



External Training Course

Advanced Water Treatment Plant Supervision & Maintenance for the Petroleum Sector

From 15 Sep. To 19 Sep. 2025
From 20 Oct. To 24 Oct. 2025
From 17 Nov. To 21 Nov. 2025

Hotel Monterey Ginza, Tokyo, Japan

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External Training Course:

**Advanced Water Treatment Plant Supervision
& Maintenance for the Petroleum Sector**

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Course Overview

Water treatment is a critical component of petroleum operations, ensuring process efficiency, equipment longevity, and environmental compliance. This 5-day intensive training is designed specifically for supervisors and maintenance professionals in the petroleum sector, equipping them with advanced knowledge of water treatment plant operations, maintenance strategies, and performance optimization techniques. The course covers key topics such as process control, troubleshooting, predictive maintenance, and regulatory compliance. Participants will gain hands-on insights through real-world case studies, interactive discussions, and practical exercises, enabling them to enhance plant reliability and operational efficiency.

Course Objectives

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

- Supervise and manage water treatment plant operations effectively.
- Enhance plant performance through process optimization.
- Identify and troubleshoot common operational challenges.
- Implement best practices for preventive and predictive maintenance.
- Ensure compliance with environmental and safety regulations.
- Improve cost efficiency while maintaining high water quality standards.

Training Methodology

This training course is intended to be a dynamic and interactive learning experience for delegates whose questions and comments will be welcome by the instructor. It uses theory, hands-on working exercises and guided discussions to provide thorough coverage of concepts and methodologies and to gain access to skills.

Organizational Impact

By attending this training, organizations in the petroleum sector will benefit from:

- Enhanced Operational Efficiency – Improved water treatment processes lead to better plant performance and reduced downtime.
- Cost Savings – Optimized treatment and maintenance strategies reduce energy, chemical, and maintenance costs.
- Improved Compliance – Ensures adherence to environmental and industry regulations (ISO, API, EPA), reducing legal risks.
- Increased Equipment Lifespan – Proactive maintenance and troubleshooting reduce failures and extend asset life.
- Sustainable Operations – Advanced water management strategies support wastewater reuse and environmental sustainability.
- Stronger Workforce Capability – Upskilling supervisors and engineers enhances decision-making and leadership in water treatment management.

Personal Impact

Participants will gain:

- In-depth Technical Knowledge – A solid understanding of water treatment processes, system optimization, and maintenance best practices.
- Problem-Solving Skills – The ability to identify, troubleshoot, and resolve common operational challenges.
- Career Advancement Opportunities – Certification enhances professional credibility and career growth.
- Practical Hands-On Experience – Case studies, exercises, and real-world applications for immediate implementation.
- Regulatory & Safety Expertise – Understanding of compliance requirements ensures better decision-making and risk management.
- Leadership & Supervisory Skills – Improved ability to manage teams, processes, and plant operations efficiently.

Course Outline

Day 1: Fundamentals of Water Treatment in the Petroleum Sector

- Overview of water sources & contaminants in petroleum operations.
- Key water quality parameters and their impact on processes.
- Regulatory frameworks & industry standards (ISO, API, EPA).
- Introduction to treatment technologies (filtration, chemical, biological).

Day 2: Water Treatment Plant Operations & Process Optimization

- Advanced filtration & separation techniques (RO, UF, multimedia filtration).
- Chemical treatment: Coagulation, flocculation, disinfection.
- Process monitoring & automation for operational efficiency.
- Troubleshooting performance issues in water treatment systems.

Day 3: Maintenance & Reliability Strategies

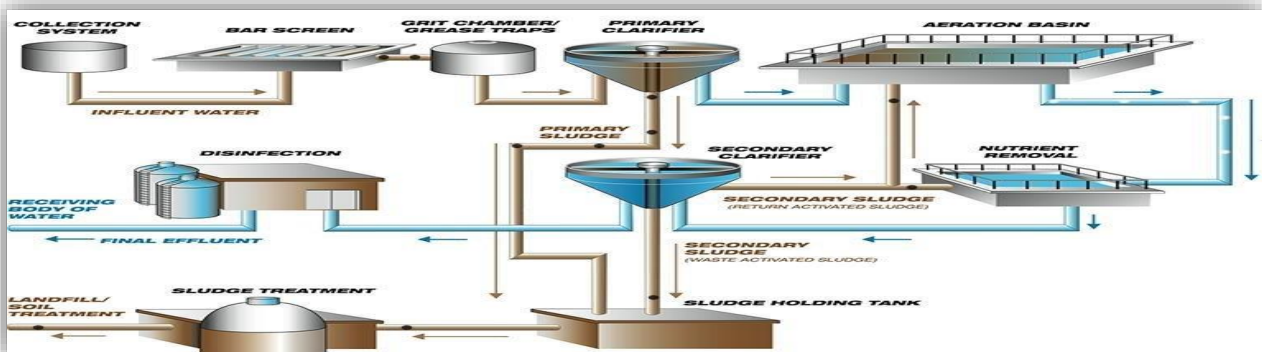
- Preventive vs. predictive maintenance: Best practices.
- Common equipment failures and troubleshooting methods.
- Scaling, fouling & corrosion control strategies.
- Condition monitoring & failure analysis for key components.

Day 4: Cost Efficiency & Environmental Compliance

- Energy-efficient operations and cost-saving techniques.
- Wastewater treatment & reuse in petroleum facilities.
- Environmental risk management and sustainability initiatives.
- Compliance with industry safety and environmental regulations.

Day 5: Practical Applications & Case Studies

- Real-world case studies on water treatment plant optimization.
- Group discussions & problem-solving exercises.
- Practical implementation plans for plant improvement.
- Final assessment & certification ceremony.



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Course Details & Agenda:

1st Day Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.00	<u>DISCUSS COURSE TOPICS</u> - Fundamentals of Water Treatment in the Petroleum Sector. - Water Treatment Plant Operations & Process Optimization. - Maintenance & Reliability Strategies. - Cost Efficiency & Environmental Compliance. - Practical Applications & Case Studies.
11.00	11.30	Coffee Break
11.30	13.45	<u>Fundamentals of Water Treatment in the Petroleum Sector:</u> - Overview of water sources & contaminants in petroleum operations. - Key water quality parameters and their impact on processes. - Regulatory frameworks & industry standards (ISO, API, EPA). - Introduction to treatment technologies (filtration, chemical, biological).
13.45	14.00	Questions and Discussion
14.00		Buffet Lunch

2nd Day Agenda

9.00	11.00	<u>Water Treatment Plant Operations & Process Optimization:</u> - Advanced filtration & separation techniques (RO, UF, multimedia filtration). - Chemical treatment: Coagulation, flocculation, disinfection.
11.00	11.30	Coffee Break
11.30	13.45	<u>Water Treatment Plant Operations & Process Optimization:</u> - Process monitoring & automation for operational efficiency. - Troubleshooting performance issues in water treatment systems.
13.45	14.00	Questions and Discussion
14.00		Buffet Lunch

3rd Day Agenda

9.00	11.00	<u>Maintenance & Reliability Strategies</u> - Preventive vs. predictive maintenance: Best practices. - Common equipment failures and troubleshooting methods.
11.00	11.30	Coffee Break
11.30	13.45	<u>Maintenance & Reliability Strategies</u> - Scaling, fouling & corrosion control strategies. - Condition monitoring & failure analysis for key components.
13.45	14.00	Questions and Discussion
14.00		Buffet Lunch

4th Day Agenda

9.00	11.00	<u>Cost Efficiency & Environmental Compliance:</u> - Energy-efficient operations and cost-saving techniques. - Wastewater treatment & reuse in petroleum facilities.
11.00	11.30	Coffee Break
11.30	13.45	<u>Cost Efficiency & Environmental Compliance:</u> - Environmental risk management and sustainability initiatives. - Compliance with industry safety and environmental regulations.
13.45	14.00	Questions and Discussion
14.00		Buffet Lunch

5th Day Agenda

9.00	11.00	<u>Practical Applications & Case Studies:</u> - Real-world case studies on water treatment plant optimization. - Group discussions & problem-solving exercises.
11.00	11.30	Coffee Break
11.30	13.45	<u>Practical Applications & Case Studies:</u> - Practical implementation plans for plant improvement. - Final assessment & certification ceremony.
13.45	14.00	Questions and Discussion
14.00		Buffet Lunch