Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com



WE109:
Engineering for Non-Engineers

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Training Description:

This intensive training course is designed to provide participants with a detailed and an up-to-date overview of engineering for non-engineering. It covers the application of engineering covering its elements and branches; the innovation, design, construction, operation and maintenance of structures, machine, materials, software, devices, systems, processes and organizations; engineering role in Haya Water and the generation of waste water sources including the physical characteristics of waste water, flow, color, odor and temperature.

Further, this course will also discuss the chemical characteristics of waste water, alkalinity, BOD, COD, dissolved gases, nitrogen and phosphorous content, suspended and dissolved solids; the biological characteristics of food protozoa, fungi, algae, bacteria and viruses; the sequential batch reactors aerobic process; waste water treatment; the process flow diagram of waste water treatment plant including its parts and functions and the inlet gate valves, grinders, pumps, belt type screen, wash press, grease scraper, grit washer and oil/water separator.

During the interactive course, participants will learn the distribution chamber with associated gate valves as well as the sequence batch reactors including blowers, decanters, mixers, difussers and submersible pumps; the tertiary facility covering hollow fiber filters, cip pumps, cip warm water heater; the treated effluent storage facility comprising of inlet and outlet valves, washing water system, air chamber drum, transfer pumps and sump pumps; the treated water pumping station that include chlorine tank, chlorine pumps, irrigation pumps, NaOH dosing facility, FeCl3 storage tanks, hypochlorination generation acility, chemicals transfer facility; the aerobic digestors, decanters, diffusers, sludge transfer pumps; and the sludge dewatering treatment facility and wet scrubber system for odor removal.

Training Objectives:

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

- ✓ Apply and gain a good working knowledge on engineering for non-engineering
- ✓ Identify the application of engineering covering its elements and branches
- ✓ Carryout the innovation, design, construction, operation and maintenance of structures, machine, materials, software, devices, systems, processes and organizations
- ✓ Discuss the engineering role in Haya Water including the generation of wastewater sources
- ✓ Describe the physical characteristics of wastewater, flow, color, odor and temperature
- ✓ Recognize the chemical characteristics of wastewater, alkalinity, BOD, COD, dissolved gases, nitrogen and phosphorous content, suspended and dissolved solids
- ✓ Illustrate the process flow diagram of a treatment plant
- ✓ Determine inlet gate valves, grinders and pumps of main pumping station as well as the belt type screen, wash press, grease scraper grit washer and oil/water separator of pretreatment station
- ✓ Identify distribution chamber with associated gate valves as well as the sequence batch reactors including blowers, decanters, mixers, difussers and submersible pumps
- ✓ Discuss tertiary facility covering hollow fiber filters, cip pumps and cip warm water heater
- ✓ Identify the treated effluent storage facility comprising of inlet and outlet valves, washing water system, air chamber drum, transfer pumps, and sump pumps

- ✓ Recognize treated water pumping station that include chlorine tank, chlorine pumps, irrigation pumps, NaOH dosing facility, FeCl3 storage tanks, hypochlorination generation acility and chemicals transfer facility
- ✓ Explain the aerobic digestors, decanters, diffusers, sludge transfer pumps
- ✓ Identify the sludge dewatering treatment facility and wet scrubber system for odor removal

Training Designed for:

This course is intended for non-engineering supervisors and Officers.

Training Requirements:

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

Practical sessions will be organized during the course for participants to practice the theory learnt. Participants will be provided with an opportunity to carryout various exercises using the "iLearnVibration" simulator.

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:

- ❖ Introduction
- ❖ What is Engineering
- ❖ Application of Engineering
- ❖ Elements of Engineering
- ❖ Main Branches of Engineering
- ❖ Innovation, Design, Construction, Operation & Maintenance of Structures, Machine, Materials, Software, Devices, Systems, Processes & Organizations

DAY TWO:

- ❖ Engineering Role in Haya Water
- ❖ Generation of Wastewater Sources
- ❖ Physical Characteristics of Wastewater, Flow, Color, Odor, Temperature
- ❖ Chemical Characteristics of Wastewater, Alkalinity, BOD, COD, Dissolved Gases, Nitrogen & Phosphorous Content, Suspended & Dissolved Solids
- ❖ Biological Characteristics

DAY THREE:

- ❖ Description of Sequential Batch Reactors Aerobic Process Currently Applied at 60.000 M3/Hr Wastewater Treatment
- ❖ Process Flow Diagram of a Wastewater Treatment Plant
- ❖ Main Pumping Station (Inlet Gate Valves, Grinders, Pumps)

- Pre-Treatment Station (Belt Type Screen, Wash Press, Grease Scraper, Grit Washer, Oil/Water Separator)

DAY FOUR:

- Distribution Chamber with Associated Gate Valves
- Sequence Batch Reactors (Blowers, Decanters, Mixers, Difussers, & Submersible Pumps)
- Tertiary Facility (Hollow Fiber Filters, Cip Pumps, Cip Warm Water Heater)
- Treated Effluent Storage Facility (Inlet & Outlet Valves, Washing Water System, Air Chamber Drum, Transfer Pumps & Sump Pumps)
- Practical Sessions
  - This hands-on, highly-interactive training includes real-life case studies and exercises

DAY FIVE:

- Treated Water Pumping Station (Chlorine Tank, Chlorine Pumps, Irrigation Pumps, NaOH Dosing Facility, FeCl3 Storage Tanks, Hypochlorination Generation Acility, Chemicals Transfer Facility)
- Aerobic Digestors (Decanters, Diffusers, Sludge Transfer Pumps)
- Sludge Dewatering Treatment Facility (Centrifuges, Conveyors, Polymer Dissolving System, Weight Bridge)
- Wet Scrubber System for Odor Removal (Scrubbers, Pumps, Exhaust Fans, Softeners)
- 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
- 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.

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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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