

**IV Year – I SEMESTER**

<b>T</b>	<b>P</b>	<b>C</b>
<b>0</b>	<b>3</b>	<b>2</b>

**CE707-ENVIRONMENTAL ENGINEERING LAB**

Lecture :	--	Internal Assessment :	Marks
Tutorial :	--	Semester End Examination :	Marks
Practical :	3 hrs/week	Credits :	2

**Course Learning Objectives:**

The course will address the following:

Estimation some important characteristics of water and wastewater in the laboratory.

It also gives the significance of the characteristics of the water and wastewater.

**Course Outcomes:**

Upon the successful completion of this course, the students will be able to:

Estimation some important characteristics of water and wastewater in the laboratory.

Draw some conclusion and decide whether the water is potable or not.

Decide whether the water body is polluted or not with reference to the state parameters in the list of experiments.

Estimation of the strength of the sewage in terms of BOD and COD.

**SYLLABUS:****List of Experiments**

Determination of pH and Electrical Conductivity (Salinity) of Water and Soil.

Determination and estimation of Total Hardness–Calcium & Magnesium.

Determination of Alkalinity/Acidity

Determination of Chlorides in water and soil.

Determination and Estimation of total solids, organic solids and inorganic solids and settleable solids by Imhoff Cone.

Determination of Iron.

Determination of Dissolved Oxygen with D.O. Meter & Wrinklers Method and B.O.D.

Determination of N, P, K values in solid waste  
Physical parameters – Temperature, Colour, Odour, Turbidity, Taste.  
Determination of C.O.D.  
Determination of Optimum coagulant dose.  
Determination of Chlorine demand.  
Presumptive Coliform test.

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

### **List of Equipments**

pH meter  
Turbidity meter  
Conductivity meter  
Hot air oven  
Muffle furnace  
Dissolved Oxygen meter  
U–V visible spectrophotometer  
COD Reflux Apparatus  
Jar Test Apparatus  
BOD incubator  
Autoclave  
Laminar flow chamber  
Hazen's Apparatus

### **Text Books**

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

### **Reference**

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