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WE126:
Emerging Technologies in Water Technology

Training Description:

This training course is designed to provide participants with a detailed and up-to-date overview of Water Technology. It covers the water resources management, hydrological cycle and water budgeting; the principles of water quality, basic water chemistry and water and wastewater treatment; the water distribution systems, membrane technologies and advanced oxidation processes (AOPs); and the biological treatment processes, desalination technologies, emerging contaminants and treatment solutions.

Further, the training course will also discuss the reuse and recycling of wastewater, water quality guidelines and standards and monitoring water quality; the remote sensing and GIS in water management and point-of-use and point-of-entry treatment systems; protecting water sources from pollution and addressing the link between water quality and public health issues; the integrated water resources management (IWRM); and the principles and practices for managing water resources in a sustainable and equitable manner.

During this intensive training course, participants will learn the climate change, water resources and water footprint and conservation; the reduction of energy use in water and wastewater treatment facilities and managing water in urban environments including stormwater management and green infrastructure; the water policy and governance, smart water networks and nanotechnology in water treatment; the emerging technologies in water treatment including decentralized water systems; and the interdependence between water and energy systems including hydropower.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Apply and gain an in-depth knowledge on water technology
- ✓ Carryout water resources management, hydrological cycle and water budgeting
- ✓ Discuss the principles of water quality, basic water chemistry and water and wastewater treatment
- ✓ Recognize water distribution systems, membrane technologies and advanced oxidation processes (AOPs)
- ✓ Employ biological treatment processes, desalination technologies, emerging contaminants and treatment solutions
- ✓ Apply reuse and recycling of wastewater, water quality guidelines and standards and monitoring water quality
- ✓ Carryout remote sensing and GIS in water management and discuss point-of-use and point-of-entry treatment systems
- ✓ Protect water sources from pollution and address the link between water quality and public health issues
- ✓ Explain integrated water resources management (IWRM) including the principles and practices for managing water resources in a sustainable and equitable manner
- ✓ Identify climate change and water resources and apply water footprint and conservation
- ✓ Reduce energy use in water and wastewater treatment facilities as well as manage water in urban environments, including stormwater management and green infrastructure
- ✓ Discuss water policy and governance, smart water networks and nanotechnology in water treatment
- ✓ Explore emerging technologies in water treatment including decentralized water systems and the interdependence between water and energy systems including hydropower

Training Designed for:

This training course is intended for water technology for industrial wastewater compliance managers, supervisors, water engineers, inspectors, plant managers and HSE staff.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- Pre-Test
- Introduction
- **Water Resources Management:** An Introduction to Global Water Resources, including Surface and Groundwater Management
- **Hydrological Cycle & Water Budgeting:** The Movement of Water Through the Earth's Hydrosphere
- **Principles of Water Quality:** Key Parameters Defining Water Quality, Including Physical, Chemical, and Biological Indicators
- **Basic Water Chemistry:** The Chemical Properties of Water Relevant to Treatment Processes and Water Quality Management
- **Water & Wastewater Treatment:** Conventional and Modern Treatment Processes
- **Water Distribution Systems:** The Principles of Designing, Operating, and Maintaining Water Distribution Networks
- Recap

DAY TWO:

- **Membrane Technologies:** Detailed Exploration of Membrane Filtration Processes such as Reverse Osmosis, Ultrafiltration, and Nanofiltration
- **Advanced Oxidation Processes (AOPs):** Technologies for Removing Organic Compounds and Pathogens from Water
- **Biological Treatment Processes:** Aerobic and Anaerobic Processes for Wastewater Treatment and Nutrient Removal
- **Desalination Technologies:** Methods and Challenges of Turning Seawater into Potable Water
- **Emerging Contaminants & Treatment Solutions:** Addressing Pharmaceuticals, Personal Care Products, and Microplastics
- **Reuse & Recycling of Wastewater:** Technologies and Strategies for Water Reuse, including Greywater Systems
- Recap

DAY THREE:

- **Water Quality Guidelines & Standards:** Review of National and International Standards for Drinking Water and Effluent
- **Monitoring Water Quality:** Modern Techniques and Technologies for Water Quality Assessment
- **Remote Sensing & GIS in Water Management:** Applications of Satellite Imagery and GIS in Water Resource Management
- **Point-of-Use & Point-of-Entry Treatment Systems:** Technologies for At-Home or At-Building Water Treatment
- **Source Water Protection:** Strategies for Protecting Water Sources from Pollution
- **Public Health & Water Quality:** The Link Between Water Quality and Public Health Issues
- **Recap**

DAY FOUR:

- **Integrated Water Resources Management (IWRM):** Principles and Practices for Managing Water Resources in a Sustainable and Equitable Manner
- **Climate Change & Water Resources:** Impact of Climate Change on Water Availability and Quality
- **Water Footprint & Conservation:** Methods for Calculating Water Footprint and Strategies for Water Conservation in Industries
- **Energy Efficiency in Water Treatment:** Reducing Energy Use in Water and Wastewater Treatment Facilities
- **Sustainable Urban Water Management:** Approaches for Managing Water in Urban Environments, including Stormwater Management and Green Infrastructure
- **Water Policy & Governance:** The Regulatory and Policy Framework Governing Water Management
- **Recap**

DAY FIVE:

- **Smart Water Networks:** Implementation of AI, and Smart Sensors in Water Distribution and Monitoring
- **Nanotechnology in Water Treatment:** The Potential of Nanomaterials and Nano-Enabled Devices for Improving Water Treatment
- **Emerging Technologies in Water Treatment:** Exploration of Cutting Edge Technologies and their Potential Impact
- **Decentralized Water Systems:** Benefits and Challenges of Decentralized Water Treatment and Supply Systems
- **Water-Energy Nexus:** The Interdependence Between Water and Energy Systems, Including Hydropower
- **Course Summary & Future Outlook:** The Future of Water Technology and strategic Planning for Water and Electricity Companies
- Course Conclusion
- POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play

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- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA As per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:
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