

Title of Skill Course-Water Quality Technician

1. Department: Department of Chemistry
2. Title: Water Quality Technician
3. Sector-Industry
4. Eligibility: B. Sc. I
5. Year of Implementation: 2020-21

Course Structure

Skill Level	Theory Hours	Practical Hours	Total Hours	Credits	No. of students in batch
5	15	30	45	02	30

Syllabus**Course Objectives:**

1. To identify potential water sources and treatment technologies.
2. To interpret water quality regulations, management skills, analytical skills amongst students.

Theory Syllabus (Contact Hours: 15, Credits: 01)**Unit I: Introduction to Laboratory Methods of Analysis of Water [10]**

Brief history of water, properties of water, Water quality Characteristics: Physical, Chemical and Biological Characteristics of water, Standard methods of determination of physicochemical parameters of water quality: pH, Turbidity, electrical conductivity, total solids, alkalinity, hardness, Instrumental methods of chemical analysis, Effect of water on rocks and minerals, Effects of impurities in natural water (colour, taste, odour), Turbidity and sediment, Micro-organisms, Dissolved mineral matter-hardness, alkalinity, total solids.

Unit II: Industrial Waste Management: [05]

Policy and planning, Water quality criteria, technology selection, Types of waste water and management Techniques, Water recovery and reuse, Treatment of industrial wastes: Physical methods, Chemical methods, Biological Methods., Pollution control.

Practical Syllabus (Contact Hours: 30, Credits: 01)**List of Experiments: (Any 8 methods) -----30Hrs**

1. pH value: Electrometric method
2. Dissolved oxygen: The Winkler method with azide modification
3. Hardness: EDTA titration method
4. Biochemical Oxygen Demand(BOD): Titrimetric method
5. Alkalinity: Titrimetric method
6. Conductivity: Instrumental method
7. Total solids: Total dissolved solids
8. Turbidity: Instrumental method
9. Chlorine: Argentometric titration
10. Sodium: Flame emission photometric method

Course Outcomes: After learning this course students will be able to

1. Analyse physicochemical parameters of water.
2. Learn the handling of laboratory equipments.

Reference Books:

1. De A. K. Environmental Chemistry (New Delhi: New Age International (P) Limited, 2012).
2. Sharma B. K. Industrial Chemistry (Meerut: Goel Publishing House, 1991)
3. Henry Glynn , Heinke Gary Environmental Science and Engineering (USA: Prentice Hall, 1988).
4. E & Spon FN Water Pollution Control-A Guide to the Use of Water Quality Management Principles (London: An imprint of Thomson Professional, 1997).

BOS Sub Committee:**❖ BOS Sub Committee:**

1. Dr. V. V. Sawant
2. Dr. Miss. M. S. Barge

Expert Committee:

1. Dr. S. P. Pawar
2. Miss. Snehal Gadhave