

## Water Resources Management Meeting the Challenge of Optimizing and Monitoring the Use of Water for Different Applications



Date	(\$) Fees
24 March -28 March 2024 Kuala Lumpur	3500

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### Why Choose this Training Course?

The course will focus and address two important areas where water is used. The utilities sector that basically includes the major sources of potable water (also specific reference is to be made to the use of water in the electricity generation sector and building industry), and the water re-use sector that will address the use of recycled water for different applications (e.g. irrigation and enrichment of aquifers).

Managing water supplies, be it in the utility sector or in a wide range of industrial applications, is a very demanding task and often requires the very best of knowledge and understanding of customer needs. Delivering water of the right quality to the end user and maintaining its *fitness for purpose* through a carefully designed monitoring programme, are the main objectives of this course. This course will, at the same time, address the problem of water scarcity and provide a systematic approach to managing the different types of water resources available.

#### This course will feature:

- An overview of the water resources worldwide – historical facts, trends and the way forward
- The different potable water sources (natural surface water, borehole water, desalinated water) and the advantages/disadvantages of each
- Review of international guidelines on drinking water quality
- Monitoring of drinking water supplies / the use of treated/recycled water
- Different kinds of treated water and their use in different applications – restrictions and guidelines

### What are the Goals?

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

- Appreciate the worldwide issue of water scarcity
- Become aware of the different kinds of water available
- Be aware of the restrictions that apply regarding water quality for a diverse range of specific applications
- Identify the risks involved in the uncontrolled use of water in different applications and devise monitoring programs that can effectively reduce the risks while at the same time providing conformity to the appropriate local and international guidelines and regulations/legislations
- Be able to provide basic interpretation of water testing results and propose necessary courses of action

## Who is this Training Course for?

**This course is suitable for a wide range of professionals in the water industry, but will benefit particularly:**

- Engineers and other technical professionals in charge of water treatment, storage and distribution installations (e.g. Water Boards, Industry, Hospitals, Hotels, Power Stations)
- Technical professionals that are involved in the monitoring of water supplies
- Administrative personnel involved in the drafting and writing up of national guidelines and legislations regarding the quality of potable and other water supplies
- Hygiene inspectors acting on behalf of official Public Health and Environmental authorities for the implementation of potable and recycled water legislations
- Inspection bodies personnel, Health & Safety advisors and consultants involved in the water treatment and monitoring industry
- Procurement officers (commissioning of WWTP's and Desalination Plants, Tendering Departments in the Utility sector)

## How will this Training Course be Presented?

This course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The course will be presented on a highly interactive basis, prompting delegates to engage in discussions involving their personal experience. It will also include case studies, short films, and group exercises.

## The Course Content

### **Day One: Water as a scarce resource – Worldwide Facts and Prospects**

- Review of worldwide water reserves
- Concerns regarding water quality and quantity
- Water usage by sector – sustainable policy on water use
- Basic chemical characteristics of waters
- Basic microbiological characteristics of waters

### **Day Two: Potable Water Origin and its Main Characteristics & Regulatory Requirements**

- Sources of potable water: Surface/borehole water/natural spring water (including bottled water), Desalinated water, Blended water
- Typical advantages and disadvantages of each category (cost-wise and quality-wise comparison)
- Choice of optimal blending regimes
- Typical ionic composition of each type of water and being able to differentiate between these on the basis of specific parameters
- Potable water regulations and directives (WHO, European)

### **Day Three: Potable Water Monitoring Regime, Interpretation of Test Results, Potable Water Treatment**

- Points to be sampled based on a risk factor approach, frequency of sampling, sampling techniques for

- chemistry and microbiology, type of parameters to be tested
- Interpretation of analysis results: Chemistry (general chemical profile parameters, minerals, organic micro pollutants) and Microbiology (most important indicator microorganisms)
- Basic water treatment techniques for household and industrial applications: Softening / Reverse osmosis / Microfiltration / Ultrafiltration / Ion exchange/demineralization-deionization
- Use of water in power plants (cooling and steam generation)
- Main water disinfection techniques: Chlorination /ozonation/chlorine dioxide/UV
- Group exercise on the monitoring of a drinking water distribution system in different scenaria (e.g. domestic, industry, hotels, hospitals, office complexes, shopping centres)

#### **Day Four: Recycled Water Origin, Main uses and Restrictions**

- Recycled water from domestic sewage Waste Water Treatment Plants (WWTP's) and Self-contained Sewage Treatment plants (STP's)
- Recycled water from Industrial and Agricultural applications
- Main uses of recycled or grey water
- Contribution of recycled water to the water balance
- Restrictions on the use of recycled water – relevant regulations relating to public health

#### **Day Five: Recycled Water Composition, Monitoring Regime and Interpretation of Test Results**

- Typical composition of recycled water: Chemistry and microbiology parameters
- Monitoring regimes for recycled water systems: Points to be sampled based on a risk factor approach, sampling frequency, sampling precautions
- Type of parameters to be tested in appraising the quality of recycled water for different applications
- Interpretation of the results of analysis for recycled water
- Group exercise on the monitoring of a recycled water distribution system
- Q & A session and wrap-up session



00971504646499



info@britishtc.org



<http://britishtc.org/>