Course Number and Name
BCE084 - HYDROLOGY
Credits and Contact Hours
3 & 45
Course Coordinator's Name
Ms.B.Kaviya
Text Books and References
TEXT BOOKS:
• Subramanya K. Engineering Hydrology, Tata McGraw Hill. Publishing Company Limited, 2006
REFERENCES:
 Raghunath H M, Hydrology, Witey Eastern Limited, New Delhi 1998. Vijay Singh P, Elementary Hydrology -Prentice Hall of India, 1998. Mutreja K N, Applied Hydrology, Tata McGraw Hill Publications, New Delhi, 1998. Jayaram Reddy P Hydrology, Tata McGraw Hill Publications, New Delhi, 1998.
Course Description
• To impart knowledge on hydrological cycle, spatial and temporal measurement and analysis of
rainfall and their applications including flood routing and ground water hydrology
Prerequisites Co-requisites
Fluid Mechanics NIL
required, elective, or selected elective (as per Table 5-1)
Course Outcomes (COs)
CO1 Measure the rainfall intensity, duration and frequency
CO2 Assess the losses of precipitation due to evaporation
CO3 Prepare the unit hydrograph for surface runoff
CO4 Solve the flood routine and channel routine problems
CO5 Conduct yield test on aquifers
Student Outcomes (SOs) from Criterion 3 covered by this Course
COs/SOs a b c d e f g h i j k
CO1 H H M H
CO2 H H H
CO3 H M H M H
CO4 H H H H
CO5 H H H
List of Topics Covered

UNIT I HYDROMETEOROLOGY

9

Hydrological cycle -Hydro meteorological factors -Cloud formation- Winds and their movement -types of precipitation.- Forms for precipitation- Density and Adequacy of rain gauges — Recording and non-recording gauges.

UNIT II PRECIPITATION AND ABSTRACTIONS

9

Spatial distribution – Consistency analysis – Frequency analysis – Intensity, duration, frequency relationships- Evaporation –Infiltration- Norton's equation Infiltration indices – Types of streams – Stage discharge relationships – Flow measurements – Currents meter method for velocity measurements.

UNIT III HYDROGRAPH ANALYSIS

9

Factors affecting the shape of hydrograph- Components of DRH. Baseflow- Unit hydrograph -Scurve hydrograph- Synthetic unit hydrograph.

UNIT IV GROUND WATER HYDROLOGY

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Occurrence of ground water – Types of aquifer – Dupuifs assumptions – Darcy's law – Estimation of aquifer parameters – Pump tests.

UNIT V FLOOD ANALYSIS

9

Flood estimation – Gumbel's method – log Pearson types III method – Reservoir flood routing, Channel routing, Other methods of routing.