

1.	Title of the course	Hydraulics and Environmental Engineering Laboratory
2.	Course number	CE305P
3.	Structure of credits	0-0-3-2
4.	Offered to	UG
5.	New course/modification to	Modification To CE3191/8
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): This laboratory introduces under-graduate students to application of principles of fluid mechanics, hydraulics and environmental engineering in practical scenarios.	
10.	Course Content: Hydrostatic pressure on surfaces; Impact of jets on objects; Bernoulli's principle; Flow measurement devices; Friction losses in pipe flows; Flow through weirs and notches; Analysis of water quality: Determination of pH, turbidity, conductivity, hardness, alkalinity, chlorides, sulphates, fluoride, optimum coagulation dose, heavy metals, residual chlorine and available chlorine in bleaching powder; Analysis of wastewater characteristics: Determination of suspended, settleable, volatile and fixed solids in a wastewater sample; Dissolved Oxygen, Biochemical Oxygen Demand, Chemical Oxygen Demand, and Total Organic Carbon; Determination of Sludge Volume Index (SVI) of biological sludge and microscopic examination; Determination of Most Probable Number (MPN) index.	
11.	Textbook(s): 1. Federation W E and American Public Health Association, <i>Standard Method for the Examination of Water and Wastewater</i> , American Public Health Association (APHA): Washington, DC, USA. (2005). 2. White F M, <i>Fluid Mechanics</i> , McGraw Hill (2017).	
12.	Reference(s): 1. Munson B R, Okiishi T H, Huebsch W W and Rothmayer A P, <i>Fluid Mechanics</i> , Wiley (2013).	