

**Course Code**  
**CE252**

**Course Name**  
**ENVIRONMENTAL ENGINEERING LAB**

**L-T-P - Credits**  
**(0-0-2: 1)**

Prerequisite:

Corequisite:

**Course Objective:**

1. To familiarize the students with the analysis of the various physical and chemical parameters of water and waste water

**Course Outcomes:**

1. Identify environmental problems arising due to engineering and technological activities and the science behind those problems.
2. Estimate the population - economic growth, energy requirement and demand.
3. Analyse material balance for different environmental systems.
4. Realize the importance of ecosystem and biodiversity for maintaining ecological balance.
5. Identify the major pollutants and abatement devices for environmental management and sustainable development

**Syllabus (List of Experiments)**

- 1 To find the turbidity and colour of a given sample of water.
- 2 To determine the pH value of a given sample of water.
- 3 To determine the conductivity of a given sample of water.
- 4 To find out total dissolved solid, settle able solids and suspended solids of the given sample.
- 5 To determine the carbonate, bicarbonate, and hydroxide alkalinity of a sample.
- 6 To find out the concentration of chlorides in the given sample of water.
- 7 To estimate the hardness of the given sample of water by standard EDTA method.
- 8 To find the optimum amount of coagulant required to treat the turbid water by Jar Test.
- 9 To determine residual chlorine in a given sample of water.
- 10 To find the quantity of dissolved oxygen (DO) present in the given sample.
- 11 To determine biochemical oxygen demand (BOD) exerted by the given waste water sample.
- 12 To determine Chemical oxygen demand (COD) exerted by the given waste water sample.
- 13 To determine MPN of coliforms of the given sample.
- 14 To determine the metal & metalloids of the given sample.
- 15 To determine the pH value of a given sample of water.

**Supplementary Reading.**

1. Peavy H. S., Rowe D. R. and George Tchobanoglous, "Environmental Engineering", McGraw-Hill International. First Edition 2017.
2. McGhee T. J., "Water Supply and Sewerage", McGraw-Hill Inc., 6th edition (2007)
3. Davis M. L and Cornwell D. A "Introduction to Environmental Engineering", McGraw-Hill, Inc. 5<sup>th</sup> Edition 2012.
4. Metcalf & Eddy (Revised by G. Tchobanoglous, F. L. Burton and H. D. Stensel), "Wastewater Engineering Treatment and Reuse", Tata McGraw Hill. 4<sup>th</sup> Edition 2010.
5. Sawyer C. N., McCarty P. L and Parkin G. F., "Chemistry for Environmental Engineers", McGraw- Hill. Fifth edition 2003.
6. APHA, Standard Methods Examination of Water and Wastewater, American Public Health Association, Washington DC, 1995. 22<sup>nd</sup> Edition, 2012.
7. Manual for Sewer and Sewerage, Central Public Health & Environmental Engineering Organization, Ministry of Housing and Urban Development, Govt. of India, 1993.
8. Manual for water supply and treatment, Central Public Health & Environmental Engineering Organization, Ministry of Housing and Urban Development, Govt. of India, 1999.