

# COURSE OVERVIEW TE0075 Oily Water Treatment Technology

#### **Course Title**

Oily Water Treatment Technology

#### **Course Date/Venue**

December 08 -12, 2024/Yasmine Meeting Room, The Tower Plaza Hotel, Dubai, UAE

# Course Reference

TE0075

### 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.



Billions of gallons of wastewaters containing oils and particulates are produced each year by metallurgical plants, ships, petroleum and gas operations, industrial washing operations, and other processes. Traditional technologies, such as gravity separators, air or gas flotation, chemical flocculation, plate coalescers, and hydroclones, are generally able to produce effluents containing as little as 30 ppm dispersed oil and particulates. However, these treatment technologies perform poorly on chemically stabilized suspensions and emulsions, very small particles and droplets (G-10 um in diameter), and soluble components. Moreover, effluents with less than 10 ppm impurities are desired, because of the potential toxic effects of the contaminants and their tendency to foul reverseosmosis membranes and downstream processing equipment.



Microfiltration and ultrafiltration membranes are able to remove particulates, microorganisms and oils from water, if the membrane material and pore sizes are chosen appropriately. However, they are subject to fouling, which often reduces the permeate flux (volume of water passing through the membrane per surface area per time) below acceptable levels.

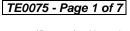














Water systems have long tended to be one of the neglected areas of the process plant. However, this situation is changing rapidly as environmental legislation tightens. This course is uniquely placed to assist process plants in meeting these challenges, offering unrivalled expertise in water systems and the problems associated with treatment of oily water. Much of the technology discussed in this course has been developed to meet the challenges faced in the North Sea; oil producers there face some of the toughest environmental controls in the oil industry.

This course will cover all stages of oily water treatment from receiving waste oil and oily water to delivering cleaned water that meets the environmentally safe standards.

#### **Course Objectives**

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

- Apply systematic techniques in the treatment of oily water
- Discuss the sources of oily water in oil production fields, refining and steam cracking and explain the environmental imperative standards & legislations pertaining to the discharge of oily water
- Describe the layout of treatments, stages of general effluent treatment, the pretreatment of sour condensates, principles of preliminary oil separation and the physicochemical purification of effluents from preliminary oil separators
- Monitor purification plants such as measurement of hydrocarbons and organic matter, pH meters and performance of WTP equipment
- Discuss new technology such as membrane biological reactors (MBR), rotating biological contractors (RBC), sequence batch reactor (SBR) as well as sludge pumping and flowmeters for mass balances

#### 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 oily water treatment technology for environmental and HSE professionals and engineers, oily water treatment staff, design engineers and sewage operators, municipal planners and engineers, plant and maintenance engineers, mechanical engineers and other technical staff. Further, this course is suitable for process engineers, operation, maintenance, inspection and production managers, supervisors, foremen and those responsible for managing and operating waste water treatment facilities.

#### **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.



















#### **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.

BAC 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.

#### **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. Salah Younes is a Senior Chemical Engineer & an International Expert in Water Treatment Technology with over 25 years of extensive experience within the Oil, Gas, Refinery and Petrochemical industries. He specializes in the Oily Water in Production Fields, Oil Separation, Oily Water Treatment & Handling, Oilfield Water Treatment, Water Quality Specification, Seawater Treatment, Macrofouling Prevention, Filtration & Deaeration, Chlorination, Chemical Treatment, Water Injection, Water Sampling & Analysis, Pipeline Integrity Management, Pipeline Pigging & Assessment,

Pipeline Design, Facility Integrity & Assessment, Risk Base Inspection, Process Piping, Tank Farm Piping Network, Pigging, ANSI/ASME B31, Pressure Vessels Design & Fabrication, Protection of Onshore & Offshore Pipeline & Auxiliaries, Cathodic Protection, Offshore Structure & Facilities, Onshore Facilities & Storage Tanks, Corrosion Management & Monitoring, Pressure Vessels, Inhibitors, Protective Coatings, Water Treatment & Injection, Water Flooding, Chemical Treatment & Injection, Oil & Gas Process and Steel Structure Painting. Further, his expertise includes soil resistivity, platform structures, storage tanks, atmospheric tanks, safety relieves valves, heat exchangers, fire heaters, fireproofing materials, lifting equipment, tubing, casing and gas lifting systems, fabrication yards, coatings & non-metallic materials, external & internal coatings, linear polarization and hot tapping. Currently, he is the Engineering General Manager of Abu Qir Petroleum (QAP).

Earlier in Mr. Salah's career, he acquired his practical and technical expertise and held key positions as the Engineering Manager, Corrosion Department Manager, Facilities Integrity Manager, Corrosion Specialist, Offshore Engineer, Pipeline Integrity Consultant, Corrosion & Chemical Treatment Head, Coating Engineer, Corrosion Engineer and the Chemical Engineer from international companies like the ADMA-OPCO. ADCO, Qatar Petroleum (QP), RASGAS, MAERSK Oil Qatar, GUPCO, Bureau Veritas and Abu Qir Petroleum.

Mr. Younes has a Bachelor degree in Chemical Engineering and a Post Graduate Diploma in Chemical Engineering with the Major in Water Treatment, Wastewater Treatment, Corrosion Engineering and Mixer Design. He is also a Certified BGAS-CSWIP Painting Inspector and a Certified ASNT Level II in Magnetic Particles Testing (MT), Penetrant Testing (PT) and in Radiographic Testing (RT). Further, he is an active member of NACE and the Steel Structure Painting Council (SSPC). He has published various technical papers related to Corrosion Management and Cathodic Protection that have been presented at several international courses and conferences and has delivered numerous trainings and workshops worldwide in the USA, Europe and the Middle East.

#### Training Methodology

All our Courses are including Hands-on Practical Sessions using equipment, State-ofthe-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30%

20% Practical Workshops & Work Presentations

Hands-on Practical Exercises & Case Studies 30%

Simulators (Hardware & Software) & Videos 20%

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

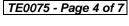


















#### **Course Program**

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: Sunday, 08th of December 2024

Day 1:	Sunday, 08 <sup>th</sup> of December 2024
0730 - 0800	Registration & Coffee
0800 - 0815	Welcome & Introduction
	Source – Process – Consented Discharge (Model)
0815 - 0830	PRE-TEST
	Sources of Oily Water in Oil Production Fields, Refining & Steam
0830 - 0930	Cracking
	Desalter Water • Process Condensates • Particular Process Effluents •
	Oily Water • Nonoily Waste Water • Transportation Waste Water • Spent
	Caustic • Steam Cracking Condensates
0930 - 0945	Break
	Environmental Imperatives Standards & Legislation
0045 1100	The Environmental Imperatives • Bacteria – Coliforms and Ecoli • Standards
0945 – 1100	for Discharge and Monitoring of Hydrocarbons in Gulf Area • Belgian
	Regulations
	Environmental Imperatives Standards & Legislation (cont'd)
1100 - 1230	Canadian Regulations • World Bank Environmental Standards • BP
	Environmental and Social Action Plan
1230 – 1245	Break
1245 - 1420	Definition & Layout of Treatments
	Need to Separate Sewer Systems • Stages in Treating the General Effluent •
	Planning Sewer Networks • Surge Tanks • Lagoons – Implications of Algal
	Growth
1420 - 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 09<sup>th</sup> of December 2024

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0730 - 0930	Pre-treatment of Sour Condensates
	Stripping • Air Oxidation of Sour Condensates
0930 - 0945	Break
0945 – 1100	Preliminary Oil Separation
	Principles of Preliminary Oil Separation • Construction of Gravity Oil
	Separators
1100 - 1230	Physicochemical Purification of Effluents from Preliminary Oil
	Separators
	Aims of Physicochemical Purification • Notes on Coagulation and Flocculation
	• Floc Separation by Settling-Sedimentation • Separation by Dissolved Air
	Flotation (DAF)
1230 - 1245	Break
1245 - 1420	Physicochemical Purification of Effluents from Preliminary Oil
	Separators (cont'd)
	Separation by Filtration (Down Flow on Granular Material) • Separation by
	Coalescence • Choosing Separation Process • Induced Air Flotation (IAF) or
	Mechanical Flotation
1420 - 1430	Recap
1430	Lunch & End of Day Two

















Tuesday, 10th of December 2024 Day 3:

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	Monitoring Purification Plants
0730 – 0930	Measuring Hydrocarbons • Measuring Organic Matter • pH-meters •
	Miscellaneous Devices • Performance Condition Monitoring of WTP Equipment
0930 - 0945	Break
0945 - 1100	Case Study # 1: French Mobil Oil Gravenchon Refinery
	Treatment of Waste Water ● Eliminating Purification Sludge ● Cooling Systems
1100 - 1230	New Technologies
1230 - 1245	Break
1245 – 1420	Membrane Biological Reactors (MBR)
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 11th of December 2024

0730 -0930	Rotating Biological Contactors (RBC)
0930 - 0945	Break
0945 - 1100	Sequence Batch Reactor (SBR)
1100 - 1230	Sludge Pumping
1230 - 1245	Break
1245 - 1420	Flowmeters for Mass Balances
1420 - 1430	Recap
1430	Lunch & End of Day Four

Thursday, 12th of December 2024 Dav 5:

Day J.	Thursday, 12 or December 2024
0730 - 0930	Case Study # 2: Shell Oil Company Petit-Couronne Refinery
	Effluent and Pretreatment Set Up • General Treatment of Effluents •
	Eliminating Purification Sludge
0930 - 0945	Break
0945 – 1045	Case Study # 3: Esso-SAF: Port-Jerome
	Treatment of Waste Water • Eliminating Purification Sludge • Cooling
	Systems
1045 - 1130	Case Study # 4: Shell Complex in Berre
	Effluent and Pretreatment Set Up • General Biological Treatment • Sludge
	Treatment
1130 – 1230	Case Study # 4: Shell Complex in Berre (cont'd)
	Cooling Systems ● Growing Real Organisms Experiment
1230 – 1245	Break
1245 – 1345	Open Forum & Final Discussion
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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