diagrams • Programmable Logic Controllers (PLCS)*
1100 – 1215	***Control-loop Characteristics*** *Control System Configurations • Multivariable Control Systems • Control System Quality • Stability • Process Loop Tuning*
1215 – 1230	*Break*
1230 – 1420	***Practical Session # 1***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Instrumentation in Hazardous Areas*** *Hazardous Area Classifications*
0930 – 0945	*Break*
0945 – 1100	***Instrumentation in Hazardous Areas (cont'd)*** *Enclosure Classification Designations*
1100 – 1215	***Instrumentation in Hazardous Areas (cont'd)*** *Intrinsically Safe Design*
1215 – 1230	*Break*
1230 – 1420	***Practical Session # 2***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*
0830 – 0930	*Discrete-State Process Control* *Definition of Discrete-State Control • Characteristic if the System*
0930 – 0945	*Break*
0945 – 1100	*Discrete-State Process Control (cont'd)* *Relay Controllers & Ladder Diagrams • Programmable Logic Controllers (PLCS)*
1100 – 1215	*Control-loop Characteristics* *Control System Configurations • Multivariable Control Systems • Control System Quality • Stability • Process Loop Tuning*
1215 – 1230	*Break*
1230 – 1420	*Practical Session # 1*
1420 – 1430	*Recap*
1430	*Lunch & End of Day One*

Day 3

0730 – 0930	***Types & Features of Instrument Devices***
0930 – 0945	*Break*
0945 – 1100	***Calibration for Different Types of Devices***
1100 – 1215	***Calibration for Different Types of Devices (cont'd)***
1215 – 1230	*Break*
1230 – 1420	***Practical Session # 3***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Benchmark for Float (Fluke 55008) – Voltage, Frequency, RTI, Oms & Resistance***
0930 – 0945	*Break*
0945 – 1100	***Benchmark for Deadweight Tester (for pressure)***

1100 – 1215	***Benchmark for BEAMEX (MC5)- Multi-Voltage & Pressure***
1215 – 1230	*Break*
1230 – 1420	***Practical Session # 4***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Controller (PID)- Calibration & General Knowledge*** ***Transmitter (Calibration for Pneumatic System)***
0930 – 0945	*Break*
0945 – 1100	***PLC (Setting & Programming)*** ***Pressure & Tem Controllers***
1100 – 1215	***Practical Session # 5***
1215 – 1230	*Break*
1230 – 1300	***Practical Session # 5 (cont'd)***
1300 – 1315	***Course Conclusion***
1315 – 1415	***COMPETENCY EXAMINATION***
1415 – 1430	*Presentation of Certificates*
1430	*Lunch & End of Course*

Practical Sessions

Theis Practical and highly-interactive course includes real-life case studies and exercises: -

Allen Bradley SLC 500 Simulator

Allen Bradley Micrologix 1000 Simulator (Digital)

Allen Bradley Micrologix 1000 Simulator (Analog)

Allen Bradley SLC 5/03

Allen Bradley WS5610 PLC Simulator PLC5

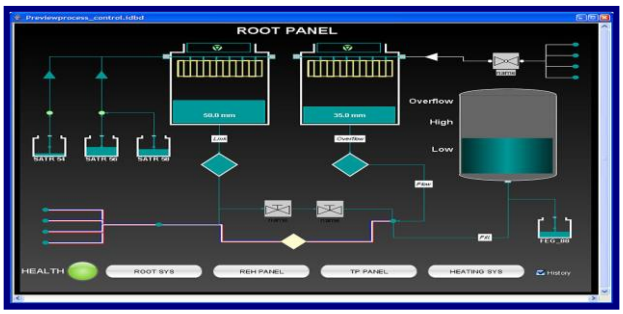
Siemens S7-1200 Simulator

Siemens S7-400 Simulator

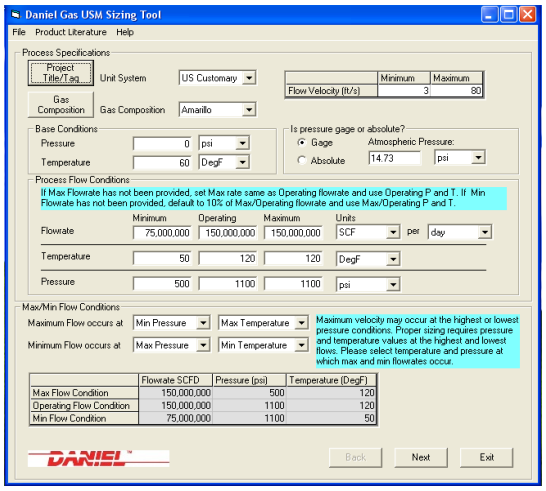
Siemens SIMATIC S7-300

GE Fanuc Series 90-30 PLC Simulator

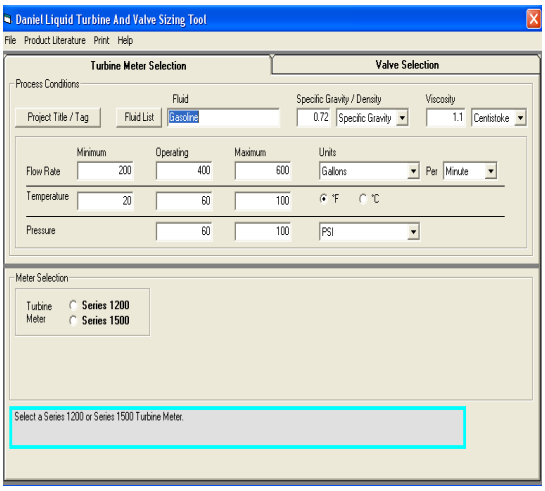
Siemens S7-200 Simulator



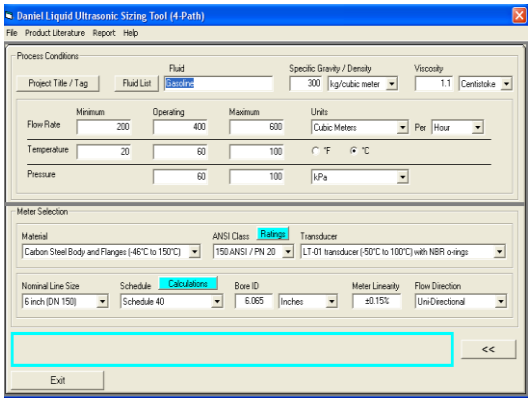
HMI SCADA



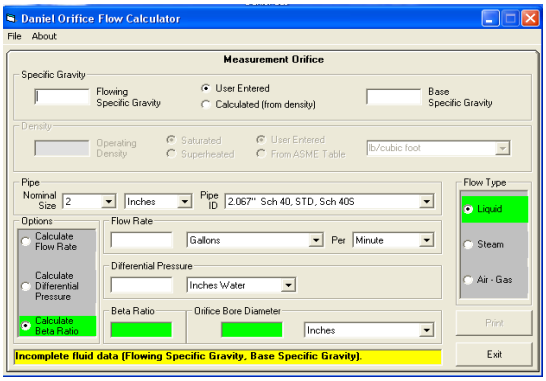
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



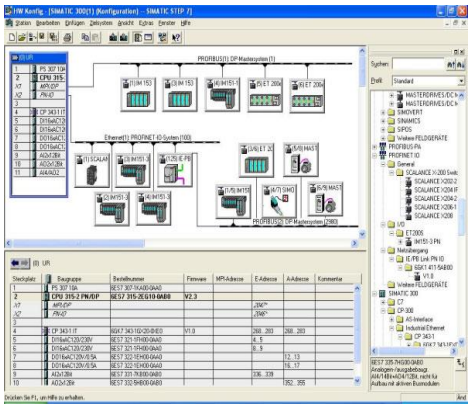
Liquid Turbine Meter and Control Valve Sizing Tool Simulator



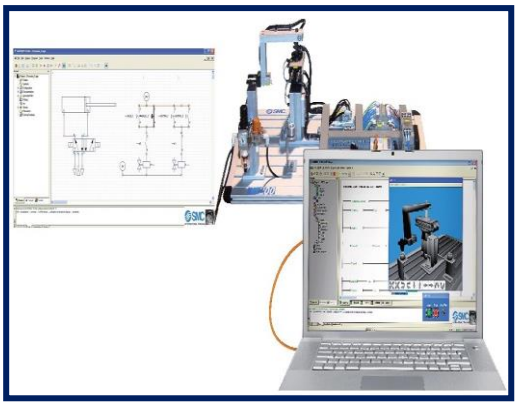
Liquid Ultrasonic Meter Sizing Tool Simulator



Orifice Flow Calculator Simulator



Siemens SIMATIC Step 7 Professional Software



AutoSIM – 200 Automation Simulator

Course Coordinator

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