

## **Approval: 9<sup>th</sup> senate meeting**

**Course Number:** CE 305P

**Course Name:** Environment and Earth Science Lab

**Credits:** 0-0-2-1

**Prerequisites:** None

**Intended for:** UG

**Distribution:** Discipline Core

**Semester:** Odd/Even

**Preamble:** The present course aims at introducing the standard test procedures required for the students to understand the tests to classify the rocks and minerals their strength and weakness. Also, the second module has the experiments related to the environmental engineering where the students would explore the various tests on waste water, air pollution and soil contamination.

**Course Outline:** The course presented in two modules have experiments related to waste water characterization, titration methods to determine the anions and cation compositions. It also has the experiments to determine air and soil pollution and ways to quantify and check the fate of contaminants. In the next module the tests to identify and characterize the rocks, their minerals and constituents of the rocks along with the presence of weak zones on the same.

### **Modules:**

#### **Environment**

1. Determination of B.O.D. & C.O.D. of Wastewater Sample
2. Analysis of major cations and anions
3. Jar Test for Determining Optimum Coagulant Dosage
4. Tests for Coliforms, Fecal, Total Coliforms
5. Analysis of Metal and heavy metal in water and waste water
6. Soil contamination studies
7. Air Quality: Ambient Air quality (High Volume Sampler), PM10, PM2.5

#### **Earth Science**

1. Rock and mineral identification,
2. Dip/ Strike, fold, fault, fracture measurements in rocks
3. Strength characterization of rocks
4. Chemical analysis of rocks and soils
5. Field visit

### **Text Books:**

- a) Sawyer, N.C. and McCarty, P.L., 'Chemistry for Environmental Engineering 5th Edn', McGraw-Hill Book Co., New York, 2003.
- b) APHA, 'Standard Methods Examination of Water and Wastewater', American Public Health Association, Washington DC, 1998.