MERCURY

Water and Wastewater Treatment Course

26 – 30 September 2027
Manama (Bahrain)



Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

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Water and Wastewater Treatment Course

Ref: 15559_1080636 **Date:** 26 – 30 September 2027 **Location:** Manama (Bahrain) **Fees:** 5500 Euro

Introduction:

The water and wastewater treatment course examines critical techniques involved in the stewardship of water resources and sanitation. It is thoughtfully tailored for many professionals and encapsulates foundational principles, cutting-edge technologies, and standardized industry practices to achieve effectiveness in water and wastewater management endeavors.

Participants in this water and wastewater treatment course will gain valuable insights and practical skills to address the challenges associated with water and wastewater management. It is an invaluable resource for environmental engineers, water quality specialists, wastewater operators, public health professionals, policymakers, and others. They will equip themselves with the knowledge to contribute to sustainable water management practices.

In this water and wastewater treatment course, participants will delve into Asset Management applications/systems to ensure the efficient operation and maintenance of water and wastewater facilities. They will also detail strategies for inspections and audits to maintain regulatory compliance, operational excellence, and project management methodologies for effective planning, execution, and completion of facility projects.

This water and wastewater treatment course highlights GHG offset and energy recovery strategies, promoting sustainable practices to mitigate emissions and harness energy from treatment processes. Understanding the interfaces with stakeholders and fostering effective communication, collaboration, and community engagement is critical for overall success and sustainability in water and wastewater treatment.

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Targeted Groups:

- Environmental Engineers.
- Water Quality Specialists.
- Wastewater Operators.
- Public Health Professionals.
- Policymakers.
- Researchers and Academics.
- Students and Newcomers.
- Civil Engineers.
- Chemical Engineers.
- Industrial Hygienists.
- Regulatory Compliance Officers.
- Environmental Consultants.
- Sustainability Managers.
- Water Resource Planners.
- Laboratory Technicians.

Course Objectives:

At the end of this water and wastewater treatment course, participants will:

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- Grasp the underpinning tenets of water and wastewater treatment methodologies.
- Investigate prevalent technologies deployed within water and wastewater treatment infrastructures.
- Internalize best practices conducive to optimizing operational and maintenance protocols for treatment establishments.
- Unravel the complexity of regulatory edicts presiding over water quality benchmarks and adherence requisites.
- Develop proficiencies in evaluating and tracking water quality indicators.
- Discern the interconnectedness of water quality, public well-being, and environmental sustainability.
- Cultivate knowledge of developing trends and inventive breakthroughs in water treatment realms.
- Translate theoretical constructs to tangible settings through illustrative case studies and hands-on exercises.
- Engender cross-disciplinary collaboration amongst various professionals in the water sector.
- Prepare for industry-recognized certification examinations in water and wastewater treatment, as applicable.
- Comprehend the significance of asset management applications/systems in refining the functioning and preservation of water and wastewater facilities.
- Learn quintessential strategies for facility management via comprehensive inspection and audit protocols, guaranteeing regulatory conformity and operational efficiency.
- Acquire insights into project management frameworks distinctly tailored to the efficacious planning, execution, and fulfillment of water and wastewater-related projects.
- Explore GHG offset and energy recapture initiatives to enhance sustainability and diminish environmental ramifications in water and wastewater treatment operations.
- Recognize the interplay between water and wastewater entities and myriad stakeholders, stressing the imperative of productive communication, collaboration, and community engagement for overarching success and sustainability.

Targeted Competencies:

Participants' competencies in this water and wastewater treatment training will:

- Mastery of equipment operation and maintenance.
- Data analysis and interpretation aptitude.
- Knowledge of environmental norms and regulations.
- Advanced troubleshooting faculties.
- Familiarity with treatment procedures.
- Implementation of sustainability initiatives.
- Articulate communication abilities.
- Risk evaluation and amelioration understanding.
- Process design optimization skills.
- Commitment to continual educational growth.
- Asset management proficiency for prime operations.
- Inspection and audit tactical implementation.
- Water, wastewater project management, and skill set.
- GHG offset and energy salvation acumen.
- Stakeholder interface expertise.

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Course Content:

Unit 1: Introduction to Water and Wastewater Treatment:

- The water cycle and the pivotal role of water treatment.
- Types of contaminants in water and their origins.
- Introduction to primary, secondary, and tertiary treatment stages.
- Wastewater collection and transportation systems.
- Impact of regulations and environmental standards on water treatment.

Unit 2: Physical and Chemical Treatment Processes:

- Examination of physical treatment methods: sedimentation, filtration, and clarification.
- In-depth discussions on chemical attacks on impurities: coagulation, flocculation, and disinfection.
- Investigation of advanced oxidation procedures for water purification.
- Real-world examples of physical and chemical treatment applications.
- Practical exercises on optimization of treatment processes based on water quality analytics.

Unit 3: Biological Treatment Processes:

- Aerobic and anaerobic biological treatment methodologies.
- Deep-dive into activated sludge systems, trickling filters, and sequencing batch reactors.
- Microbial ecosystems and their relevance in pollutant biodegradation.
- Case demonstrations of biological treatment systems in operational wastewater treatment plants.
- Laboratory presentations and field excursions to witness biological treatment systems in operation.

Unit 4: Water Quality Monitoring and Analysis:

- Introduction to vital water quality parameters and their importance.
- Sampling techniques and methods to monitor water quality.
- Lab analysis techniques for contaminant detection.
- Interpretation of water quality data and risk identification.
- Hands-on experience in water quality assessments and development of monitoring strategies.

Unit 5: Sustainable Practices in Water Treatment:

- Strategies for water management sustainability.
- Water reuse and resource recovery endeavors.
- Assessment of green technologies and eco-friendly treatments.
- Success stories of sustainable methods in water treatment facilities.
- Collaborative projects for designing eco-centric water treatment systems.

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Unit 6: Asset Management Applications/Systems Related to Managing Water and Wastewater Facilities:

- Introduction to Asset Management in Water and Wastewater Treatment.
- The necessity of Asset Management for efficient operations.
- An array of Asset Management Systems and technological applications.
- Advantages of executing Asset Management strategies within Water and Wastewater Facilities.
- Fundamentals of Asset Management Programs.
- Industry Case Studies of successful Asset Management implementation.
- Challenges and Solutions in Asset Management for Water and Wastewater Treatment.
- Upcoming trends and tech advancements in Asset Management tools.

Unit 7: Strategies Used to Manage Water and Wastewater Treatment Facilities Related to Inspection and Audits:

- Essentials of the inspection and audit process in Water and Wastewater Treatment.
- The significance of consistent inspections and audits for facility management.
- Varieties of inspections and audits within Water and Wastewater Facilities.
- Crafting effective inspection and audit action plans.
- Leveraging tech to streamline inspection and audit workflows.
- Compliance requisites and regulatory stipulations for Water and Wastewater Facilities.
- Best practices for conducting robust inspections and audits.
- Case Studies reflecting successful management via inspection and audits.
- Continuous enhancement and adaptability in inspection and audit tactics.

Unit 8: Project Management Related to Water and Wastewater Facilities:

- Basic principles of Project Management in Water and Wastewater Treatment.
- Planning and starting projects concerning facility modernization and expansion.
- Financial planning and allocation of resources for Water and Wastewater Projects.
- Strategies for project completion and performance.
- Supervised and controlled project lifecycles.
- Risk Analysis within Water and Wastewater Projects.
- Engaging stakeholders and ensuring smooth communication during project management.
- Real-life Project Management practices within Water and Wastewater Projects.

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Unit 9: GHG Offset and Energy Recovery:

- Identifying greenhouse gas emissions in Water and Wastewater Treatment.
- Tactics for greenhouse gas compensation in Water and Wastewater Facilities.
- A range of energy reclamation techniques within treatment operations.
- Benefits of energy healing and greenhouse gas mitigation in Water and Wastewater Treatment.
- Implementation of energy efficiency and greenhouse gas reduction best practices.
- Financial implications and incentives for energy reclamation and greenhouse gas offsets.
- Case Studies demonstrating the successful execution of greenhouse gas offset and energy recovery methods in treatment establishments.

Unit 10: Interfaces of Water and Wastewater Facilities and Different Stakeholders:

- A rundown of stakeholders within Water and Wastewater Treatment.
- The roles and interests of various stakeholder groups.
- Effective communication strategies for stakeholder engagement.
- Opportunities for collaborative efforts and partnerships with stakeholders.
- Addressing stakeholder queries and inputs efficiently within facility management.
- Compliance and engagement strategies in stakeholder relations.
- Community outreach and public rapport initiatives for Water and Wastewater Operations.
- Case illustrations that underscore forging positive stakeholder relations in treatment facilities.