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| 7th Semester | RCI7D004 | Integrated Watershed Management | L-T-P 3-0-0 | 3 Credits |
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Module I: (12 Hours)

Introduction, watershed behaviour, effects of land use and its change on hydrological cycle components, Land capability and suitability classification.

Measurement of meteorological (temperature, wind speed, sunshine hours, atmospheric pressure, relative humidity) and hydrological (suspended sediment and bed load) parameters
Modelling Runoff with SCS methodology, modifications suggested for Indian conditions, case study

Module II: (14 Hours)

Erosion process–Factors affecting erosion, Types of erosion Assessment of erosion, Modelling Erosion using USLE, RUSLE, introduction to few other models, Indian studies, case study

Control measures for soil erosion – vegetative and mechanical (including design), for agricultural and non-agricultural lands Wind erosion and its modelling, control measures.

Module III: (06 Hours)

Crop water management and crop planning with special reference to different agro-ecological zones in India Water conservation practices for deserts

Module IV: (04 Hours)

Watershed development in India, Common Guidelines, Allocation of funds Wetland management- types, hydrologic conditions and water budget, hydrological and ecological functions, the Ramsar convention

Module V: (04 Hours)

Drought and its management-causes and impacts, definition, management objectives and strategy-short term and long term measures.

Books:

- [1] Sharda V.N., Sikka A.K. and Juyal G.P. (2006) Participatory Integrated Watershed Management: A Field Manual, Central Soil and Water Conservation Research and Training Institute, 218, Kaulagarh Road, Dehradun.
- [2] Tideman E.M. (1999) Watershed Management–Guidelines for Indian Conditions, Omega Scientific Publishers, New Delhi.
- [3] . Common Guidelines for Watershed Development Projects (2008) Government of India.
- [4] Dhruva N.V.V. (2002) Soil and Water Conservation Research in India, Indian Council of Agricultural Research, KrishiAnusandhanBhavan, Pusa, New Delhi- 110012.
- [5] Dhruva N.V.V., Sastry G. and Patnaik U.S. (1990) Watershed Management, Indian Council of Agricultural Research, New Delhi.
- [6] Frevert R.K., Schwab G.O., Edminster T.W. and Barnes K.K. (2009) Soil and Water Conservation Engineering, 4th Ed, John Wiley and Sons, New York.
- [7] Jain S.K. and Singh V.P. (2006) Water Resources Systems Planning and Management, Reed Elsevier India Pvt. Ltd., New Delhi. 6. James L.D. and Lee R.R. (1971) Economics of Water Resources Planning, McGraw Hill Book Company.