COURSE OVERVIEW TE0257
Water Treatment Process Operations, Process Upsets, Troubleshooting & Optimization, Water Wells, Transfer & Network Systems and Technical Drawing, Documents & Information Management Systems

Course Title
Water Treatment Process Operations, Process Upsets, Troubleshooting & Optimization, Water Wells, Transfer & Network Systems and Technical Drawing, Documents & Information Management Systems

Course Date/Venue
January 19-23, 2025/Meeting Plus 9, City Centre Rotana, Doha Qatar

Course Reference
TE0257

Course Duration/Credits
Five days/3.0 CEUs/30 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 course is designed to provide participants with a detailed and advanced overview of Water Treatment Process Operations, Process Upsets, Troubleshooting and Optimization, Water Wells, Transfer and Network Systems and Technical Drawing, Documents and Information Management Systems. It covers the basics and importance of water treatment processes; the raw water characteristics, sources and quality of water; the pre-treatment processes including coagulation, flocculation and sedimentation; the filtration techniques, types and operational principles; the disinfection methods covering chlorination, UV, ozone treatment; monitoring water quality, standards and in-process testing; the process upsets and the common issues in water treatment; and the troubleshooting guidelines and systematic approach to problem-solving.

Further, the course will also discuss the process control and optimization; the chemical dosing adjustments by balancing pH and other parameters; the energy efficiency in operations through reducing power consumption; the preventive maintenance strategies focusing on scheduling and execution; the types and structures of water well design and construction; the maintenance and efficiency in operation of water wells; the pump types and selection; and matching pumps to system requirements.

During this interactive course, participants will learn the water storage solutions including tanks and reservoirs management; the principles and flow management of pipeline systems and hydraulics; the techniques and tools of water pressure; the design and operation water distribution networks; the automation in water systems by using SCADA and other technologies; the tools and techniques of leak detection and management; the GIS in water network management including its applications and benefits; the standards of water quality in distribution throughout the network; the customer service and complaint handling and addressing issues effectively; the basics technical drawing by using schematics and blueprints; the quality and compliance of documentation standards and practices; the data management in water treatment; the project management tools and techniques; and the importance and best practices of safety and compliance documentation.

Course Objectives

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

- Apply and advanced knowledge on water treatment process operations, process upsets, troubleshooting and optimization, water wells, transfer and network systems and technical drawing, documents and information management systems
- Discuss the basics and importance of water treatment processes and analyze raw water characteristics, sources and quality of water
- Describe pre-treatment processes including coagulation, flocculation and sedimentation
- Apply filtration techniques as well as identify the types and operational principles
- Employ disinfection methods covering chlorination, UV, ozone treatment
- Monitor water quality and implement standards and in-process testing
- Identify process upsets and the common issues in water treatment
- Use troubleshooting guidelines through systematic approach to problem-solving
- Enhance and optimize efficiency and output of process control
- Carryout chemical dosing adjustments by balancing pH and other parameters
- Determine energy efficiency in operations through reducing power consumption
- Apply preventive maintenance strategies focusing on scheduling and execution
- Recognize the types and structures of water well design and construction
- Carryout effective maintenance and efficiency in operation of water wells
- Identify and select pump types and match pumps to system requirements
- Explain water storage solutions including tanks and reservoirs management
- Design principles and flow management of pipeline systems and hydraulics
- Manage techniques and tools of water pressure as well as design and operate water distribution networks
- Use SCADA and other technologies for automation in water systems as well as manage tools and techniques for leak detection
- Recognize the applications and benefits of GIS in water network management

- Maintain standards of water quality in distribution throughout the network
- Handle customer service and complaint by addressing issues effectively
- Illustrate the basics technical drawing by using schematics and blueprints
- Ensure quality and compliance of documentation standards and practices
- Carryout data management in water treatment including storage, retrieval and analysis
- Employ project management tools and techniques and apply efficient handling of projects
- Recognize the importance and best practices of safety and compliance documentation

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, water wells, transfer and network systems and technical drawing, documents and information management systems for controller water handling, water engineer 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.

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.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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. Karl Thanasis, PEng, MSc, MBA, BSc, is a **Senior Water Engineer** with over **45 years** of practical experience within the **Oil**, **Gas**, **Refinery**, **Petrochemical**, **Utilities** and related industries. His expertise widely includes in the areas of **Water Distribution** System, **Water Reservoir**, **Water Tanks**, **Water Pumping Station**, **Water Network** System, **Water Pipes & Fittings**, **Water Hydraulic** Modelling, **Water Network Hydraulic** Simulation Modelling, **Water Balance** Modelling, **Water Distribution Network**, **Water Network** System Design, **Water Network System** Analysis, **Water Forecasts** Demand, **Water Network** System Extension, **Water Network** System Replacement & Upgrade, **Water Networks** Optimization, **Water Distribution Systems & Pumping Stations**, **Reservoirs & Pumping Stations** Design & Operation, **Water Reservoirs & Pumping Stations**, **Water Storage Reservoir**, **Pumping** Systems, Interconnecting Pipelines, **Pump** Houses & Booster Pumping Stations, **Water Pipelines** Materials & Fittings, **Waste Water Effluent Treating** Facilities, **Sewage & Industrial Waste Water** Treatment & Environmental Protection Best Practices, **Oily Water Treatment Technology**, **Water Equipment** Selection & Inspection, **Effluent Treatment & Slurry Handling**, **Water Testing & Commissioning** Techniques, **Wastewater** Treatment, **Water Supply** Design, **Potable Water** Transmission, Districts Meters Areas (**DMA**s), **Water Supply & Desalination** Plants Rehabilitation, **Water Supply & Distribution Systems** Efficiency & Effectiveness, **Water Treatment** Technology, **Reverse Osmosis**, **MSF Plants**, **Industrial Water Treatment** in Refineries & Petrochemical Plants, **Piping System**, **Water Movement**, **Water Filtering**, **Mud Pumping**, **Sludge Treatment** and **Drying**, **Aerobic Process** of **Water Treatment** that includes **Aeration**, **Sedimentation** and **Chlorination Tanks**. His strong background also includes **Design** and **Sizing** of all **Waste Water Treatment Plant Associated Equipment** such as **Sludge Pumps**, **Filters**, **Metering Pumps**, **Aerators** and **Sludge Decanters**.

Mr. Thanasis has acquired his thorough and practical experience as the **Water Engineer**, **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer**, **Design Engineer**, **Mechanical Engineer**, **Maintenance Engineer** and **Senior Instructor/Lecturer**. His duties covered **Plant Preliminary Design**, **Plant Operation**, **Write-up** of **Capital Proposal**, **Investment Approval**, **Bid Evaluation**, **Technical Contract Write-up**, **Construction** and **Sub-contractor Follow up**, **Lab Analysis**, **Sludge Drying** and **Management** of **Sludge Odor** and **Removal**. He has worked in various companies worldwide in the **USA**, **Germany**, **England** and **Greece**.

Mr. Thanasis is a **Registered Professional Engineer** in the **USA** and **Greece** and has a **Master**'**s** and **Bachelor**'**s** degree in **Mechanical Engineering** with **Honours** from the **Purdue University** and **SIU** in **USA** respectively as well as an **MBA** from the **University of Phoenix** in **USA**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and 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	***PRE-TEST***
0830 – 0930	***Overview of Water Treatment Processes:*** *The Basics & Importance*
0930 – 0945	*Break*
0945 – 1030	***Raw Water Characteristics:*** *Analyzing Sources & Quality of Water*
1030 – 1130	***Pre-Treatment Processes:*** *Coagulation, Flocculation & Sedimentation*
1130 – 1215	***Filtration Techniques:*** *Types & Operational Principles*
1215 – 1230	*Break*
1230 – 1330	***Disinfection Methods:*** *Chlorination, UV, Ozone Treatment*
1330 – 1420	***Monitoring Water Quality:*** *Standards & in-Process Testing*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Process Upsets, Troubleshooting & Optimization***

0730 – 0830	***Identifying Process Upsets:*** *Common Issues in Water Treatment*
0830 – 0930	***Troubleshooting Guidelines:*** *Systematic Approach to Problem-Solving*
0930 – 0945	*Break*
0945 – 1100	***Process Control & Optimization:*** *Enhancing Efficiency & Output*
1100 – 1215	***Chemical Dosing Adjustments:*** *Balancing pH & other Parameters*
1215 – 1230	*Break*
1230 – 1330	***Energy Efficiency in Operations:*** *Reducing Power Consumption*
1330 – 1420	***Preventive Maintenance Strategies:*** *Scheduling & Execution*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Water Wells & Transfer Systems***

0730 – 0830	***Water Well Design & Construction:*** *Types & Structures*
0830 – 0930	***Operation of Water Wells:*** *Maintenance & Efficiency*
0930 – 0945	*Break*
0945 – 1100	***Pump Types & Selection:*** *Matching Pumps to System Requirements*
1100 – 1215	***Water Storage Solutions:*** *Tanks & Reservoirs Management*
1215 – 1230	*Break*
1230 – 1330	***Pipeline Systems & Hydraulics:*** *Design Principles & Flow Management*
1330 – 1420	***Water Pressure Management:*** *Techniques & Tools*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: ***Network Systems & Automation***

0730 – 0830	***Water Distribution Networks:*** *Design & Operation*
0830 – 0930	***Automation in Water Systems:*** *Use of SCADA & other Technologies*
0930 – 0945	*Break*
0945 – 1100	***Leak Detection & Management:*** *Tools & Techniques*
1100 – 1215	***GIS in Water Network Management:*** *Applications & Benefits*

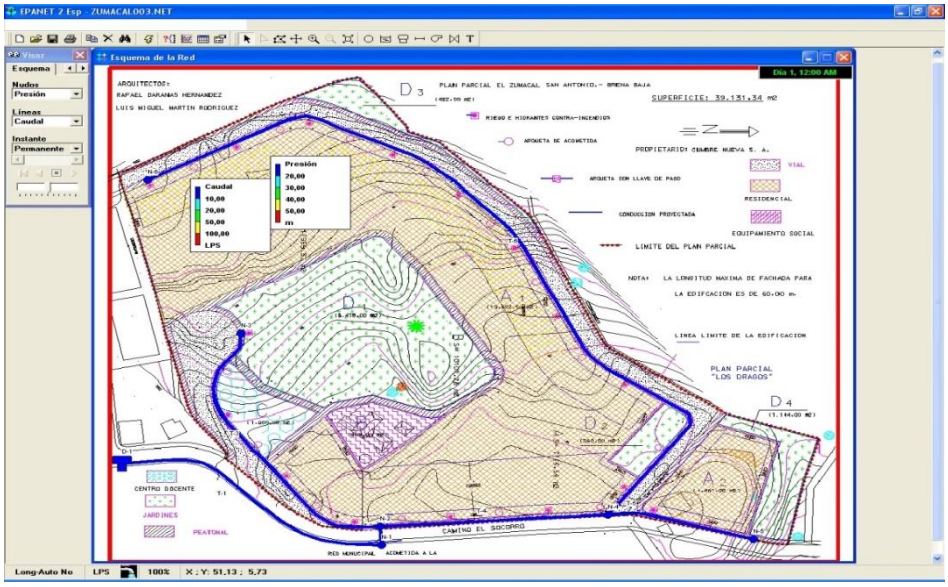
1215 – 1230	*Break*
1230 – 1330	***Water Quality in Distribution:*** *Maintaining Standards throughout the Network*
1330 – 1420	***Customer Service & Complaint Handling:*** *Addressing Issues Effectively*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

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

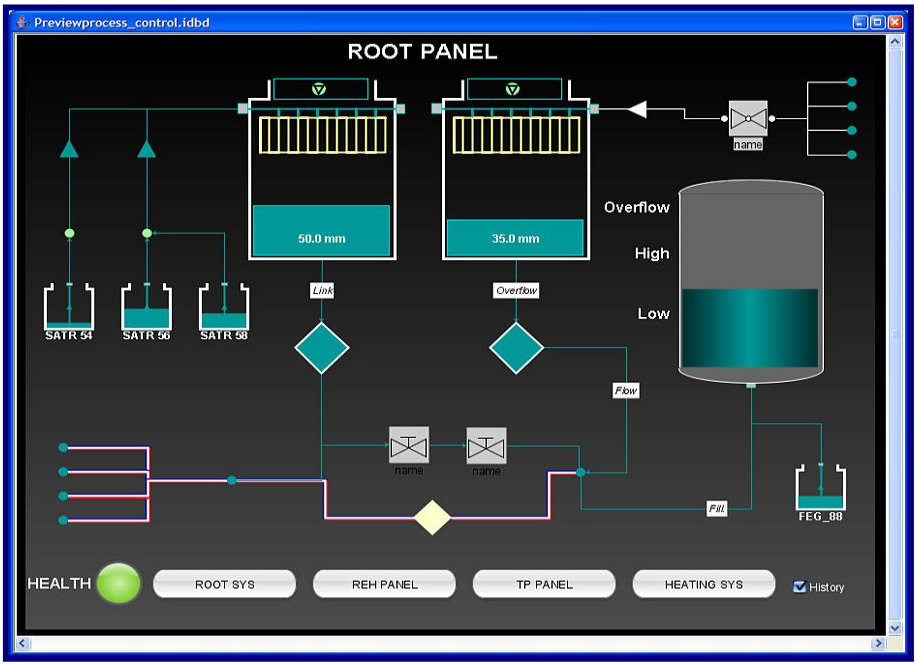
0730 – 0830	***Technical Drawing Basics:*** *Schematics & Blueprints*
0830 – 0930	***Documentation Standards & Practices:*** *Ensuring Quality & Compliance*
0930 – 0945	*Break*
0945 – 1030	***Data Management in Water Treatment:*** *Storage, Retrieval & Analysis*
1030 – 1130	***Using CAD Software for Water Projects:*** *Practical Applications*
1130 – 1230	***Project Management Tools & Techniques:*** *Efficient Handling of Projects*
1230 – 1245	*Break*
1245 – 1345	***Safety & Compliance Documentation:*** *Importance & Best Practices*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
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 the latest revision of “EPANET” and “HMI SCADA” Simulators.



EPANET Simulator



HMI SCADA

Course Coordinator

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