Industrial Wastewater Treatment Technologies Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Industrial wastewater management is becoming an urgent priority for organizations striving for environmental compliance, operational efficiency, and sustainability. Industrial Wastewater Treatment Technologies Training Course equips professionals with cutting-edge knowledge and hands-on skills in industrial wastewater treatment technologies, covering processes such as physical, chemical, and biological treatment, membrane technologies, advanced oxidation processes, and zero-liquid discharge solutions. Participants will gain insights into regulatory frameworks, effluent quality standards, and emerging technologies for wastewater reuse and resource recovery.

Designed for engineers, environmental managers, and industry stakeholders, this program emphasizes practical implementation through real-world case studies, process optimization, and sustainable wastewater management strategies. By combining theoretical understanding with hands-on demonstrations, participants will be empowered to reduce operational costs, improve effluent quality, and drive circular economy practices within their organizations.

Programme Curriculum

Industrial Wastewater Treatment Technologies Training Course

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Course Duration

5 days

Course Objectives

1. Understand principles and types of industrial wastewater treatment technologies.
2. Master physical, chemical, and biological treatment methods for industrial effluents.
3. Explore membrane separation techniques such as RO, NF, UF, and MBR.
4. Evaluate advanced oxidation processes (AOPs) for industrial applications.
5. Implement zero-liquid discharge (ZLD) strategies in process industries.
6. Assess wastewater characteristics and effluent quality standards.
7. Optimize treatment plant design and operation for cost efficiency.
8. Apply emerging technologies in wastewater recycling and reuse.
9. Conduct risk assessment and environmental compliance audits.
10. Integrate sustainable and circular economy practices in wastewater management.
11. Analyze case studies on industrial wastewater treatment success stories.
12. Develop energy-efficient and resource recovery solutions.
13. Foster innovation in industrial wastewater treatment strategies.

Target Audience

1. Environmental engineers and consultants
2. Process engineers and plant managers
3. Wastewater treatment operators and supervisors
4. Industrial sustainability officers
5. Regulatory compliance professionals
6. R&D scientists in water treatment
7. Environmental auditors
8. Graduate and postgraduate students in environmental engineering

Course Modules

Module 1: Introduction to Industrial Wastewater

- Industrial wastewater generation sources and classification
- Characterization and analysis of wastewater streams
- Overview of effluent quality standards and regulations
- Industrial pollution impacts on ecosystems
- **Case Study:** Effluent reduction in textile industry

Module 2: Physical and Chemical Treatment Methods

- Screening, sedimentation, flotation, and filtration

- Coagulation, flocculation, and chemical dosing strategies
- Neutralization and pH adjustment techniques
- Sludge management and disposal strategies
- **Case Study:** Heavy metal removal in electroplating wastewater

Module 3: Biological Treatment Technologies

- Activated sludge process and extended aeration
- Trickling filters and biofilm reactors
- Anaerobic digestion for high-strength industrial wastewater
- Nutrient removal strategies (N & P)
- **Case Study:** Brewery wastewater treatment optimization

Module 4: Membrane Technology Applications

- Microfiltration, ultrafiltration, nanofiltration, and reverse osmosis
- Membrane bioreactors (MBR) for industrial applications
- Fouling mechanisms and cleaning protocols
- Integration of membrane systems in treatment plants
- **Case Study:** RO implementation for dairy industry effluent

Module 5: Advanced Oxidation Processes (AOPs)

- Principles of ozone, UV, and Fenton-based oxidation
- Degradation of recalcitrant organic compounds
- Design considerations for AOP reactors
- Cost and energy optimization strategies
- **Case Study:** Textile dye wastewater treatment using AOP

Module 6: Zero Liquid Discharge (ZLD) Techniques

- Evaporation and crystallization methods
- Brine management and recovery
- Integration with conventional treatment systems
- Economic feasibility and sustainability assessment
- **Case Study:** ZLD implementation in chemical manufacturing

Module 7: Monitoring, Automation, and Optimization

- Industrial wastewater monitoring techniques
- SCADA and process automation integration
- Key performance indicators (KPIs) for plant efficiency
- Predictive maintenance and process control
- **Case Study:** Automation in pulp and paper effluent treatment

Module 8: Sustainable Practices and Resource Recovery

- Water recycling and reuse strategies
- Energy recovery from sludge and wastewater
- Circular economy models in industrial water management
- Carbon footprint reduction in wastewater operations
- **Case Study:** Nutrient recovery from fertilizer plant wastewater

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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