1.	Title of the course	Environmental Monitoring Laboratory
2.	Course number	CE522P
3.	Structure of credits	0-0-3-2
4.	Offered to	PG
5.	New course/modification to	Modification To CE5291/8
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** The course introduces the concepts involved in the sampling and estimation of various environmental parameters. The course would help the student to familiarize different factors governing the performance of water and wastewater treatment plants and air quality control units. The students will also be exposed to state-of-the-art techniques employed in environmental monitoring.	
10.	**Course Content:** Physical and chemical examination of water and wastewater: Sample collection and data analysis, Gravimetric methods; Titrimetric methods; Spectroscopic, spectrophotometric, and chromatographic determination of environmental parameters: Analysis of heavy metals, Analysis of anions and cations, Analysis of pesticides; Chemical oxygen demand; Biochemical oxygen demand; Total organic carbon and nitrogen, Microbiological examination of water and wastewater; Analysis of Air: Air quality monitoring techniques (ambient and indoor air); Ambient monitoring of particulate matters (PM1, PM2.5, PM10), SOx, NOx, CO, VOCs, PAH; Indoor monitoring of PM1, PM2.5, PM10, VOCs, CO, CO2, Relative humidity, Stack emission monitoring; Ambient noise monitoring; Meteorological measurements.	
11.	**Textbook(s):** 1. James P L, *Methods of air sampling and analysis*, Routledge (2017). 2. Sawyer C N, Mc Carthy P L and Frakin G F, *Chemistry for environmental engineering and science*, McGraw-Hill Education, New York (2003).	
12.	**Reference(s):** 1. Standard Method, *Standard method for the examination of water and wastewater*, American Public Health Association, Washington, D.C (1998). 2. IS 5182, Indian standards-Methods for measurement of air pollution, Part-14 – Guidelines for planning the sampling for atmosphere, BIS (2000).	