

COURSE OVERVIEW TE0075
Oily Water Treatment Technology

Course Title

Oily Water Treatment Technology

Course Date/Venue

December 15-19, 2024/Boardroom, Warwick Hotel Doha, Doha, Qatar

Course Reference

TE0075

Course Duration/Credits

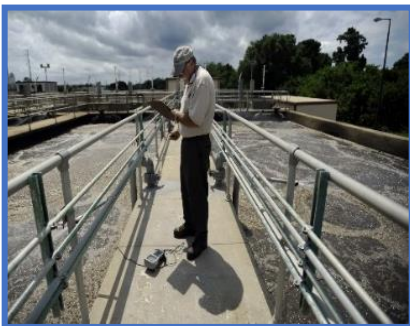
Five days/3.0 CEUs/30 PDHs



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 reverse-osmosis 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 “Howard 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\$ 6,000 per Delegate. This rate includes H-STK® (Howard 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: -

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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.

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:



Dr. Yousef Al-Mashni, PhD, MSc, BSc, is an International Expert in Analytical Laboratory & Waste Water Treatment with over 35 years of extensive experience. He is an authority in Water and Waste Water Treatment, Water Quality Management, Hydraulic Network System, Water Pipeline System, Water Distribution System, Industrial Water Management, Industrial Water Management, Water Analysis & Reporting, Water Sampling & Testing, Water Analyzer, Helmith Ova & Salmonella in Waste Water, Sludge, Microbiological Aspects & Analysis of Wastewater, Laboratory Equipment, Laboratory Quality Management Systems (ISO 17025 and ISO 15189), Lab Safety & Health, Good Laboratory Practice (GLP) and Safety Procedure in Laboratories. His wide expertise also covers, Medical Laboratory Auditing, ISO 15489, Infection Control, Internal Quality Control for Microbiologists, Analytical Techniques, Biochemical, Hematological, Parasitological, Biochemical, Microbiological & Serological Analysis of Clinical Specimens, Microbiology of Wetlands, Microbiological Indoor Air Quality, Entrococcus, Pseudomonas & Aeromonas, Sulfate Reducing Bacteria, Fluorescence Microscopy, Planktology of Ambient Environment, Oral, Medical & Diagnostic Microbiology and Oral & Dental Hygiene. He is currently the Deputy Principal & Chief Technical Instructor of UNRWA wherein he is responsible in developing and managing operations at the college/centre including building workshops and laboratories capacity, curriculum development and introducing new courses.

During his long career life, Dr. Yousef worked for many international companies handling key positions such as ICDL Centre **Manager, Deputy Principal, Chief Technical Instructor, Acting Principal, Laboratory Supervisor, Technical Instructor, Technical & Vocational Instructor, Senior Medical Laboratory Technician and Medical Laboratory Technician.**

Dr. Yousef has a **PhD** degree in **Natural Health Sciences** from the **University of Florida (USA)**, **Master** degree in **Clinical Microbiology** and **Bachelor** degree with **Honours** in **Microbiology**. Further, he has **Diploma** in Vocational Education (**UNRWA & UNESCO**) and received several **certifications** like **ICDL** and Training of Trainers (**TOT**) in **Cambridge University (England)**. He is an active member of **Jordan Medical Laboratories Society, Technical Accreditation Committee of Medical Laboratories (Jordan Institution & Metrology)** and the **Technical Accreditation Committee for Granting ISO 15189 Certificate**. Furthermore, he has also published numerous technical papers and books including **Medical & Diagnostic Microbiology, Practical Competencies in Medical Laboratory Technology, Safety in Medical Laboratory Science** and **Quality Control in Medical Laboratory Science** just to name a few.

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 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, 15th of December 2024

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

Day 2: Monday, 16th of December 2024

0730 – 0930	Pre-treatment of Sour Condensates <i>Stripping • Air Oxidation of Sour Condensates</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Preliminary Oil Separation <i>Principles of Preliminary Oil Separation • Construction of Gravity Oil Separators</i>

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

Day 3: Tuesday, 17th of December 2024

0730 – 0930	Monitoring Purification Plants 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, 18th 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

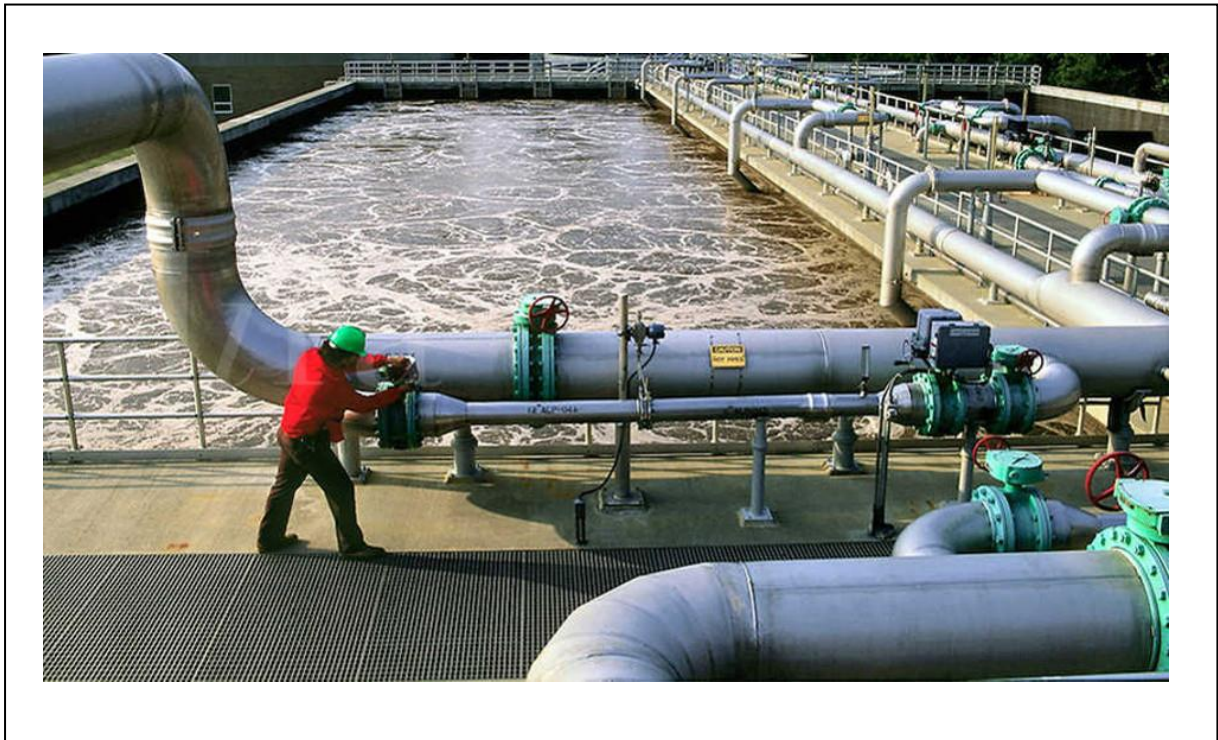
Day 5: Thursday, 19th of December 2024

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	<i>Break</i>
1245 - 1345	<i>Open Forum & Final Discussion</i>
1345 - 1400	<i>Course Conclusion</i>
1400 - 1415	<i>POST-TEST</i>
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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