

SHIVAJI UNIVERSITY, KOLHAPUR



Established: 1962

A++ Accredited by NAAC (2021) With CGPA 3.52

Semester – III and IV
B. A. / B. A. B. Ed. III

Geography
OTHER ELECTIVE (OE)

Under
Faculty of Science and Technology

STRUCTURE AND SYLLABUS IN ACCORDANCE WITH
NATIONAL EDUCATION POLICY – 2020
HAVING CHOICE BASED CREDIT SYSTEM
WITH MULTIPLE ENTRY AND MULTIPLE EXIT OPTIONS

TO BE IMPLEMENTED FROM ACADEMIC YEAR 2026-2027 ONWARDS



Shivaji University, Kolhapur
B. A. / B. A. B. Ed. Part-III, Semester V
Other Elective (OE) V: Water Literacy and Water Budgeting
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. –III
Semester	:	V
Name of Vertical Group	:	OE-5
Course Code	:	BAU0325OET422E05
Course Title	:	Water Literacy and Water Budgeting
Total Credit	:	02
Workload	:	02 credit X 15 Hours = 30 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	40:10
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

Preamble:

Water is one of the most vital natural resources essential for life, economic development, and environmental sustainability. Although water is a renewable resource, its availability is limited due to uneven distribution, overexploitation, pollution, and the impacts of climate change. India, and particularly states like Maharashtra, face serious challenges related to water scarcity, droughts, floods, and inefficient water management. In this context, water literacy is crucial for developing awareness, responsible attitudes, and sustainable practices among students.

This course introduces undergraduate students to the fundamental concepts of water resources, water scarcity, conservation, and management. It also provides practical exposure to water Budgeting, enabling students to understand water use patterns, identify wastage, and adopt water-saving measures at household, campus, and community levels. By integrating theoretical knowledge with practical applications, the course aims to empower students to become informed citizens capable of contributing to sustainable water management and conservation efforts.

General Objectives of the Course:

1. To develop an understanding of water literacy by examining the hydrological cycle, global water resources, patterns of water use, emerging water issues, and the need for conservation and sustainable management.
2. To enable learners to understand and apply the concepts, components, processes, and significance of water budgeting for effective and sustainable water resource management.

Course Outcomes and Programme Outcomes:

Paper Title - Water Literacy and Water Budgeting				
OE – Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Understand the concept of water literacy and its importance. (Understand)	PO1 – Disciplinary Knowledge	Demonstrate comprehensive knowledge of water as a renewable but limited natural resource.	Students gain conceptual clarity about water literacy, its scope, and its role in sustainable resource management.
CO2	Identify and explain different water resources and their significance. (Understand, Apply)	PO2 – Problem Solving	Use logical reasoning and innovation to solve complex problems systematically.	Learners identify types of water resources (surface, groundwater, rainwater) and evaluate their utility for local and regional development.
CO3	Analyse the causes and impacts of water scarcity and water-related issues. (Analyse, Evaluate)	PO3 – Scientific Reasoning / Reflective Thinking	Apply scientific knowledge and ethical reasoning to real-world situations.	Students apply scientific understanding to assess factors causing scarcity, droughts, and pollution, and reflect on mitigation strategies.
CO4	Use geoinformatics and digital tools for water conservation and management. (Evaluate, Create)	PO4 – Digital Literacy	Use ICT tools efficiently for communication, analysis, and information management.	Encourages students to utilize GIS, remote sensing, and other digital techniques to support water resource management and decision-making.
CO5	Understand the concept and process of water budgeting and assess water use and wastage. (Evaluate, Create)	PO5 – Moral and Ethical Awareness / Reasoning	Recognize ethical issues and behave with integrity and fairness.	Students understand the ethical responsibility of conserving water and analyze patterns of water use and wastage for sustainable management.
CO6	Apply water budgeting techniques for sustainable development at community or	PO6 – Global Citizenship / Environment	Understand global issues, respect cultural diversity, and	Learners practically apply water budgeting methods, promoting environmental

	institutional levels. (Evaluate, Create)	& Sustainability	act for sustainable development.	awareness, conservation ethics, and responsible global citizenship.
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11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Water Literacy and Water Budgeting - 2	02	02	---	02	40	10	50

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 50 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 40 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 10 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: OE V: WATER LITERACY AND WATER BUDGETING					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Water Literacy	1.1 Water Literacy : Concept and Importance	2	1	15
		1.2 Hydrological Cycle and Global Scenario of Water Resources	3		
		1.3 Water use and Emerging Water Problems	2		
		1.4 Need of Water Conservation and Sustainable Water Management	4		
2	Water Budgeting	2.1 Water Budgeting: Concept and Need	3	1	15
		2.2 Components and types of water budget	3		
		2.3 Process of water budgeting	3		
		2.4 Importance and outcomes of water budgeting	3		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

1. Agarwal, Anil & Narain, Sunita (1997). *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems*. Centre for Science and Environment (CSE), New Delhi.
2. Bhatia, Bela & Falkenmark, Malin (2004). *Water and Women: Perspectives from India*. Sage Publications, New Delhi.
3. Central Ground Water Board (CGWB) (2020). *Ground Water Year Book – India*. Ministry of Jal Shakti, Government of India.
4. Central Public Health and Environmental Engineering Organisation (CPHEEO) (2012). *Manual on Water Supply and Treatment*. Ministry of Housing and Urban Affairs, Government of India.
5. Central Water Commission (CWC) (2018). *Guidelines for Water Budgeting and Water Conservation*. Ministry of Jal Shakti, Government of India.
6. CSE (2021). *Down to Earth Reports on Water Conservation and Water Budgeting Practices*.
7. Gadgil, Madhav & Guha, Ramachandra (1995). *Ecology and Equity: The Use and Abuse of Nature in Contemporary India*. Oxford University Press, New Delhi.
8. Government of India (2019). *National Water Policy*. Ministry of Jal Shakti, Government of India.
9. Indian Water Works Association (IWWA) (2015). *Water Budgeting Manual*. IWWA, Mumbai.
10. Jain, S.K., Agarwal, P.K., & Singh, V.P. (2007). *Hydrology and Water Resources of India*. Springer (Indian authors and Indian context).
11. Jal Shakti Abhiyan (2021). *Guidelines for Water Conservation and Management*. Government of India.

- | CO-PO Mapping Strength | | | | | | | | | | | | |
|---|-------------------------|-----|-----|-----|-----|-----|-----------------------------------|------|------|------|------|------|
| CO Code | Programme Outcomes (PO) | | | | | | Programme Specific Outcomes (PSO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PSO6 |
| CO1 | 3 | 1 | 2 | 1 | 3 | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 4 | 4 |
| CO4 | 1 | 2 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 3 | 4 |
| CO5 | 3 | 4 | 3 | 2 | 4 | 4 | 3 | 3 | 1 | 1 | 4 | 4 |
| CO6 | 3 | 4 | 2 | 2 | 4 | 4 | 3 | 3 | 2 | 2 | 4 | 4 |
| Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related | | | | | | | | | | | | |