

**FACULTY OF ENGINEERING & TECHNOLOGY**

**DEPARTMENT OF CIVIL ENGINEERING**

**ECIVVAC01 - SUSTAINABLE WATER RESOURCES MANAGEMENT**

**Learning Objectives**

- To know and understand the importance of water quality.
- To know the salient features of Ground water resources
- To know the role of watershed in water resources management.

**Course Outcomes**

At the end students can

1. Understand the importance of Water resources
2. Understand the importance of Water resources Development
3. Understand the concept of Watershed practices.
4. Understand the Occurrence of Ground water
5. Experimental practice according to the present water issues.

**UNIT I (4hrs)**

Water resources survey – Water resources of India andTamilnadu – Description of water resources planning –National Water Policy- Properties of water - Water quality standards-WHO& APHA Standards.

**UNIT II (4hrs)**

Water resources development - Scope and aims of master plan for irrigation tanks–Farm ponds and percolation ponds –Rain water harvesting.

**UNIT III (5hrs)**

Watershed – Concept – Classification – Characteristics – Watershed Programmes –Watershed Management Practices.

**UNIT IV (5hrs)**

Occurrence of Ground water –Utilization of Ground water- Aquifer and its types –Ground water recharge- Ground water status atState and National level.

**UNIT V (12hrs)**

Sample Collection-Processing Preservations –Testing Kit -Determination of pH- Acidity and Alkalinity – Turbidity - Total Solids- Total volatile solids- Total suspended solids- Water level indicator at different location demonstration- Safety precautions in the Laboratory.

**TEXTBOOKS**

1. Suresh, R. "Soil and Water Conversation", Standard Publication, New Delhi, 1982.
2. Duggal K.N., "Elements of Environmental Engineering" S.Chand and Co. Ltd., New Delhi, 2014.
- 3.Raghunath,H.m., "Groundwater", 2<sup>nd</sup> edition, Wiley Eastern Ltd., New Delhi,1987.
- 4.Santhosh Kumar Garg.,"Textbook of Environmental Engineering" Vol II, Khanna Publishers, New Delhi,2017.

**REFERENCES**

1. Manual on Sewerage and Sewage Treatment Systems Part A, B and C, CPHEEO, Ministry of Urban Development, Government of India, New Delhi, 2013.