

**2<sup>nd</sup> SEMESTER**  
**DISCIPLINE SPECIFIC COURSE (CORE-2)**

**WM220C: WATER MANAGEMENT: WATER RESOURCES AND HYDROLOGY**

**CREDITS - THEORY-4, PRACTICAL-2**  
**MAXIMUM MARKS: 60 MINIMUM MARKS: 24**

*Objectives/Expected Learning Outcomes: The student is expected to learn basic concepts in hydrology with special reference of distribution of water on earth. The student will gain knowledge of various types of water resources with their significant features.*

**THEORY (4 CREDITS: 60 HOURS)**

**UNIT-I: Hydrology (15 Hours)**

1. Concept and scope of hydrology
2. Global hydrological cycle
3. Evaporation and transpiration
4. Precipitation: process and forms,
5. Infiltration and runoff

**UNIT-II: Inland waters resources (15 Hours)**

1. Introduction to freshwater ecosystems
2. Lotic systems
3. Lentic systems
4. Dams and reservoirs
5. Drainage pattern

**UNIT-III: Marine water resources (15 Hours)**

1. Major oceans and seas
2. Marine zonation
3. Salinity
4. Concept of estuaries, mangroves and EEZ
5. Marine resources

**UNIT-IV: Ground water resources (15 Hours)**

1. Sources of ground water
2. Vertical distribution of ground water
3. Aquifer types and properties
4. Groundwater recharge and withdrawal
5. Darcy law and its application

**PRACTICAL (2 CREDITS - 60 HOURS)**

**MAXIMUM MARKS: 30 MINIMUM MARKS: 12**

1. Measurement of air temperature
2. Measurement of precipitation and humidity
3. Measurement of wind speed and direction
4. Determination of flow of natural stream
5. Determination of spring order
6. Determination of stream order