

## Industrial Wastewater Treatment for Refineries & Petrochemical Facilities

*Istanbul (Turkey)*

*20 - 24 June 2027*

UK Training

# PARTNER



# Industrial Wastewater Treatment for Refineries & Petrochemical Facilities

Code: OG32 From: 20 - 24 June 2027 City: Istanbul (Turkey) Fees: 4900 Pound

## Introduction

Industrial wastewater treatment for refineries & petrochemical facilities is a critical operational function directly linked to environmental compliance, production continuity, and cost control. Refining and petrochemical processes generate complex wastewater streams containing hydrocarbons, suspended solids, heavy metals, sulfides, and variable organic loads. The fluctuating composition and volume of these effluents require technically sound treatment strategies supported by rigorous monitoring and performance optimization.

This course provides a structured and practical framework for understanding, designing, and optimizing industrial wastewater treatment systems within high-complexity facilities. It examines contaminant characterization, physical and chemical treatment methods, biological systems, advanced polishing technologies, and water reuse strategies. The content also addresses operational troubleshooting, regulatory alignment, and risk mitigation in large-scale industrial environments.

The program integrates technical analysis, real operational data, and applied case studies to strengthen decision-making capabilities in wastewater system management and performance improvement.

## Course Objectives

By the end of this course, participants will be able to:

- Analyze the characteristics of refinery and petrochemical wastewater streams.
- Evaluate organic and inorganic loading impacts on treatment units.
- Apply oil and grease removal technologies effectively.
- Select appropriate biological treatment processes based on influent composition.
- Design multi-stage treatment systems aligned with discharge or reuse requirements.
- Assess sedimentation, flotation, and filtration performance.
- Evaluate membrane systems and advanced separation technologies.
- Develop environmental compliance and risk mitigation plans.
- Optimize chemical dosing and energy consumption.
- Establish key performance indicators for treatment plant monitoring.

## Course Outlines

### Day 1: Wastewater Characteristics and Contaminant Sources

- Sources of industrial wastewater within refining and petrochemical units.
- Composition of hydrocarbons, suspended solids, and dissolved pollutants.
- Measurement of biochemical and chemical oxygen demand.
- Oil separation principles and emulsion behavior.
- Impact of temperature and operational variability on treatment performance.
- Practical exercise on laboratory data interpretation.



## Day 2: Physical and Chemical Treatment Technologies

- Oil-water separation systems and design considerations.
- Dissolved air flotation systems and operational control.
- Coagulation and flocculation process design.
- Sedimentation tank performance criteria.
- Treatment of sulfides and toxic compounds.
- Applied calculations for chemical dosing optimization.

## Day 3: Biological Treatment Systems and Process Control

- Aerobic and anaerobic biological treatment principles.
- Aeration basin design and organic loading control.
- Managing hydraulic and chemical shock loads.
- Sludge handling and stabilization techniques.
- Monitoring key biological performance indicators.
- Case study on improving an underperforming treatment unit.

## Day 4: Advanced Treatment Technologies and Water Reuse Strategies

- Advanced filtration systems.
- Membrane separation and desalination processes.
- Removal of trace contaminants and emerging pollutants.
- Industrial water reuse and recycling strategies.
- Economic evaluation of advanced treatment investments.
- Performance analysis of water recovery systems.

## Day 5: Environmental Compliance and Operational Performance Optimization

- Industrial discharge standards and regulatory requirements.
- Environmental risk management planning.
- Compliance reporting and data analysis.
- Key performance indicators for wastewater treatment plants.
- Energy efficiency and operational cost reduction strategies.
- Final exercise: developing a comprehensive treatment improvement plan.

## Why Attend This Course: Wins & Losses!

- Strengthen the ability to diagnose complex treatment challenges.
- Reduce environmental compliance risks.
- Improve treatment plant operational efficiency.
- Optimize chemical and energy consumption.
- Enhance water reuse and sustainability strategies.
- Improve sludge management performance.
- Support data-driven technical decision-making.
- Increase long-term asset reliability and environmental performance.



## Conclusion

Industrial Wastewater Treatment for Refineries & Petrochemical Facilities plays a central role in ensuring operational sustainability, regulatory compliance, and responsible resource management. The complexity of industrial effluents demands a structured technical approach that integrates contaminant characterization, appropriate technology selection, and continuous performance monitoring.

This course delivers a comprehensive framework that begins with wastewater source analysis and extends through physical, chemical, biological, and advanced treatment processes. It concludes with strategies for compliance management and operational optimization. By combining technical rigor with applied case studies, the program strengthens institutional capability to manage industrial wastewater systems effectively, minimize environmental risks, and enhance long-term operational stability.





## Blackbird Training Clients



MANNAI Trading  
Company WLL,  
Qatar



Alumina Corporation  
Guinea



Booking.com  
Netherlands



Oxfam GB International  
Organization,  
Yemen



Capital Markets  
Authority,  
Kuwait



Waltersmith Petroman Oil Limited  
Nigeria



Qatar National Bank  
(QNB),  
Qatar



Qatar Foundation,  
Qatar



AFRICAN UNION ADVISORY  
BOARD ON CORRUPTION,  
Tanzania



KFAS  
Kuwait



Reserve Bank of  
Malawi,  
Malawi



Central Bank of Nigeria  
Nigeria



Ministry of Interior  
Kingdom of Saudi Arabia  
KSA



Mabruk Oil Company  
Libya



Saudi Electricity  
Company,  
KSA



BADAN PENGELOLA  
KEUANGAN Haji,  
Indonesia



NATO  
Italy



ENI CORPORATE  
UNIVERSITY,  
Italy



Gulf Bank  
Kuwait



General Organization for  
Social Insurance  
KSA



Defence Space Administration  
Nigeria



National Industries  
Group (Holding),  
Kuwait



Hamad Medical  
Corporation,  
Qatar



USAID  
Pakistan



STC Solutions,  
KSA



North Oil company,



EKO Electricity



Oman Broadband



UNITED NATIONS  
UN.



Authority for  
Electricity Regulation, Oman

UK Training  
**PARTNER**



## Blackbird Training Categories

### Management & Admin

Entertainment & Leisure  
Professional Skills  
Finance, Accounting, Budgeting  
Media & Public Relations  
Project Management  
Human Resources  
Audit & Quality Assurance  
Marketing, Sales, Customer Service  
Secretary & Admin  
Supply Chain & Logistics  
Management & Leadership  
Agile and Elevation

### Technical Courses

Artificial Intelligence (AI)  
Sustainability, ESG & Corporate Responsibility  
Advanced Courses  
Hospital Management  
Public Sector  
Special Workshops  
Oil & Gas Engineering  
Telecom Engineering  
IT & IT Engineering  
Health & Safety  
Law and Contract Management  
Customs & Safety  
Aviation  
C-Suite Training

