COURSE OVERVIEW IE0895
Analyzer Shelter Safety System Design

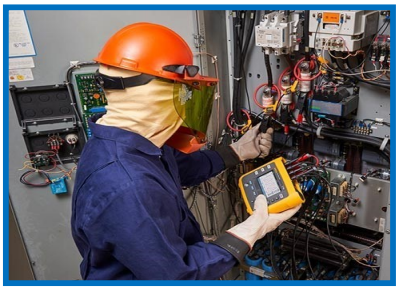
Course Title
Analyzer Shelter Safety System Design

Course Date/Venue
Session 1: April 21-25, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: October 19-23, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
IE0895

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

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.

With the advancement in computer applications and electronics, analyzers have gained popularity in recent years. They have taken the spot sampling capability of a laboratory and converted into a continuous sampling system. With continuous sampling, the process variable is being analyzed on a continuous basis with a much faster update time. Faster update time has given the analyzer the ability to be used for control purposes.

This course is designed to provide participants with a detailed and up-to-date overview of process analyzer system engineering. It covers how analyzer systems are selected and their installation and maintenance. Participants will learn how a sample is conditioned so the analyzer will give a representative reading of the component that is of interest in the process. Time will also be spent on the main types of analyzers that are commonly used in industry.

Further, the course will also discuss the basic chemistry and how this applies to process analyzers; the oxygen in gas measurement theory, flame ionization detector theory, infrared measurement theory and UV measurement theory; the analyzers sensors, sample systems, components of an analyzer sampling system, physical limitations of a sampling system, compatibility of sampling system with analyzer and characteristics; and the characteristics of analyzer sampling systems.

During this interactive course, participants will learn the types of analyzers covering conductivity, pH, optical analyzers, combustion analyzers and gas chromatography; the basic gas chromatography fundamentals to capture good knowledge of GC and GC overview; selecting analyzer systems and analyzing instrumentation problems and key issues; troubleshooting approach and best practices; and the installation and maintenance of analyzer systems.

Course Objectives

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

- Apply and gain a comprehensive knowledge on process analyzer system engineering
- Discuss analyzer systems including the basic chemistry and how this applies to process analyzers
- Explain oxygen in gas measurement theory, flame ionization detector theory, infrared measurement theory and UV measurement theory
- Recognize analyzers sensors, sample system, components of an analyzer sampling system, physical limitations of a sampling system, compatibility of sampling system with analyzer and the characteristics of analyzer sampling systems
- Identify the types of analyzers covering conductivity, pH, optical analyzers, combustion analyzers and gas chromatography
- Explain the basic gas chromatography fundamentals to capture good knowledge of GC and GC overview – hardware and software system
- Select analyzer systems and analyze instrumentation problems and key issues
- Carryout troubleshooting approach and best practices as well as installing and maintaining analyzer systems

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 process analyzer system engineering for any person who will be working on a daily basis with the process analyzer system such as analyzer project engineers, analyzer maintenance engineers, analyzer technicians, analyzer technical support engineers.

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:-

- 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 **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.

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. Dirk Horst is a **Senior Control & Instrumentation Engineer** with over **30 years** of extensive experience in **QMI** (**Quality Measuring Instruments**), **Process Analyzers**, **Crude Metering System**, **Analytical Instrumentation**, **Process Control & Instrumentation**, **On and Off-Line Gas Chromatography**, **Measuring Instruments**, **Calibrating Instruments**, **LNG Custody Transfer Analysis**, **ISO Standards**, Natural Gas Determination of Composition and Associated Uncertainty by Gas Chromatography (**ISO 6974**), **Quality Assurance Monitoring System** and **In-Line Gasoline Blending System**. He is **Certified Instrument Trainer**, **Competence Assessor** and **Internal Verifier**.

Mr. Horst has performed significant contributions in various industries for handling challenging positions such as an **Engineering Trainer & Consultant**, **Process Analyzer Engineer**, **Instrument Engineer**, **Maintenance Engineer**, **Design Engineer**, **Start-Up & Commissioning Engineer**, **Senior Advisor Quality Measuring Instruments**, **Senior Analytical Chemist** and **Team Leader**. He has imparted his practical experience and in-depth knowledge in different international companies including **Shell Refinery**, **Shell Global Solutions**, **SIOP-Shell**, **Yokogawa LNG**, **QMI**, **Harburg Refinery**, **Nigeria LNG**, **Sakhalin LNG**, **SRTCA**, **Reliance Petroleum Refinery** and many more.

Mr. Horst has a **Bachelor** degree in **Instrumentation & Electrical Engineering** from the **Royal Institute of the Netherlands**. Further, he is "**Qualified Internal Verifier**" and a "**Certified Competence Assessor**", a **Certified Instructor/Trainer** and has certifications in "**Coaching**" from the **City & Guilds** as well as "**Flow Metering**" and "**Gas Chromatography Troubleshooting**" from the **Technical University Delft**, **The Netherlands**.

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

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.

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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Analyzer System***
0930 – 0945	*Break*
0945 – 1100	***Basic Chemistry Overview & How This Applies to Process Analyzers*** *Oxygen in Gas Measurement Theory • Flame Ionization Detector Theory*
1100 – 1230	***Basic Chemistry Overview & How This Applies to Process Analyzers (cont'd)*** *Infrared Measurement Theory • UV Measurement Theory*
1230 – 1245	*Break*
1245 – 1420	***Analyzers Sensors***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2:

0730 – 0930	***Sample System Overview*** *Components of an Analyzer Sampling System • Physical Limitations of a Sampling System*
0930 – 0945	*Break*
0945 – 1100	***Sample System Overview (cont'd)*** *Compatibility of Sampling System with the Analyzer • Characteristics of Analyzer Sampling Systems*
1100 – 1230	***Types of Analyzers*** *Conductivity & pH • Optical Analyzers*
1230 – 1245	*Break*
1245 – 1420	***Types of Analyzers (cont'd)*** *Combustion Analyzers • Gas Chromatography*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Basic Gas Chromatography Fundamentals to Capture Good Knowledge of GC***
0930 – 0945	*Break*
0945 – 1100	***Basic Gas Chromatography Fundamentals to Capture Good Knowledge of GC (cont'd)***

1100 – 1215	***GC Overview – Hardware & Software System***
1215 – 1230	*Break*
1230 – 1420	***GC Overview – Hardware & Software System (Cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

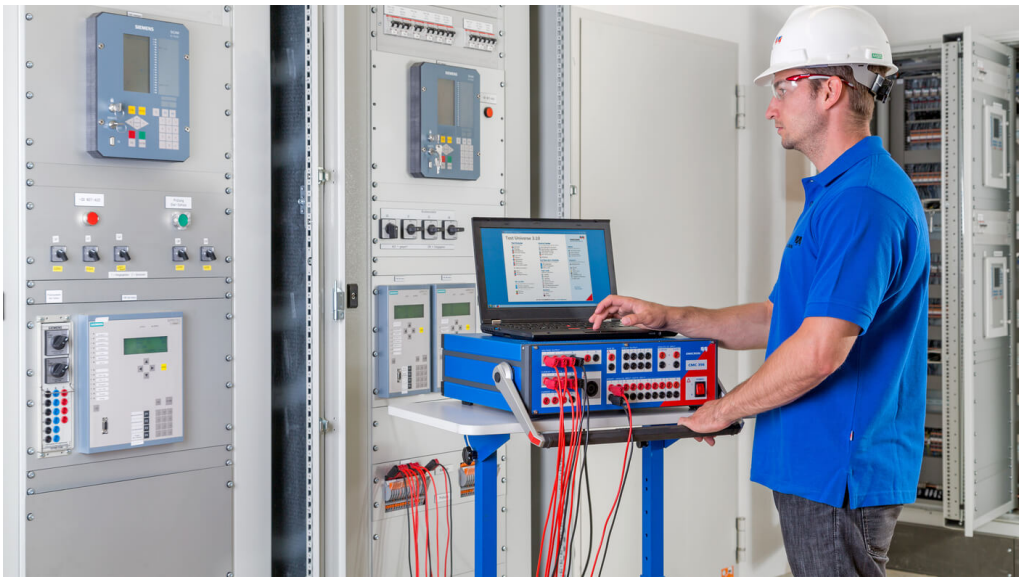
0730 – 0930	***Selecting Analyzer Systems***
0930 – 0945	*Break*
0945 – 1100	***Selecting Analyzer Systems (cont'd)***
1100 – 1215	***Analyzing Instrumentation Problems*** *Troubleshooting Approach • Key Issues*
1215 – 1230	*Break*
1230 – 1420	***Analyzing Instrumentation Problems (cont'd)*** *Best Practices*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Installing & Maintaining Analyzer Systems***
0930 – 0945	*Break*
0945 – 1100	***Installing & Maintaining Analyzer Systems (cont'd)***
1100 – 1215	***Installing & Maintaining Analyzer Systems (cont'd)***
1215 – 1230	*Break*
1230 – 1345	***Installing & Maintaining Analyzer Systems (cont'd)***
1345 – 1400	***Course Conclusion***
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

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