COURSE OVERVIEW IE0139-4D
Advanced Process Control/Field Device Manager

Course Title
Advanced Process Control/Field Device Manager

Course Date/Venue
February 02-05, 2026/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
IE0139-4D

Course Duration/Credits
Four days/2.4 CEUs/24 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 APC/FDM course covers the practical application of Advanced Process Control (APC) or Field Device Manager (FDM) systems to a variety of continuous process plants. The course discuss automation and its importance, types of plants and controls, automation hierarchy, control system architecture, instrumentation and control, different types of computer-based control systems including PLCS and DCS. Basic requirements for good operator interface, industrial communication, information interchange, man-machine communication, enterprise level, engineering & commissioning, performance & dependability, dependable control systems, safety & hazard analysis, concepts & implementation of alarm & trip systems, device management protocols and Honeywell field device manager (FDM) will be illustrated during the course.

The course will provide hands-on training sessions in PLC and HMI (OIU and SCADA) programming techniques using one of our state-of-the art Allen Bradley SLC 500, Siemens S7-200, AB Micrologix 1000 (Digital or Analog), AB SLC5/03 and AB WS5610 PLC simulators. Please refer to the last page of this course overview for details of simulators.

Course Objectives

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

- Apply and gain a comprehensive knowledge on advanced process control (APC) or field device manager (FDM)
- Explain automation and its importance and identify the various types of plants and controls
- Describe automation hierarchy, control system architecture and control
- Enumerate the different types of computer-based control systems including PLCs and DCSs as well as the basic requirements for good operator interface
- Determine industrial communication, information interchange and man-machine communication
- Recognize enterprise level, engineering, commissioning, performance and dependability
- Carryout dependable control systems, safety and hazard analysis, concepts and implementation of alarm and trip systems
- Discuss device management protocols and Honeywell field device manager (FDM)

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 advanced process control or field device manager for those who are responsible for the selection and implementation of APC or field device manager systems and other process plant control systems. Personnel in technical positions who want to know more about APC or field device manager systems will also benefit from this course.

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

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**. 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 **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.

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 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/ Phisling, **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 Fee

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.

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: ***Monday, 02nd of February 2026***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Automation & Its Importance***
0900 – 0930	***Types of Plants & Controls*** *Continuous Processes ● Discrete Processes ● Mixed Processes*
0930 – 0945	*Break*
0945 – 1230	***Automation Hierarchy***
1230 – 1245	*Break*
1245 – 1420	***Control System Architecture***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 03rd of February 2026***

0730 – 0930	***Instrumentation*** *Binary & Analogue Instruments ● Instrumentation Diagrams ● Measurement Instrumentation for Flow, Level, Temp, Pressure ● Instrument Calibration Concepts ● Final Control Elements (Control Valves,- Actuators, Control Valve Instrumentation)*
0930 – 0945	*Break*
0945 – 1030	***Control*** *Plant Modeling ● Loop Dynamics ● PID Controller ● Various Forms of PID Algorithms ● Optimal Tuning Theory and Calculations ● Transforming Process Operating Information into Controller Tuning ● Identifying Process Dynamics based on DCS Trends and Historical Data ● Nested Controllers ● Impact of Control Valves on Control Loop Performance*
1030 – 1130	***Different Types of Computer-Based Control Systems including PLCs & DCSs as well as Basic Requirements for Good Operator Interface*** *PLCs Functions & Construction ● DCS Attributes & Features ● Continuous & Discrete Control ● IEC 61131 Languages*
1130 - 1230	***Industrial Communication*** *Field Bus Principles ● Field Bus Operation ● Physical Layer (Media & Wiring) ● Link Layer (Determinism & Redundancy) ● Application Layer (Shared Memory & Messages Paradigm)*
1230 – 1245	*Break*

1245 – 1420	***Information Interchange*** *Device Access Protocols: HART ● OPC*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Wednesday, 04th of February 2026***

0730 – 0930	***Man-machine Communication*** *Hardware & Software Structure ● Tools*
0930 – 0945	*Break*
0945 – 1030	***Enterprise Level*** *Enterprise Resource Planning*
1030 – 1130	***Engineering & Commissioning*** *Life Cycle ● Project*
1130 - 1230	***Performance & Dependability*** *Real-Time & Performance Evaluation*
1230 – 1245	*Break*
1245 – 1420	***Dependable Control Systems*** *Dependability, Overview & Definitions ● Dependability Evaluation*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

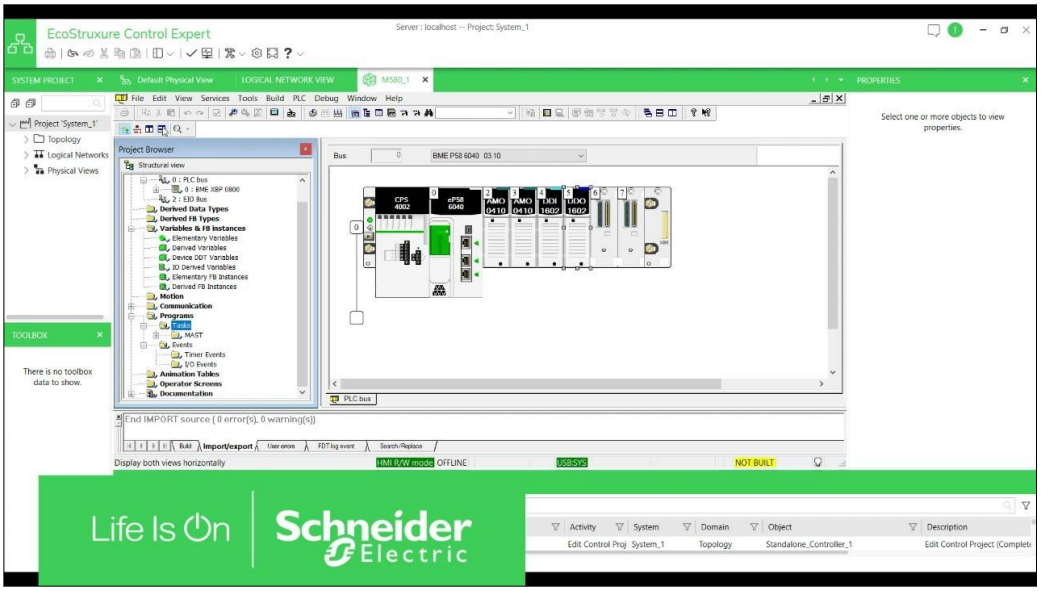
Day 4: ***Thursday, 05th of February 2026***

0730 – 0930	***Safety & Hazard Analysis*** *Fault Tolerance ● Reliability & Safety ● Fault Tolerance*
0930 – 0945	*Break*
0945 – 1100	***Concepts & Implementation of Alarm & Trip Systems***
1100 – 1230	***Device Management Protocols***
1230 – 1245	*Break*
1245 – 1345	***Honeywell Field Device Manager (FDM)***
1345 – 1400	***POST-TEST***
1400 - 1415	***Course Conclusion***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

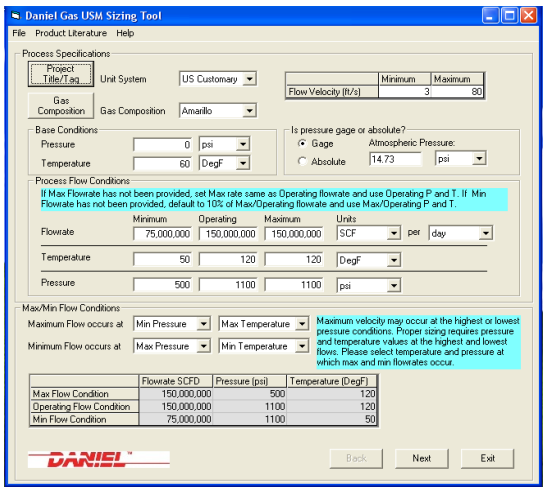
Simulator (Hands-on Practical Sessions)

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 “Modicon M340”, “EcoStruxure Expert Classic”, “Gas Ultrasonic Meter Sizing Tool”, “Liquid Turbine Meter and Control Valve Sizing Tool”, “Liquid Ultrasonic Meter Sizing Tool”, “Orifice Flow Calculator” and “Automation Simulator”.

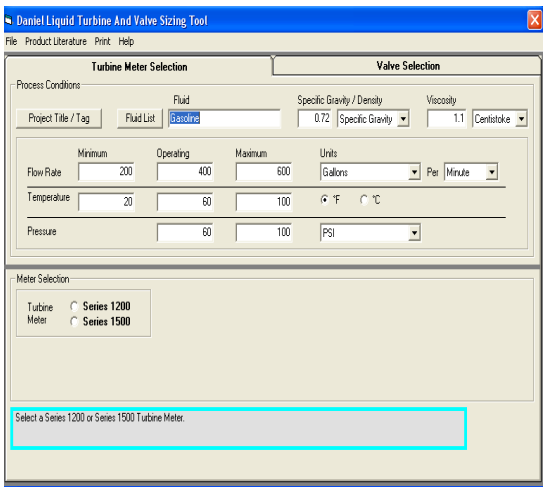
Modicon M340



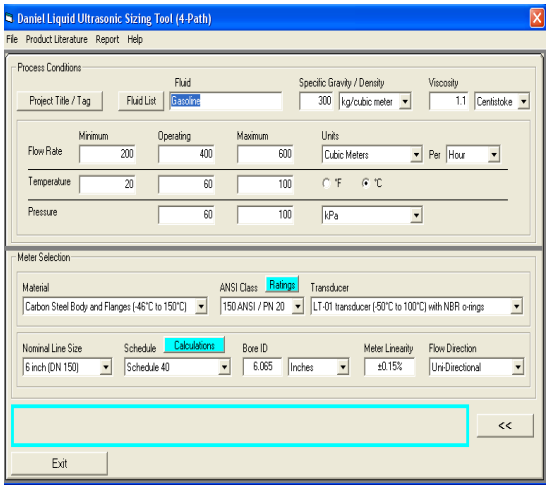
EcoStruxure Expert Classic



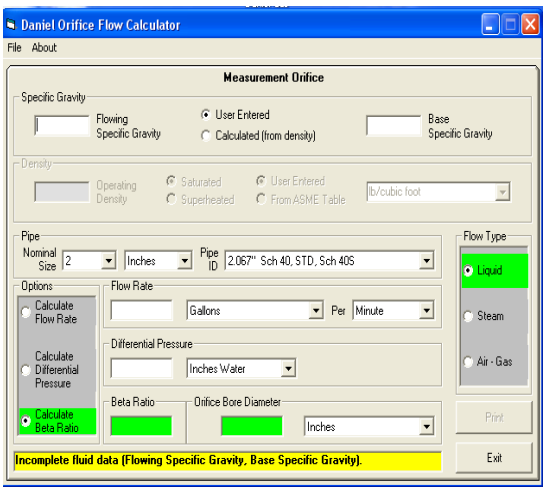
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



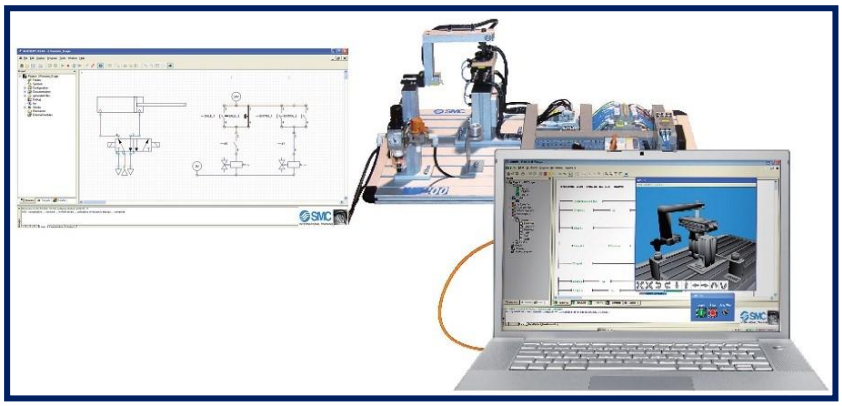
Liquid Turbine Meter and Control Valve Sizing Tool Simulator



Liquid Ultrasonic Meter Sizing Tool Simulator



Orifice Flow Calculator Simulator



AutoSIM – 200 Automation Simulator

Course Coordinator

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