€TRAINING

Biological Wastewater Treatment

26 - 30 May 2024
Dubai (UAE)

Biological Wastewater Treatment

REF: S1659 DATE: 26 - 30 May 2024 Venue: Dubai (UAE) - Fee: 5310 Euro

Introduction:

This training program provides in-depth knowledge in biological wastewater treatment, focusing on principles, modelling, and design aspects.It equips professionals with the expertise needed to address the complex challenges of wastewater treatment and contribute to environmental sustainability.

Program Objectives:

At the end of this program, participants will be able to:

- Demonstrate a comprehensive understanding of the principles underlying biological wastewater treatment processes.

- Apply advanced modelling techniques to simulate and optimize biological treatment systems.

- Design efficient and sustainable biological treatment systems tailored to specific wastewater characteristics and treatment goals.

- Implement effective operational strategies to maximize treatment performance and ensure regulatory compliance.

- Evaluate and troubleshoot common challenges encountered in biological wastewater treatment, employing appropriate corrective measures for continuous improvement.

Targeted Audience:

- Sanitary engineers.

- Environmental biotechnologists.

- Biochemists, Chemists.

- Civil engineers.

- Environmental engineers, and scientists.

- Different professionals working or interested in the wastewater treatment field.

Program Outlines:

Unit 1:

Fundamentals of Biological Wastewater Treatment:

- Introduction to the basics of biological treatment processes for wastewater.

- Understanding the role of microorganisms in organic matter degradation.

- Examining key biochemical reactions involved in aerobic and anaerobic treatment.

- Exploring the influence of environmental factors on microbial activity in treatment systems.

- Discussing the significance of factors like dissolved oxygen, pH, and temperature in biological treatment.

Unit 2:

Design and Operation of Biological Treatment Systems:

- Principles of designing biological treatment units for wastewater treatment plants.

- Factors influencing the selection of appropriate treatment technologies and configurations.

- Operational parameters and control strategies for maintaining optimal performance.

- Integration of biological treatment processes with other unit operations in treatment plants.

- Considerations for scaling up biological treatment systems from lab-scale to full-scale applications.

Unit 3:

Modelling and Simulation in Biological Treatment:

- Introduction to mathematical modelling techniques for biological treatment processes.

- Development of process models to simulate biokinetic reactions and treatment kinetics.

- Calibration and validation of biological treatment models using experimental data.

- Case studies demonstrating the use of modelling in the design and evaluation of treatment systems.

Unit 4:

Advanced Biological Treatment Technologies:

- Overview of advanced treatment technologies such as membrane bioreactors and sequencing batch reactors.

- Design considerations and operating principles for advanced treatment processes.

- Comparison of different treatment technologies in terms of efficiency, cost, and applicability.

- Integration of advanced treatment units for nutrient removal and pathogen reduction.

- Evaluation of emerging trends and innovations in biological wastewater treatment.

Unit 5:

Performance Optimization and Troubleshooting:

- Strategies for optimizing the performance of biological treatment systems.

- Monitoring and control techniques for maintaining stable operation and effluent quality.

- Identification and troubleshooting of common operational issues in treatment plants.

- Preventive maintenance practices to ensure long-term reliability and efficiency.

- Continuous improvement strategies for enhancing treatment process performance.