



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in Light of NEP-2020
Civil Engineering Department
Generic Elective (Undergraduate Program)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY		PRACTICAL			L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
GUCE402	GE	Basics of Water Management	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

To introduce students to the fundamental concepts of water management, its challenges, sustainable practices, and technological solutions for efficient water use and conservation.

Course Outcomes (COs):

The student will be able to

1. Understand the basics of water resources and their significance.
2. Identify the challenges associated with water resource management.
3. Apply sustainable practices for water conservation and reuse.
4. Understand the role of technology and policies in efficient water management.

Syllabus:

UNIT I

10 Hrs.

Understanding Water Resources: Surface water (rivers, lakes, reservoirs), groundwater, and oceans; Components and significance of the water cycle; Freshwater availability; Importance of water for human life, agriculture, industry, and ecosystems; Causes and impacts of water scarcity at local, national, and global levels.

UNIT II

10 Hrs.

Water Management Systems: Ancient practices of water harvesting and management (e.g., tanks, canals, stepwells); Modern Water Supply Systems - Urban and Rural Water Supply Networks; Traditional and modern irrigation methods (e.g., drip and sprinkler irrigation) and their selection criteria.

UNIT III

10 Hrs.

Challenges in Water Resource Management: Over exploitation of Water Resources: Causes and consequences; Sources of pollution and its effects on ecosystems and human health; Effects of climate change on water availability and quality; National and international water-sharing disputes.

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UNIT IV

10 Hrs.

Sustainable Practices in Water Management: Rainwater Harvesting - Techniques and benefits for urban and rural areas; Three R's of water conservation: Reduce, Reuse and Recycling of Water - Concepts and applications in domestic and industrial settings; Water-saving techniques in agriculture, industry, and daily life.

UNIT V

10 Hrs.

Policies, Technology, and Future Trends: Overview of national and international water policies, water rights, and governance; Innovation in water management: Use of modern technology for water conservation in water scarce regions; Role of artificial intelligence, big data, and IoT in water resource management.

Textbooks:

1. Water Resources Systems & Management by B L Gupta, Standard Publishers Distributors.
2. Water Resources Management: Principles, Methods, and Tools by Grigg, John Wiley & Sons Inc
3. Water Resources, Conservation and Management by S.N. Chatterjee, Atlantic Publishers & Distribution.

Reference Books:

1. Water Resource Management by A. Vaidyanathan, OUP India, 2002
2. Water Resource Management by G.S. Chauhan and R.N. Dubey, Shri Natraj Prakashan

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