3rd SEMESTER
DISCIPLINE SPECIFIC COURSE (CORE-3)
WM320C: WATER MANAGEMENT: WATER QUALITY

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

Objectives/Expected Learning Outcomes: The objective of the course is to make students understand the physico-chemical and biological quality of water. The students will be also aware of different water quality standards for application of water in different sectors.

UNIT-I: PHYSICAL WATER QUALITY PARAMETERS 15 Hours

1. Water sampling & analysis
2. Turbidity
3. TDS and suspended solids
4. pH
5. Conductivity

UNIT-II: CHEMICAL WATER QUALITY PARAMETERS 15 Hours

1. Major cations (Ca, Mg, Na, K)
2. Major anions (bicarbonates, sulphates, chloride)
3. Gasses in water (DO, CO_2)
4. Nitrates
5. Phosphates

UNIT-III: BIOLOGICAL WATER QUALITY PARAMETERS 15 Hours

1. Biological oxygen demand
2. Microbial water quality - coliform bacteria
3. Fishes
4. Plankton
5. Macrophytes

UNIT-IV: WATER QUALITY STANDARDS 15 Hours

1. Concept of water quality standards
2. Desirable and permissible limits
3. Drinking water quality standards (BIS & WHO)
4. Irrigation water quality
5. Effluent water quality for discharge into inland surface waters

PRACTICAL (2 CREDITS - 60 HOURS) MAXIMUM MARKS: 30 MINIMUM MARKS: 12

1. Determine pH and conductivity of water samples
2. Determination of TDS and TSS of water samples
3. Determination of CO_2 and alkalinity of water samples
4. Determination of DO of water samples
5. Determination of Ca, Mg and total hardness in water samples
6. Determination of chloride in water sample