

**COURSE OVERVIEW TE0254**

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

**Course Title**

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

**Course Reference**

TE0254

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs



**Course Date/Venue**

Session(s)	Date	Venue
1	October 13-17, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
2	December 15-19, 2024	Boardroom, Warwick Hotel Doha, Doha, Qatar

**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**

Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	<b>US\$ 6,000</b> 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. Kyle Bester** is a **Senior Water Engineer** with extensive years of practical experience within the **Oil & Gas, Power & Water Utilities** and other **Energy** sectors. His expertise includes **Water Reservoir, Water Tanks, Water Pumping Station, Water Distribution System, Water Network System, Water Pipes & Fittings, Water Hydraulic Modelling, Water Storage Reservoir, Reservoirs & Pumping Stations Design & Operation, Pumping Systems, Interconnecting Pipelines, Water Network Hydraulic Simulation Modelling, Water Supply Design, Water**

**Balance Modelling, Water Distribution Network, Water Network System Analysis, Water Forecasts Demand, Water Pipelines Materials & Fittings, Water Network System Design, Pump Houses & Booster Pumping Stations, Potable Water Transmission, Water Distribution Network, Districts Meters Areas (DMAs), Water Supply & Desalination Plants Rehabilitation, Water Reservoirs & Pumping Stations, Water Network System Extension, Water Network System Replacement & Upgrade, Water Networks Optimization, Water Supply & Distribution Systems Efficiency & Effectiveness, Pipe Materials & Fittings, Service Reservoir Design & Operation, Pipes & Fittings, Water Network System Design & Operation, Supply Water Network Rehabilitation, Water Loss Reduction, Main Water System Construction, Main Water Line Construction, Transmission & Distribution Pipelines, Water Distribution Design & Modelling, Water Supply System, Oilfield Water Treatment, Best Practice in Sewage & Industrial Wastewater Treatment & Environmental Protection, Water Distribution Design & Modelling, Desilting, Treating & Handling Oily Water, 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 Conveyors, Water Networks Rehabilitation.** He is currently the **Part Owner & Manager** of Extreme Water SA wherein he manages, re-designed and commissioned a water and wastewater treatment plants.

During his career life, Mr. Bester has gained his practical and field experience through his various significant positions and dedication as the **Project Manager, Asset Manager, Manager, Water Engineer, Supervisor, Team Leader, Analyst, Process Technician, Landscape Designer** and **Senior Instructor/Trainer** for various international companies, infrastructures, water and wastewater treatment plants from New Zealand, UK, Samoa, Zimbabwe and South Africa, just to name a few.

Mr. Bester holds a **Diploma in Wastewater Treatment** and a **National Certificate in Wastewater & Water Treatment**. Further, he is a **Certified Instructor/Trainer**, an **Approved Chemical Handler** and has delivered numerous courses, trainings, conferences, seminars and workshops 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	<b>PRE-TEST</b>
0830 – 0930	<b>Fundamentals of Water Treatment: Understanding the Basics</b>
0930 – 0945	Break
0945 – 1030	<b>Types of Water Treatment Processes: Overview of Physical, Chemical &amp; Biological Processes</b>
1030 – 1130	<b>Water Quality Standards &amp; Compliance: Regulatory Frameworks &amp; Guidelines</b>
1130 – 1215	<b>Safety in Water Treatment Operations: Essential Safety Protocols &amp; Procedures</b>
1215 – 1230	Break
1230 – 1330	<b>Introduction to Water Treatment Equipment: Types &amp; Functionalities</b>
1330 – 1420	<b>Water Source &amp; Its Characteristics: Understanding Different Water Sources &amp; their Impacts on Treatment</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2: Process Upsets & Troubleshooting**

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

**Day 3: Optimization of Water Treatment Processes**

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

**Day 4: Plant & Equipment Integrity**

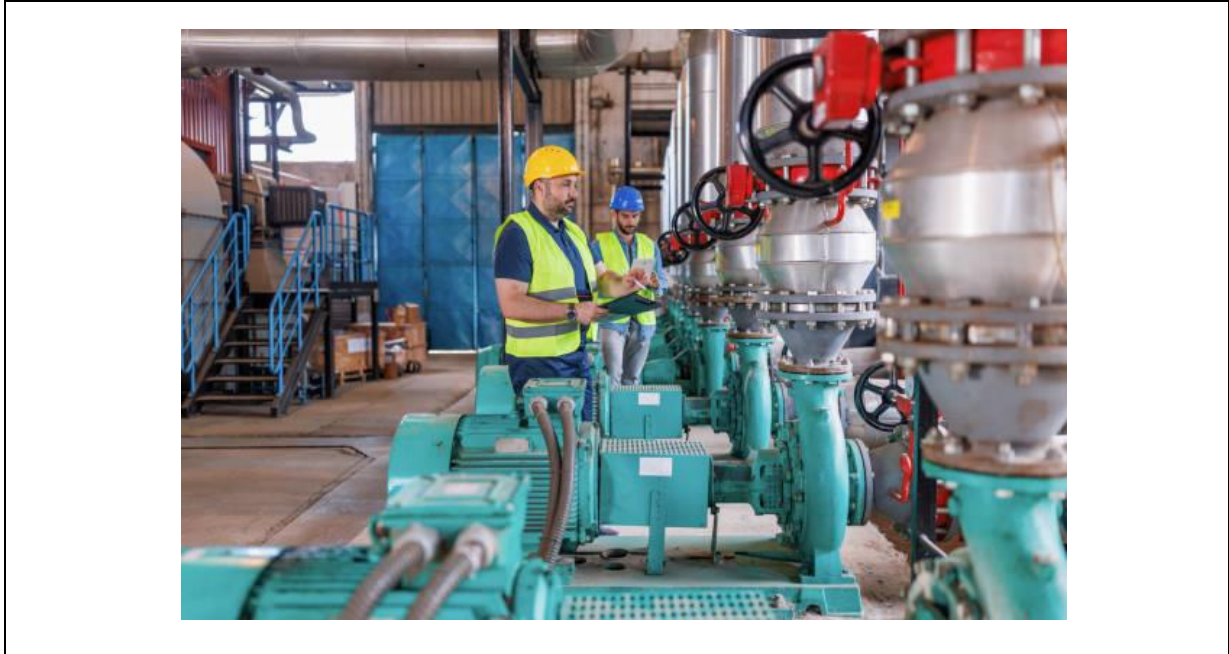
0730 – 0830	<b>Maintenance Strategies for Water Treatment Equipment: Preventive &amp; Predictive Maintenance</b>
0830 – 0930	<b>Corrosion &amp; Scaling in Equipment: Causes, Effects &amp; Prevention</b>
0930 – 0945	Break
0945 – 1100	<b>Asset Management &amp; Life Cycle Analysis: Maximizing Equipment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

**Day 5: Technical Drawings, Documents & Information Management Systems**

0730 – 0830	<b>Interpreting Technical Drawings &amp; Schematics: Understanding Blueprints of Water Treatment Plants</b>
0830 – 0930	<b>Document Management in Water Treatment Operations: Effective Handling of Technical Documents</b>
0930 – 0945	Break
0945 – 1030	<b>Using Information Management Systems: Leveraging Technology for Data Management</b>
1030 – 1130	<b>GIS &amp; Remote Sensing in Water Treatment: Applications in Monitoring &amp; Management</b>
1130 – 1230	<b>Compliance Documentation &amp; Reporting: Preparing &amp; Managing Regulatory Documents</b>
1230 – 1245	Break
1245 – 1345	<b>Knowledge Sharing &amp; Best Practices: Importance of Information Exchange &amp; Continuous Learning</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
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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