



Add-on Certificate Course
Department of Chemistry
Nalbari College



Course Title: Analysis of Water

Course Duration: 32 Hours

Course Code: CHE-Ad-on-02

Introduction: Water is one of the most vital natural resources for all life on Earth. The availability and quality of water always have played an important role for all living beings. Even though there has been a plenty of water on Earth, it is not always suitable for all kind of uses. About 97.2% of the total water on the Earth is in the oceans, nearly 2.1% of this is frozen in glaciers and polar ice caps and only a small percentage (about 0.3%) is in the usable form for humans. Nevertheless, much of the 0.3 percent that is useable is unattainable. Therefore, water must be considered as a finite resource, like the petroleum products that has limits to its availability and suitability for use. The majority of fresh water is found underground in the form of soil moisture and in aquifers, whereas most of the surface water used by humans comes from rivers. Due to its incredible solvent properties, water mixes with and dissolves a wide variety of substances or contaminants and thereby making it impure.

Since water is used for different purposes, it becomes essential to check its suitability before use. Further, the sources of water must also be monitored regularly to know whether they are in proper condition or not. Poor condition of water bodies is a major threat to the society as well as to the ecosystem. The use of inappropriate water in industries may lead to serious damage or may cause severe economic loss. Thus, the analysis of water quality appears to be important before using it for any purpose.

Objective: Since analysis of water is very much essential in order to ensure public health as well as for environmental monitoring, so it is the need of the hour to make our students skilled and competent in respect of water quality testing. The main objective of this add on course is to equip our students by giving them a hands-on training to check few important parameters of water analysis which will definitely going to help them in their future course of action.

Learning outcome of the course: By completing this course our students will be able to learn the analytical procedures of few important parameters necessary to test water quality. They will also enable to learn the theoretical background of the respective tests as well as the permissible limits of the individual parameters. This course will also develop the ability of our students to improve their analytical skills in respect of data record, data interpretation and their analysis.

Course Details: (Total 32 hours)

The whole course is divided into eight modules of 4 hours each:

Module 1: Determination of **pH** and **Total Dissolved Solids (TDS)** of water sample.

Module 2: Determination of **total hardness** of water sample in parts per million (ppm).

Module 3: Determination of **dissolved oxygen (DO)** of water sample.

Module 4: Determination of **biological oxygen demand (BOD)** of water sample.

Module 5: Determination of **total alkalinity** of water sample.

Module 6: Determination of **chlorine content** of water sample.

Module 7: Determination of **turbidity** of water sample using turbidity meter.

Module 8: Determination of **Arsenic/Fluoride** content of water samples using UV spectrophotometer.

Assessment: Writing and submission of the report on the experiments of different modules of the course.

Certification: Certificates will be provided to each participant on successful completion of the course.

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