

COURSE OVERVIEW TE0254

Water Treatment Process Operations, Process Upsets, Troubleshooting & Optimization, Plant & Equipment Integrity & Technical Drawings, Documents & Information Management Systems

Course Title

Water Treatment Process Operations, Process Upsets, Troubleshooting & Optimization, Plant & Equipment Integrity & Technical Drawings, Documents & Information Management Systems



Course Date/Venue

December 15-19, 2024/TBA Meeting Room, City Centre Rotana Doha, Doha, Qatar

Course Reference

TE0254



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



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



This course is designed to provide participants with a detailed and advanced overview of Water Treatment Process Operations, Process Upsets, Troubleshooting and Optimization, Plant and Equipment Integrity and Technical Drawings, Documents and Information Management Systems. It covers the water treatment process operations and the types of water treatment processes; the water quality standards, compliance, regulatory frameworks and guidelines; the safety protocols and procedures to secure safety in water treatment operations; the types and functionalities of water treatment equipment; and the different water sources, its characteristics and impacts on treatment.



Further, the course will also discuss the common process upsets and symptoms of process failures; the troubleshooting techniques and systematic approach to problem solving, process control and monitoring; the proper chemical dosing adjustments and managing chemical imbalances; the biological process upsets and solutions to address issues in biological treatment; and the emergency response and contingency plan in preparation for unforeseen events.

During this interactive course, participants will learn the optimization of water treatment processes; the strategies to reduce energy consumption and balancing cost of chemical usage in water treatment; the advancements in water treatment technology; the methods and benefits of water reuse and recycling; the data analysis for process improvement; the preventive and predictive maintenance strategies for water treatment equipment; the causes, effects and prevention of corrosion and scaling in equipment; the asset management and life cycle analysis in maximizing equipment life and values; the accuracy and reliability of instrumentation and control systems; the pipeline and storage tank integrity in adherence to HSE standards; the technical drawings and schematics as well as the proper management of technical documents; and the information management systems, GIS and remote sensing in water treatment.

Course Objectives

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

- Apply and gain an in-depth knowledge on water treatment process operations, process upsets, troubleshooting and optimization, plant and equipment integrity and technical drawings, documents and information management systems
- Discuss water treatment process operations and the types of water treatment processes
- Recognize water quality standards, compliance as well as regulators frameworks and guidelines
- Carryout safety protocols and procedures to secure safety in water treatment operations
- Enumerate the water treatment equipment comprising of its types and functionalities
- Determine different water sources and its characteristics and impacts on treatment
- Identify common process upsets and recognize symptoms of process failures
- Employ troubleshooting techniques and systematic approach to problem solving, process control and monitoring by using control systems for efficient operation
- Demonstrate proper chemical dosing adjustments and managing chemical imbalances
- Describe biological process upsets and solutions to address issues in biological treatment
- Develop an emergency response and contingency plan in preparation for unforeseen events
- Discuss the optimization of water treatment processes as well as apply strategies to reduce energy consumption and balancing cost of chemical usage in water treatment
- Explore advancements in water treatment technology and carryout the methods and benefits of water reuse and recycling as well as data analysis for process improvement
- Apply preventive and predictive maintenance strategies for water treatment equipment and identify the causes, effects and prevention of corrosion and scaling in equipment

- Describe asset management and life cycle analysis in maximizing equipment life and value as well as identify accuracy and reliability of instrumentation and control systems
- Maintain and inspect pipeline and storage tank integrity ensuring its adherence to HSE standards
- Interpret technical drawings and schematics as well as manage technical documents effectively
- Apply information management systems, GIS and remote sensing in water treatment as well as prepare and manage compliance documentation and reporting

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 water treatment process operations, process upsets, troubleshooting and optimization, plant and equipment integrity and technical drawings, documents and information management systems for water controller and other technical staff.

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\$ 6,000 per Delegate. 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 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: -


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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.

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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:



Mr. Andrew Ladwig is a **Senior Water Engineer** with over **25 years** of extensive experience within the **Oil & Gas, Refinery, Petrochemical, Power & Water Utilities** and other **Energy** sectors. His expertise widely covers in the areas of **Dismantling & Installing Membranes**, Operation, Maintenance Optimization & Troubleshooting of Flat Sheets **Membrane System, Membrane Unit** Operation & Troubleshooting, Industrial **Membranes** Separations, **Membranes Desalination, Water Chemistry for Power Plant, Water Sector** Orientation, Environmental Impact Assessment (**EIA**), **Potable Water, Reverse Osmosis** Treatment Technology and **Chlorination** System, **Well** Inventory,

Monitoring & Conservation, **Qualitative Analysis** of Soil & Ground Water, **Water** Networking, **Hydraulic Modelling** Systems, **Pumping** Stations, **Centrifugal Pumps, Pipelines & Pumping, Water Reservoirs, Water Storage Tanks**, Extended Activated **Sludge** Treatment, **Sewage & Industrial Wastewater** Treatment & Environmental Protection, Supervising & Monitoring **Sewage Works, Water Desalination** Technologies, **Water Distribution & Pump** Station, Best **Water Equipment** Selection & Inspection, **Hydraulic Modelling** for Water Network Design, **Water Utility** Industry, **Water Desalination** Technologies & New Development, **Water Hydrology, Water Pipes & Fittings, Water Hydraulic** Modelling, **Water Storage Reservoir, Reservoirs & Pumping** Stations Design & Operation and **Pumping** Systems. Further, he is also well-versed in **Ammonia Manufacturing & Process Troubleshooting, Ammonia Storage & Loading** Systems, **Ammonia Plant** Operation, Troubleshooting & Optimization, **Ammonia Recovery, Ammonia Plant Safety**, Hazard of **Ammonia Handling**, Storage & Shipping, **Operational Excellence in Ammonia Plants, Fertilizer Storage** Management (Ammonia & Urea), **Fertilizer Manufacturing** Process Technology, **Sulphur Recovery**, Phenol Recovery & Extraction, **Wax Sweating & Blending, Petrochemical & Fertilizer** Plants, **Nitrogen Fertilizer** Production, **Petroleum Industry Process** Engineering, **Separators** in Oil & Gas Industry, **Gas Testing & Energy** Isolations, Gas Liquor Separation, **Industrial Liquid Mixing, Wax Bleachers, Extractors, Fractionation**, Operation & Control of **Distillation**, Process of **Crude ATM & Vacuum Distillation** Unit, **Water Purification, Steam & Electricity, Flame Arrestors, Coal Processing, Environmental Emission Control**, R&D of **Wax Blending, Wax Molding/Slabbing, Industrial Drying**, Principles, Selection & Design, Certified **Process Plant Operations**, Control & Troubleshooting, **Operator Responsibilities, Storage Tanks Operations & Measurements, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Performance, Efficiency & Optimization, Continuous Improvement & Benchmarking, Process Troubleshooting** Techniques, Oil & Gas Operation/Introduction to **Surface Facilities, Pressure Vessel** Operation, **Process Equipment** Performance & Troubleshooting, **Plant Startup & Shutdown, Startup & Shutdown** the Plant While Handling Abnormal Conditions, **Process Gas Plant** Start-up, Commissioning & Problem Solving, **Process Liquid, Process Handling & Measuring** Equipment, **Steam Trap** Design, Operation, Maintenance & Troubleshooting, **Steam Trapping & Control, Column, Pump & Exchangers**, Troubleshooting & Design, Rotating Equipment Operation & Troubleshooting, **Control & ESD** System, Root Cause Analysis (**RCA**), **Dangerous Goods, Production Optimization**, Permit to Work (**PTW**), Project Engineering, Data Analysis, **HAZOP** Study, Sampling & Analysis, **Job Analysis** Techniques, **Hazardous Material** Classification & Storage/Disposal, **Risk** Monitoring Authorized Gas Tester (**AGT**), Confined Space Entry (**CSE**), **Process Hazard** Analysis (**PHA**), Personal Protective Equipment (**PPE**), Fire & Gas, First Aid and Occupational Health & Safety.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Warehouse Manager, Quality Manager, Business Analyst, Water Engineer, Process Engineer, HSE Supervisor, Senior Process Controller, Process Controller, Safety Officer, Senior Lecturer** and **Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig is a **Registered SAQA Qualification (NQF Level 4)** in **Chemical Operations**. Further, he is a **Certified Multi-Skilled** in **Instrumentation** and **Mechanical Engineering**, a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)** and has delivered various trainings, workshops, seminars, courses 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 workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: Introduction to Water Treatment Process Operations

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Fundamentals of Water Treatment: Understanding the Basics
0930 – 0945	Break
0945 – 1030	Types of Water Treatment Processes: Overview of Physical, Chemical & Biological Processes
1030 – 1130	Water Quality Standards & Compliance: Regulatory Frameworks & Guidelines
1130 – 1215	Safety in Water Treatment Operations: Essential Safety Protocols & Procedures
1215 – 1230	Break
1230 – 1330	Introduction to Water Treatment Equipment: Types & Functionalities
1330 – 1420	Water Source & Its Characteristics: Understanding Different Water Sources & their Impacts on Treatment
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Process Upsets & Troubleshooting

0730 – 0830	Identifying Common Process Upsets: Recognizing Symptoms of Process Failures
0830 – 0930	Troubleshooting Techniques: Systematic Approach to Problem-Solving
0930 – 0945	Break
0945 – 1100	Process Control & Monitoring: Using Control Systems for Efficient Operation
1100 – 1215	Chemical Dosing Adjustments: Managing Chemical Imbalances
1215 – 1230	Break
1230 – 1330	Biological Process Upsets & Solutions: Addressing Issues in Biological Treatment
1330 – 1420	Emergency Response & Contingency Planning: Preparing for Unforeseen Events
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Optimization of Water Treatment Processes

0730 – 0830	Energy Efficiency in Water Treatment: Strategies to Reduce Energy Consumption
0830 – 0930	Optimizing Chemical Usage: Balancing Cost & Effectiveness
0930 – 0945	Break
0945 – 1100	Advancements in Water Treatment Technology: Exploring Innovative Solutions
1100 – 1215	Water Reuse & Recycling: Methods & Benefits
1215 – 1230	Break
1230 – 1330	Data Analysis for Process Improvement: Utilizing Data for Better Decision-Making
1330 – 1420	Case Studies of Successful Process Optimization: Learning from Real-World Examples
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Plant & Equipment Integrity

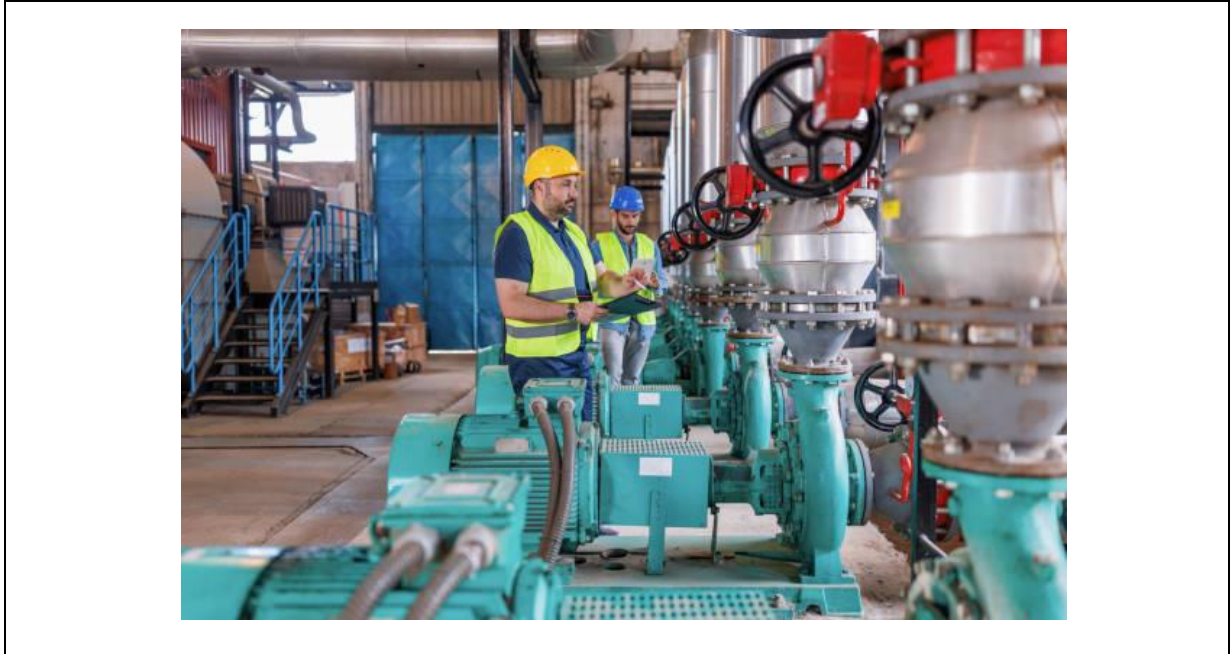
0730 – 0830	Maintenance Strategies for Water Treatment Equipment: Preventive & Predictive Maintenance
0830 – 0930	Corrosion & Scaling in Equipment: Causes, Effects & Prevention
0930 – 0945	Break
0945 – 1100	Asset Management & Life Cycle Analysis: Maximizing Equipment Life & Value
1100 – 1215	Instrumentation & Control Systems Integrity: Ensuring Accuracy & Reliability
1215 – 1230	Break
1230 – 1330	Pipeline & Storage Tank Integrity: Maintenance & Inspection
1330 – 1420	Health, Safety & Environmental Compliance: Ensuring Adherence to HSE Standards
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Technical Drawings, Documents & Information Management Systems

0730 – 0830	Interpreting Technical Drawings & Schematics: Understanding Blueprints of Water Treatment Plants
0830 – 0930	Document Management in Water Treatment Operations: Effective Handling of Technical Documents
0930 – 0945	Break
0945 – 1030	Using Information Management Systems: Leveraging Technology for Data Management
1030 – 1130	GIS & Remote Sensing in Water Treatment: Applications in Monitoring & Management
1130 – 1230	Compliance Documentation & Reporting: Preparing & Managing Regulatory Documents
1230 – 1245	Break
1245 – 1345	Knowledge Sharing & Best Practices: Importance of Information Exchange & Continuous Learning
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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