



Maintenance & Reliability Management

# **Best Practices in Sewage and Effluent Treatment Technologies Processes, Theory, Maintenance, Operation and Troubleshooting**

## Course Introduction

---

Best practices in sewage and effluent treatment technologies are critical to safeguarding public health and protecting the environment. Proper treatment processes not only ensure that effluent meets regulatory standards but also support sustainable water management practices. Understanding treatment methods, system operation, maintenance, and troubleshooting allows plant operators to effectively manage wastewater treatment plants and minimize downtime and operational costs.

This program provides a comprehensive overview of sewage and effluent treatment, covering everything from treatment processes and theory to operational best practices and troubleshooting techniques. Participants will gain hands-on knowledge of the various treatment stages, learn how to maintain and operate treatment systems, and troubleshoot common issues effectively.

## Target Audience

---

This course is designed for operators, maintenance engineers, and plant managers responsible for the operation, maintenance, and troubleshooting of sewage and effluent treatment systems.

## Learning Objectives

---

- Understand the basic principles and processes involved in sewage and effluent treatment.
- Learn about the different treatment methods and their applications in various contexts.
- Gain knowledge of the day-to-day operations and maintenance of sewage treatment plants.
- Learn troubleshooting techniques for resolving common issues in sewage treatment systems.

- Discover best practices for optimizing and continuously improving sewage and effluent treatment processes.

## Course Outline

---

### • 01 DAY ONE

#### Introduction to Sewage and Effluent Treatment Technologies

- Overview of sewage and effluent treatment processes
- Types of effluents and wastewater (domestic, industrial, agricultural)
- The role of sewage treatment in environmental protection
- Key treatment stages: primary, secondary, and tertiary
- The basic principles of sewage treatment (sedimentation, filtration, aeration, etc.)
- Regulatory standards and guidelines in sewage and effluent treatment
- Importance of proper design and selection of treatment systems

### • 02 DAY TWO

#### Sewage and Effluent Treatment Process Theory

- Detailed explanation of primary, secondary, and tertiary treatment processes
- Biological treatment methods (activated sludge, trickling filters, etc.)
- Chemical treatment methods (chlorination, coagulation, flocculation)
- Physical treatment methods (sedimentation, filtration)
- Emerging technologies in sewage treatment (membrane bioreactors, UV disinfection, etc.)
- The role of nutrients and micro-organisms in biological treatment
- Understanding the concepts of sludge treatment and disposal

### • 03 DAY THREE

#### Operation and Maintenance of Sewage Treatment Plants

- Routine operational tasks in a sewage treatment plant
- Importance of monitoring and controlling treatment parameters (flow, pH, temperature, etc.)
- Preventive maintenance practices for plant equipment and machinery
- Ensuring proper functioning of pumps, motors, blowers, and valves

- Managing chemical dosing and storage safely
- Calibration and troubleshooting of instrumentation and sensors
- Safety practices and protocols for operators in treatment plants

#### • 04 DAY FOUR

##### Troubleshooting Sewage Treatment Systems

- Common operational problems in sewage and effluent treatment plants
- Identifying and diagnosing issues in biological, chemical, and physical treatment stages
- Troubleshooting pump, valve, and motor failures
- Addressing clogging, foaming, and odor issues in treatment systems
- Steps for resolving effluent quality problems (e.g., BOD, COD, pH levels)
- Techniques for troubleshooting automation and control system issues

#### • 05 DAY FIVE

##### Best Practices for Continuous Improvement in Treatment Systems

- Strategies for improving treatment efficiency and reducing energy consumption
- Implementing effective process control and monitoring systems
- Using data analysis to optimize plant performance
- Regular audits and performance assessments for continuous improvement
- Wastewater reuse and resource recovery technologies (e.g., biogas, nutrient recovery)
- Future trends in sewage and effluent treatment technologies

## Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
July 21, 2025	July 25, 2025	5 days	4250.00 \$	UAE - Dubai
Sept. 15, 2025	Sept. 19, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Nov. 17, 2025	Nov. 21, 2025	5 days	4250.00 \$	UAE - Dubai

