

# WATERSHED CONSERVATION AND MANAGEMENT

## OBJECTIVES:

- To provide the technical, economical and sociological understanding of a watershed.
- To provide a comprehensive discourse on the engineering practices of watershed management for realizing the higher benefits of watershed management.

## UNIT I WATERSHED CONCEPTS

9

Watershed - Need for an Integrated Approach - Influencing Factors: Geology – Soil – Morphological Characteristics - Toposheet - Delineation – Codification – Prioritization of Watershed – Indian Scenario

## UNIT II SOIL CONSERVATION MEASURES

9

Types of Erosion – Water and Wind Erosion: Causes, Factors, Effects and Control – Soil Conservation Measures: Agronomical and Mechanical - Estimation of Soil Loss - Sedimentation

## UNIT III WATER HARVESTING AND CONSERVATION

9

Water Harvesting Techniques – Micro-Catchments - Design of Small Water Harvesting Structures – Farm Ponds – Percolation Tanks – Yield from a Catchment

## UNIT IV WATERSHED MANAGEMENT

9

Project Proposal Formulation - Watershed Development Plan – Entry Point Activities – Estimation – Watershed Economics - Agroforestry – Grassland Management – Wasteland Management – Watershed Approach in Government Programmes –Developing Collaborative know how – People's Participation – Evaluation of Watershed Management

## UNIT V GIS FOR WATERSHED MANAGEMENT

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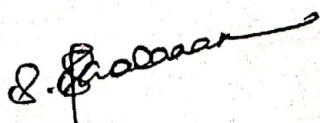
Applications of Remote Sensing and Geographical Information System - Role of Decision Support System Soil water assessment simulation models (SWAT) – Water Resources Information System, Conceptual Models and Case Studies

## REFERENCES

1. Ghanashyam Das, Hydrology and Soil Conservation engineering, Prentice Hall of India Private Limited, New Delhi, 2000.
2. Glenn O. Schwab, Soil and Water Conservation Engineering, John Wiley and Sons, 1981.
3. Gurmail Singh, A Manual on Soil and Water Conservation, ICAR Publication, New Delhi, 1982.
4. Suresh, R. Soil and Water Conservation Engineering, Standard Publication, New Delhi, 1982.
5. Vir Singh, Raj, Watershed Planning and Management, Yash Publishing House, Bikaner, 2000.
6. Brooks, K. N., P. F. Ffolliott, H. M. Gregersen and L. F. DeBano. 1997. Hydrology and the Management of Watersheds. Second Edition. Iowa State University Press. Ames, Iowa. 502 pp. Heathcote, I. W. Integrated Watershed Management: Principles and Practice. 1988. John Wiley and Sons, Inc., New York.

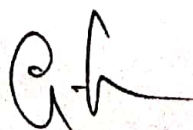
## OUTCOME:

The students will be able to apply the knowledge of overall concepts of watershed which would help to comprehend and analyze for better management.



GUIDE

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CHAIRMAN