

Yashwantrao Chavan Center for Invention, Innovation and Incubation (YC- CIII)

Title of Skill Course-Water Quality Technician

1. Sector-Industry
2. Subject-Chemistry
3. Year of Implementation: 2022

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.
3. To avail the opportunities as water quality technician in food or chemical industry.

Theory Syllabus (Contact Hours: 15, Credits: 01)

Name of Topic	Lectures Allotted
<p>Unit I: Introduction to Laboratory Methods of Analysis of Water</p> <p>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.</p>	[10 L]

<p>Unit II: Industrial Waste Management:</p> <p>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.</p>	[05]
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Practical Syllabus (Contact Hours: 30, Credits: 01)

Name of Experiment (Any 8 Methods)	Lectures Allotted
<ol style="list-style-type: none"> 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 	30 Hrs

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

1. Analyse physicochemical parameters of water.
2. Learn the handling of laboratory equipments.
3. Work effectively in any water based industry.

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:

Sr. No.	Name of Member	Designation	Address
1	Dr. V. V. Sawant Associate Professor	Chairman	Yashavantrao Chavan Institute of Science, Satara
2	Dr. Miss. M. S. Barge Assistant Professor	Member	Yashavantrao Chavan Institute of Science, Satara
3	Dr. S. P. Pawar Assistant Professor	Academic Expert	Chh. Shahu College, Kolhapur
4	Miss. Snehal Gadhve Bacteriologist	Industrial Expert	Sub Divisional Laboratory, Khandala