

Savitribai Phule Pune University, Pune
B.A. (Geography) as per NEP 2020

Name of the Programme	:	B.A. (Geography)
Class	:	F.Y.B.A
Semester	:	I
Name of Vertical Group	:	V 1
Course Code	:	SEC-101-GEO
Course Title	:	Introduction to Water Analysis
Type of course	:	Theory
Total Credits	:	02
Workload	:	Total Workload: -2 credits x 15 hours = 30 hours in semester

Objectives of the Course:

1. To understand water quality parameters.
2. To learn various types and sources of water
3. To learn various quality indices useful for drinking and irrigation water analysis.

Topics and Learning Points

Topic No	Topic Name	Sub Topic	No. of Hours
1	Parameters of water quality	i. Parameters of water quality: <ol style="list-style-type: none"> a. Physical, b. Chemical, c. Biological, ii. Significance of water analysis	10
2	Types of water sources and pollutions	i. Types of water sources, occurrence, and importance ii. Water pollution: source, types, and management	06
3	Standards of water quality	i. BIS (Bureau of Indian Standards) ii. WHO (World Health Organization)	04
4	Characteristics of Water quality indices	i. Indices for drinking water <ol style="list-style-type: none"> a. WQI ii. Indices for irrigation water <ol style="list-style-type: none"> a. Sodium Adsorption Ratio (SAR) (Richards 1954), b. Residual Sodium Carbonate (RSC) (Eaton 1950), c. Sodium Percentage (SP) (Wilcox 1955), d. Kelly's ratio (Kelly 1963) 	10

Course Outcome:

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

- CO 1 : Comprehensive understanding of various water quality parameters useful for assessment of water resources.
- CO 2 : Understand water quality standards of BIS and WHO.
- CO 3 : Understand the characteristics of water quality indices for drinking water and irrigation.

References:

1. Standard Methods for the Examination of Water and Wastewater - American Public Health Association, American Water Works Association, Water Environment Federation.
2. Water Quality Assessments: A Guide to the Use of Biota, Sediments and Water in Environmental Monitoring - Deborah V. Chapman (Editor).
3. Water Quality: Guidelines, Standards and Health - Lorna Fewtrell and Jamie Bartram.
4. Environmental Engineering: Water, Wastewater, Soil and Groundwater Treatment and Remediation - Nelson L. Nemerow and Franklin J. Agardy.
5. BIS 10500:2012 - Drinking Water Specification
6. BIS 2296:1982 - Specifications for Packaged Natural Mineral Water
7. BIS 3025:1983 - Methods of Sampling and Test (Physical and Chemical) for Water and Waste Water
8. BIS 3589:2001 - Methods of Sampling and Test (Physical and Chemical) for Water and Waste Water (Revision of IS 3025)
9. BIS 1622:2008 - Drinking Water - Specification
10. BIS 3025:1964 - Methods of Sampling and Test (Physical and Chemical) for Water and Waste Water
