III Year II Semester	**L**	**T**	**P**	**C**
Code: 17CE612	**0**	**0**	**3**	**2**

ENVIRONMENTAL ENGINEERING LAB

Course Objectives:

1. Estimation some important characteristics of water and wastewater in the laboratory
2. It also gives the significance of the characteristics of the water and wastewater

Course Outcomes:

1. Estimate some important characteristics of water and wastewater in the laboratory
2. Draw some conclusion and decide whether the water is potable or not.
3. Decide whether the water body is polluted or not with reference to the state parameters in the list of experiments
4. Estimation of the strength of the sewage in terms of BOD and COD

SYLLABUS

List of Experiments

1. Determination of pH and Electrical Conductivity (Salinity) of Water and Soil.
2. Determination and estimation of Total Hardness–Calcium & Magnesium.
3. Determination of Alkalinity/Acidity
4. Determination of Chlorides in water and soil
5. Determination and Estimation of total solids, organic solids and inorganic solids and settle able solids by Imhoff Cone.
6. Determination of Iron.
7. Determination of Dissolved Oxygen with D.O. Meter &Wrinklers Method and B.O.D.
8. Determination of N, P, K values in solid waste
9. Physical parameters – Temperature, Colour, Odour, Turbidity, Taste.
10. Determination of C.O.D.
11. Determination of Optimum coagulant dose.
12. Determination of Chlorine demand.
13. Presumptive Coliform test.

NOTE: At least 10 of the above experiments are to be conducted.

List of Equipments

1. pH meter
2. Turbidity meter
3. Conductivity meter
4. Hot air oven
5. Muffle furnace
6. Dissolved Oxygen meter
7. U–V visible spectrophotometer
8. COD Reflux Apparatus
9. Jar Test Apparatus
10. BOD incubator

11. Autoclave
12. Laminar flow chamber
13. Hazen's Apparatus

Text Books

1. Standard Methods for Analysis of Water and Waste Water – APHA
2. Chemical Analysis of Water and Soil by KVSG Murali Krishna, Reem Publications, New Delhi.

Reference

1. Relevant IS Codes.
2. Chemistry for Environmental Engineering by Sawyer and Mc. Carty

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3
CO2	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3
CO3	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3
CO4	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3
CO5	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3
CO6	2	2	-	3	1	-	-	-	-	-	-	2	-	2	3