BACHELORS WITH WATER MANAGEMENT AS MAJOR (CT – III)
5th SEMESTER
WMG522J3 WATER MANAGEMENT _ FLOOD AND DROUGHT MANAGEMENT
CREDITS: THEORY: 4, PRACTICAL: 2

COURSE OUTCOME:
This course provides an in-depth exploration of the principles and practices of flood and drought management. The course typically focuses on ensuring that students gain a comprehensive understanding of the principles, strategies, and techniques related to managing and mitigating the impacts of floods and droughts.

UNIT 1: FLOODS

Definition and types of floods; Causes of floods (natural and man-made factors);Impacts of Floods: Social, Environmental, Economic and Political

UNIT 2: DROUGHTS

Definition and types of droughts; Causes of Drought (natural and human-inducedfactors); Impacts of droughts: Social, Environmental and Economic

UNIT 3: FLOOD MANAGEMENT

Floodplain Management; Land use planning; Early warning systems; Infrastructuredevelopment; Community preparedness; Insurance and risk deduction

UNIT 4: DROUGHT MANAGEMENT

Water Conservation; Drought monitoring and early warning system; Diversification of water sources; Drought-resilient agriculture; Water management policies; Community engagement; Research and innovation

PRACTICAL:

1. Predict floods with unit hydrographs from discharge data
2. Survey on flood exposure and risk analysis based on socio-economic and Highestflood level (HFL) data
3. Exercise on the preparation of disaster kit for floods
4. Delineation of drought indices from the meteorological data
5. Survey on calculating the roof top rain water harvesting potential of your institute
6. Mapping the occurrence of flood and droughts from geophysical map of India
7. Delineation of drainage pattern
8. Flood plain zonation and mapping

SUGGESTED READINGS:

1. Drought and Water Crises Science, Technology, and Management Issues By Donald A. Wilhite, 1st Edition Published22 March 2005, CRC Press
2. Chow V.T., Maidment D.R., Mays L.W., "Applied Hydrology", McGraw HillPublications, New York, 1995.
3. Andreas H. Schumann., “Flood Risk Assessment and Management”, SpringerScience+Business Media B.V.2011.
4. Vijay P.Singh., "Elementary Hydrology", Prentice Hall of India, New Delhi, 1994.
5. Rangapathy V., Karmegam M., and Sakthivadivel R., Monograph in Flood RoutingMethods as Applied to Indian Rivers, Anna University Publications.
6. Yevjevich V., Drought Research Needs, Water Resources Publications, ColoradoState University, USA, 1977.
7. Drought and Water Crises Integrating Science, Management, and Policy, SecondEdition (2017) By Donald Wilhite, Roger S. Pulwarty, CRC press.
8. Robert Willis and William W.G.Yenth, Groundwater System Planning andManagement, Prentice Hall, Englewood Cliffs, New Jersey, 1987

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