

COURSE OVERVIEW IE0315
Maintain QMI (Analysers and Sample Systems)

Course Title

Maintain QMI (Analysers and Sample Systems)

Course Reference

IE0315

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Date/Venue



Session(s)	Date	Venue
1	April 21-25, 2024	The Kooh Al Noor Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE
2	August 04-08, 2024	Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar
3	October 07-11, 2024	Hampstead Meeting Room, London Marriott Hotel Regents Park, London, United Kingdom
4	December 22-26, 2024	Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey

Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a fundamental overview of Maintain QMI (Analysers & Sample Systems). It covers the QMI analysers and sample systems including the basics of quality measurement instruments (QMI) in the context of process systems; the different types of analysers and their roles in maintaining process quality; the purpose and function of analysers in process systems using process and instrumentation diagrams (P&IDs) and how these instruments integrate into the larger process system; the components of analyser sample systems and their functions and importance in the overall system;



Further, the course will also discuss the procedure on how to obtain, interpret and use relevant drawings and specification data for testing and diagnosing faults in QMI equipment and sample systems; and the safety protocols and isolation techniques focusing on how to safely isolate and depressurize analysers in preparation for maintenance activities.



During this interactive course, participants will learn the routine maintenance procedures covering standard maintenance protocols for QMI analysers and sample systems including scheduled checks and cleaning processes; the advanced troubleshooting techniques and methods for identifying and rectifying common issues in analyser systems; the calibration and validation analysers; the techniques and best practices for calibrating analysers to ensure accuracy and reliability; the performance testing and analysis and how to conduct performance tests on QMI equipment; and interpreting results to assess system health and efficiency.

Course Objectives

At the end of this course, the trainee will be able to:-

- Apply and gain a fundamental knowledge on maintenance of QMI (Analysers & Sample Systems)
- Explain the purpose of analysers in the process system using P&IDs
- Explain the functions of the individual components of analyser sample systems
- Obtain, interpret and use relevant drawings and specifications data for testing and fault diagnosis of QMI (Analyser Equipment and Sample Systems) to be tested or maintained
- Perform isolation and depressurization of analysers in preparation for maintenance activities
- Discuss QMI analysers and sample systems covering the basics of quality measurement instruments (QMI) in the context of process systems as well as identify different types of analysers and their roles in maintaining process quality
- Determine the purpose and function of analysers in process systems using process and instrumentation diagrams (P&IDs) and explain how these instruments integrate into the larger process system
- Identify the components of analyser sample systems and explain their functions and importance in the overall system
- Obtain, interpret and use relevant drawings and specification data for testing and diagnosing faults in QMI equipment and sample systems
- Carryout safety protocols and isolation techniques focusing on how to safely isolate and depressurize analysers in preparation for maintenance activities
- Implement routine maintenance procedures covering standard maintenance protocols for QMI analysers and sample systems including scheduled checks and cleaning processes
- Apply advanced troubleshooting techniques and methods for identifying and rectifying common issues in analyser systems
- Calibrate and validate analysers as well as carryout techniques and best practices for calibrating analysers to ensure accuracy and reliability
- Carryout performance testing and analysis and conduct performance tests on QMI equipment and interpret results to assess system health and efficiency

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 basic overview of maintenance of QMI (Analysers & Sample Systems) for all personnel who operate and maintain quality measurement instruments (QMI) as well as those who have use the results. This includes plant instrumentation engineers, maintenance engineers, lab managers, plant chemists, maintenance supervisors and technicians.

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 Fee

Dubai	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.
Doha	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.
London	US\$ 8,800 per Delegate + VAT . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	US\$ 6,000 per Delegate + VAT . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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 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:



Dr. Ahmed El-Sayed, PhD, MSc, BSc, is a **Senior Electrical & Instrumentation Engineer** with over **35 years** of extensive experience in the **Oil, Gas, Power, Petroleum, Petrochemical and Utilities**. He specializes in **P&ID Reading & Interpretation, Engineering Drawings, Electrical Drawing & Schematics, Electrical Drawing & Wiring**, Developing & Revising **Engineering Drawing, Piping & Instrument Drawing** Reading, **Electrical & Instrument Drawings, Relay Design & Maintenance, Relay Programming, Relay Construction & Functions, Protective Relaying, Relay Coordination, Siemens Protection Relays, Power System Protection Relays & Hardware, Electrical Power System Protection Relays, Electrical Faults & Relay Protection, ABB Relay REG 216, Fault Calculation Relay, Modern Power System Protective Relaying, Power System Study on ETAP, ETAP-Power System Analysis, Flow Measurement Foundation, Hydrocarbon Measurement & Sampling, Gas Dosiers Preparation, Gas/Liquid Fuel Measurement, Instrumentation Measurement & Control System, Flow Measurement, Pressure Measurement, Level & Temperature Measurement, Measurement Devices & Control System, Instrumentation & Control Systems, Control System Orientation, Uninterruptible Power Supply (UPS) Battery Charger, Industrial UPS Systems Construction & Operation, Test Lead-Acid & Ni-cad Battery Systems, Hazards & Safe Work Practices, Transformer Operational Principles, Selection & Troubleshooting; HV & LV Transformers, Control Valves & Actuators, Electrical Safety, Protection Relay Application, Power Systems Security, Power Electronics, Electrical Substations, UPS & Battery System, Earthing & Grounding, Power Generation, Protective Systems, Electrical Generators, Power & Distribution Transformers, Electrical Motors, Switchgears, Transformers, AC & DC Drives, Variable Speed Drives & Generators, Generator Protection, GE Gas Turbines, PLC, SCADA, DCS, Process Control, Control Systems & Data Communications, Instrumentation, Automation, Valve Tuning, SIS, SIL, ESD, Alarm Management Systems, Engine Management System, Bearing & Rotating Machine, Fieldbus Systems and Fiber Optics Technology. He is currently the **Systems Control Manager** of **Siemens** where he is in-charge of Security & Control of **Power Transmission Distribution & High Voltage** Systems and he further takes part in the Load Records Evaluation & Transmission Services Pricing.**

During his career life, Dr. Ahmed has been actively involved in different Power System Activities including Roles in Power System Planning, Analysis, Engineering, **HV Substation** Design, Electrical Service Pricing, Evaluations & Tariffs, Project Management, Teaching and Consulting. His vast industrial experience was honed greatly when he joined many International and National Companies such as **Siemens, Electricity Authority** and **ACETO** industries as the **Instrumentation & Electrical Service Project Manager, Instrumentation & Control Engineer, Energy Management Engineer, Department Head, Assistant Professor, Instrumentation & Control Instructor, Project Coordinator, Project Assistant and Managing Board Member** where he focused more on dealing with Technology Transfer, System Integration Process and Improving Localization. He was further greatly involved in manufacturing some of **Power System** and **Control & Instrumentation Components** such as Series of Digital Protection Relays, MV VFD, PLC and SCADA System with intelligent features.

Dr. Ahmed is well-versed in different electrical and instrumentation fields like **ETAP**, Load Management Concepts, **PLC** Programming, Installation, Operation and Troubleshooting, **AC Drives** Theory, Application and Troubleshooting, Industrial Power Systems Analysis, AC & DC **Motors**, Electric Motor **Protection, DCS SCADA, Control** and Maintenance Techniques, Industrial Intelligent Control System, **Power Quality** Standards, Power Generators and Voltage Regulators, Circuit Breaker and Switchgear Application and Testing Techniques, **Transformer** and **Switchgear** Application, Grounding for Industrial and Commercial Assets, Power Quality and **Harmonics, Protective Relays** (O/C Protection, Line Differential, Bus Bar Protection and **Breaker Failure Relay**) and Project Management Basics (PMB).

Dr. Ahmed has **PhD, Master & Bachelor** degrees in **Electrical Engineering** from the **University of Wisconsin Madison, USA** and **Ain Shams University**, respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/ Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, an active member of **IEEE** and **ISA** as well as numerous technical and scientific papers published internationally in the areas of Power Quality, Superconductive Magnetic Energy Storage, SMES role in Power Systems, Power System **Blackout** Analysis, and Intelligent Load Shedding Techniques for preventing Power System Blackouts, **HV Substation Automation** and Power System Stability. He has further delivered numerous trainings, seminars, courses, workshops and conferences internationally.



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	Introduction to QMI Analysers & Sample Systems: The Basics of Quality Measurement Instruments (QMI) in the Context of Process Systems. This will include an Overview of Different Types of Analysers and their Roles in Maintaining Process Quality
0930 – 0945	Break
0945 – 1030	Purpose & Function of Analysers in Process Systems: The Purpose of Analysers using Process and Instrumentation Diagrams (P&IDs). This will help in Understanding How these Instruments Integrate into the Larger Process System
1030 – 1230	Purpose & Function of Analysers in Process Systems: The Purpose of Analysers using Process and Instrumentation Diagrams (P&IDs). This will help in Understanding How these Instruments Integrate into the Larger Process System (cont'd)
1230 – 1245	Break
1245 – 1420	Purpose & Function of Analysers in Process Systems: The Purpose of Analysers using Process and Instrumentation Diagrams (P&IDs). This will help in Understanding How these Instruments Integrate into the Larger Process System (cont'd)
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	Components of Analyser Sample Systems: The Individual Components of Analyser Sample Systems, Explaining their Functions and Importance in the Overall System
0930 – 0945	Break
0945 – 1100	Components of Analyser Sample Systems: The Individual Components of Analyser Sample Systems, Explaining their Functions and Importance in the Overall System (cont'd)
1100 – 1230	Interpreting Drawings & Specifications: Obtaining, Interpreting and Using Relevant Drawings and Specification Data. This is crucial for Testing and Diagnosing Faults in QMI Equipment and Sample Systems
1230 – 1245	Break
1245 – 1420	Interpreting Drawings & Specifications: Obtaining, Interpreting and Using Relevant Drawings and Specification Data. This is crucial for Testing and Diagnosing Faults in QMI Equipment and Sample Systems (cont'd)
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 Two





Day 3

0730 – 0930	Safety Protocols & Isolation Techniques: Necessary Safety Protocols, Focusing on How to Safely Isolate and Depressurize Analysers in Preparation for Maintenance Activities
0930 – 0945	Break
0945 – 1100	Safety Protocols & Isolation Techniques: Necessary Safety Protocols, Focusing on How to Safely Isolate and Depressurize Analysers in Preparation for Maintenance Activities (cont'd)
1100 – 1230	Routine Maintenance Procedures: Standard Maintenance Protocols for QMI Analysers and Sample Systems including Scheduled Checks and Cleaning Processes
1230 – 1245	Break
1245 – 1420	Routine Maintenance Procedures: Standard Maintenance Protocols for QMI Analysers and Sample Systems including Scheduled Checks and Cleaning Processes (cont'd)
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 Three

Day 4

0730 – 0930	Advanced Troubleshooting Techniques: Advanced Methods for Identifying and Rectifying Common Issues in Analyser Systems
0930 – 0945	Break
0945 – 1100	Advanced Troubleshooting Techniques: Advanced Methods for Identifying and Rectifying Common Issues in Analyser Systems (cont'd)
1100 – 1230	Calibration & Validation of Analysers: Techniques and Best Practices for Calibrating Analysers to Ensure Accuracy and Reliability
1230 – 1245	Break
1245 – 1420	Calibration & Validation of Analysers: Techniques and Best Practices for Calibrating Analysers to Ensure Accuracy and Reliability (cont'd)
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 Four

Day 5

0730 – 0930	Case Studies: Real-World Applications: Analyzing Real-World Scenarios Where QMI Analysers and Sample Systems Have Played a Critical Role, Discussing Lessons Learned and Best Practices
0930 – 0945	Break
0945 – 1100	Case Studies: Real-World Applications: Analyzing Real-World Scenarios Where QMI Analysers and Sample Systems Have Played a Critical Role, Discussing Lessons Learned and Best Practices (cont'd)
1100 – 1230	Performance Testing & Analysis: How to Conduct Performance Tests on QMI Equipment, Interpreting Results to Assess System Health and Efficiency



1230 – 1245	Break
1245 – 1345	Performance Testing & Analysis: How to Conduct Performance Tests on QMI Equipment, Interpreting Results to Assess System Health and Efficiency (cont'd)
1345 – 1400	Course Conclusion Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org