Sewage - Wastewater Treatment Operation and Maintenance (Advanced)

26 – 30 April 2027
London (UK)



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Introduction

In today's demanding environmental and operational landscape, the effective management of wastewater treatment systems is critical to ensuring operational efficiency, reducing costs, and maintaining strict environmental compliance. As treatment plants become more complex, professionals must go beyond routine operations and adopt advanced approaches focused on process control, performance optimization, and real-time problem-solving.

This advanced training program is designed to elevate participants' capabilities in managing, operating, and optimizing wastewater treatment processes. It combines in-depth technical knowledge with practical application, enabling participants to analyze plant performance, enhance system efficiency, and resolve complex operational challenges. Through hands-on exercises and real-world case studies, participants will gain the confidence to improve performance while minimizing risks and operational costs.

Course Objectives

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

- Develop advanced knowledge of wastewater treatment processes
- Analyze plant performance using operational data and KPIs
- Optimize biological and chemical treatment processes
- Apply preventive and predictive maintenance techniques
- Diagnose and resolve complex operational issues
- Improve efficiency while ensuring environmental compliance

Course Outlines

Day 1: Plant Performance Analysis

- Advanced overview of wastewater treatment systems
- Understanding and applying Key Performance Indicators KPIs
- Analysis of influent vs. effluent quality
- Evaluating overall process efficiency
- Case study: Comprehensive plant performance assessment

Day 2: Biological Process Optimization



- Advanced control of the activated sludge process
- Key parameters: DO, MLSS, SRT, F/M ratio
- Troubleshooting common issues:
    - Bulking
    - Foaming
    - Settling problems
- Workshop: Process optimization simulation

Day 3: Equipment & System Troubleshooting

- Identifying faults in pumps, blowers, and aeration systems
- Mechanical and electrical troubleshooting techniques
- Maintenance of critical equipment
- Workshop: Failure diagnosis scenarios

Day 4: Maintenance & Operational Efficiency

- Applying preventive and predictive maintenance
- Strategies for energy optimization
- Chemical dosing optimization
- Techniques for cost reduction and efficiency improvement
- Exercise: Developing an efficiency improvement plan

Day 5: Risk Management & Emergency Handling

- Managing shock loads and operational disturbances
- Emergency response planning and execution
- Ensuring environmental compliance and safety standards
- Real-life case studies and lessons learned
- Final simulation exercise

Why Attend this Course: Wins & Losses!

- Strengthen practical expertise in wastewater treatment operations
- Improve plant efficiency and significantly reduce operational costs
- Enhance troubleshooting and decision-making skills
- Gain hands-on experience through real-world case studies and simulations
- Ensure compliance with environmental regulations and standards
- Optimize system performance using advanced process control techniques



Conclusion

This advanced program delivers a powerful combination of technical depth and practical application in wastewater treatment system optimization. It equips participants with the skills needed to enhance performance, improve reliability, and manage complex operational challenges with confidence.

By the end of the course, participants will be able to apply advanced strategies to optimize processes, reduce risks, and drive continuous improvement—positioning themselves and their organizations for long-term operational excellence and environmental sustainability.

