Industrial Effluent Treatment Plant Operations 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 Effluent Treatment Plant (IETP) Operations Training Course is designed to equip learners with advanced technical skills in wastewater treatment, industrial pollution control, and environmental compliance. With increasing global emphasis on sustainable water management, ESG compliance, zero liquid discharge (ZLD), and environmental protection regulations, industries are under pressure to optimize effluent treatment systems for operational efficiency and regulatory adherence.

This training course provides in-depth knowledge of physicochemical treatment, biological wastewater processes, sludge management, real-time monitoring systems, and automation in effluent treatment plants. Participants gain hands-on expertise in handling industrial wastewater from sectors such as pharmaceuticals, textiles, chemicals, food processing, and manufacturing. The program aligns with modern trends like Industry 4.0, IoT-based water monitoring, green manufacturing, and circular economy practices, ensuring professionals are industry-ready for global environmental standards.

Programme Curriculum

Industrial Effluent Treatment Plant Operations Training Course

Introduction

Industrial Effluent Treatment Plant (IETP) Operations Training Course is designed to equip learners with advanced technical skills in wastewater treatment, industrial pollution control, and environmental compliance. With increasing global emphasis on sustainable water management, ESG compliance, zero liquid discharge (ZLD), and environmental protection regulations, industries are under pressure to optimize effluent treatment systems for operational efficiency and regulatory adherence.

This training course provides in-depth knowledge of physicochemical treatment, biological wastewater processes, sludge management, real-time monitoring systems, and automation in effluent treatment plants. Participants gain hands-on expertise in handling industrial wastewater from sectors such as pharmaceuticals, textiles, chemicals, food processing, and manufacturing. The program aligns with modern trends like Industry 4.0, IoT-based water monitoring, green manufacturing, and circular economy practices, ensuring professionals are industry-ready for global environmental standards.

Course Duration

5 days

Course Objectives

1. Understand industrial wastewater characteristics and pollutant classification
2. Apply principles of primary, secondary, and tertiary treatment processes
3. Operate and maintain effluent treatment plant (ETP) systems efficiently
4. Implement Zero Liquid Discharge (ZLD) systems in industries
5. Analyze chemical dosing and coagulation-flocculation mechanisms
6. Optimize biological treatment processes
7. Monitor effluent quality using advanced sensors and SCADA systems
8. Ensure compliance with environmental regulations
9. Improve sludge handling, dewatering, and disposal techniques
10. Reduce operational cost through energy-efficient treatment solutions
11. Troubleshoot common ETP operational failures
12. Integrate IoT and automation in wastewater treatment operations
13. Promote sustainable water reuse and recycling strategies

Target Audience

1. Environmental Engineers & Technicians
2. Chemical and Process Engineers
3. Plant Operators and Supervisors
4. Quality Control & Compliance Officers
5. Industrial Safety and Sustainability Managers
6. Fresh Engineering Graduates (Environmental/Chemical)
7. Municipal Water Treatment Staff
8. Facility and Maintenance Engineers

Course Modules

Module 1: Introduction to Industrial Wastewater Systems

- Types of industrial effluents and contamination sources
- Physical, chemical, and biological properties of wastewater
- Industry-specific effluent profiles
- Regulatory discharge standards and compliance frameworks
- **Case Study:** Textile industry effluent compliance failure and redesign success

Module 2: Primary Treatment Processes

- Screening, sedimentation, and grit removal systems
- Oil-water separation techniques

- Equalization tank operations and flow balancing
- Coagulation and flocculation optimization
- **Case Study:** Oil refinery primary treatment optimization reducing TSS by 45%

Module 3: Secondary Biological Treatment

- Activated sludge process (ASP) fundamentals
- Trickling filters and biofilm reactors
- Aeration system design and oxygen transfer efficiency
- Microbial activity control and sludge age management
- **Case Study:** Brewery wastewater biological treatment upgrade achieving 90% BOD removal

Module 4: Tertiary Treatment & Advanced Filtration

- Sand filtration, activated carbon, and membrane filtration
- Reverse osmosis and ultrafiltration systems
- Nutrient removal
- Disinfection methods
- **Case Study:** Pharmaceutical plant achieving reuse-grade water via RO integration

Module 5: Sludge Treatment and Management

- Sludge thickening and dewatering techniques
- Centrifuges, filter presses, and drying beds
- Sludge stabilization and digestion processes
- Safe disposal and resource recovery methods
- **Case Study:** Food processing plant converting sludge into biogas energy

Module 6: Automation and Smart Monitoring Systems

- SCADA systems in ETP operations
- IoT sensors for real-time water quality monitoring
- Data logging and predictive maintenance
- Alarm systems and process automation
- **Case Study:** Smart chemical plant reducing downtime using predictive analytics

Module 7: Environmental Compliance & Sustainability

- ISO 14001 environmental management systems
- National and international discharge regulations
- Environmental impact assessment (EIA) basics
- ESG reporting and sustainability metrics
- **Case Study:** Manufacturing plant achieving zero regulatory violations after compliance overhaul

Module 8: Troubleshooting & Operational Excellence

- Common operational failures and root cause analysis
- Chemical imbalance and process correction techniques
- Energy optimization strategies
- Emergency response in effluent plant failures
- **Case Study:** Power plant resolving foaming and toxicity issues in activated sludge system

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:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com