Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India
Affiliated to Tripura University (A Central University),
Department of Civil Engineering

List of Laboratory Experiments

Environmental Engineering Lab							
Course Code	**Hours / Week**				**Maximum Marks**		
PC CE 507	L	T	P	C	**CIA**	**SEE**	**Total**
	0	0	4	2	40	60	100
Number of classes: 40 Hours			**Prerequisites: Environmental Science**				
Branch: CE			**Semester: VI**				

Course overview:

The **Environmental Engineering Laboratory** provides hands-on training to students in analyzing the quality of water, wastewater, air, and solid waste. The course emphasizes practical skills in performing standard environmental tests using laboratory instruments and field sampling techniques. Students learn to determine critical physical, chemical, and biological parameters such as pH, turbidity, BOD, COD, DO, and microbial content, as well as analyze air and noise pollution using field instruments. The lab also includes procedures for assessing the suitability of water for drinking and wastewater for disposal or reuse.

Course objectives:

- To introduce students to standard laboratory techniques for analyzing water, wastewater, air, and solid waste quality.
- To develop competency in operating instruments and tools used in environmental quality monitoring.
- To enable students to perform tests for key parameters such as BOD, COD, DO, pH, turbidity, alkalinity, hardness, coliform count, etc.
- To train students to analyze and interpret results for pollution assessment and environmental decision-making.
- To familiarize students with relevant environmental standards and regulations governing environmental testing.

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Course outcomes:

CO Number	CO Description	K-level
CO-1	Analyze sound samples, solid waste and air sample.	K-4
CO-2	Measure Physical parameters of water	K-5
CO-3	Measure Chemical parameters of water	K-5
CO-4	Measure Physical and chemical parameters of waste water	K-5

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Sl. No.	EXPERIMENT NAME	CO
1.	Collection and analysis of sound samples.	CO-3
2.	Classification of Solid wastes.	CO-1
3.	Air volume sampling.	CO-3
4.	Determination of turbidity, colour and conductivity.	CO-2
5.	Determination of pH, alkalinity and acidity.	CO-2
6.	Determination of hardness and chlorides.	CO-2
7.	Determination of residual chlorine and chlorine demand.	CO-2
8.	Determination of Dissolved Oxygen	CO-2
9.	Determination of Most Probable Number (MPN) of Coliforms	CO-2, CO-4
10.	Determination of B.O.D of sewage	CO-2, CO-4
11.	Determination of C.O.D of domestic and industrial sewage	CO-2, CO-4
12.	Determination of kjeldal nitrogen	CO-2, CO-4
13.	Determination of volatile, mixed, filterable and dissolved solids.	CO-2
14.	Determination of optimum dose of coagulants	CO-2, CO-4
15.	Determination iron and two heavy metals.	CO-2, CO-4
16.	Determination of SO2 in the ambient air.	CO-3, CO-4
17.	Measurement of particulate matter in air.	CO-3, CO-4