

# Watershed Planning & Management

## Module I (9 hr)

Watershed - introduction and characteristics, Watershed development - problems and prospects, Delineation and prioritization of watersheds; Investigation, topographical survey, soil characteristics, vegetative cover, present land use practices and socio-economic factors; Watershed management – concept, objectives; factors affecting, watershed planning based on land capability classes;

Hydrologic data for watershed planning, watershed codification; Sediment yield index. Water budgeting in a watershed; Management measures - rainwater conservation technologies - *in-situ* and *ex-situ* storage; Water harvesting and recycling; Dry farming techniques - inter-terrace and inter-bund land management.

## Module II(9 hr)

Integrated watershed management - concept, components, arable lands - agriculture and horticulture, non-arable lands - forestry, fishery and animal husbandry. Effect of cropping systems, land management and cultural practices on watershed

hydrology. Watershed programme - execution, follow-up practices; Maintenance, monitoring and evaluation; Participatory watershed management - role of watershed associations, user groups and self-help groups; Planning and formulation of project proposal for watershed management programme including cost-benefit analysis

## Module III(9 hr)

Delineation of watersheds using toposheets; preparation of watershed map, Quantitative analysis of watershed characteristics and parameters; Analysis of hydrologic data for planning watershed management.

## Module IV(9 hr)

Water budgeting of watersheds; Prioritization of watersheds based on sediment yield index; functional requirement of watershed development structures; role of various functionaries in watershed development programmes

## Module V(9 hr)

Software use for analysis of hydrologic parameters of watershed; Techno-economic viability analysis of watershed projects

## Text Books

1. Singh, G.D. and T.C. Poonia. 2003. Fundamentals of Watershed Management Technology. Yash Publishing House, Bikaner.
2. Sharda, V.N., A.K. Sikka and G.P. Juyal. 2006. Participatory Integrated Watershed Management: A Field Manual. Central Soil and Water Conservation Research and Training Institute, Dehradun.

## References

1. Ghanshyam Das. 2008. Hydrology and Soil Conservation Engineering: Including Watershed Management. 2nd Edition, Prentice-Hall of India Learning Pvt. Ltd., New Delhi.
2. Katyal, J.C., R.P. Singh, Shriniwas Sharma, S.K. Das, M.V. Padmanabhan and P.K. Mishra. 1995. Field Manual on Watershed Management. CRIDA, Hyderabad.
3. Mahnot, S.C. 2014. Soil and Water Conservation and Watershed Management. International Books and Periodicals Supply Service. New Delhi.