1.	Title of the course	Environmental Engineering
2.	Course number	CE303L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CE3105/8
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 describes the basic principles and concepts of physical, chemical, and biological processes involved in water and wastewater treatment. The course is designed to create awareness among the students about the importance of water and wastewater treatment, and also to develop skill in the basic design of unit operations and unit processes in water and wastewater treatment.	
10.	**Course Content:** The scope of environmental engineering; Water quality parameters; Drinking water standards; Physical, chemical, and bacteriological analysis of water; Physicochemical Treatment of Water: Sedimentation; Water softening; Coagulation and flocculation; Sand filtration; Disinfection; Introduction to advanced treatment methods; Removal of iron and manganese; Defluoridation; Arsenic removal; Membrane filtration. Treatment of Municipal Wastewater: Wastewater characteristics; Screens; Grit chamber; sedimentation tank. Aerobic treatment of wastewater: Activated sludge process; Trickling filters; Oxidation Ponds. Anaerobic treatment: Anaerobic digesters, Introduction to advanced wastewater treatment technologies.	
11.	**Textbook(s):** 1. Peavy H S, Rowe D R, and Tchobanoglous G E, *Environmental Engineering,* McGraw Hill, New York (1985). 2. Masters G M, Introduction to environmental engineering and science, Prentice Hall, New Delhi (2008).	
12.	**Reference(s):** 1. Sincero A P and Sincero G A, *Environmental engineering: A design approach,* Prentice-Hall, New Delhi (1999). 2. Metcalf and Eddy Inc., Tchobanoglous G, Burton F and Stensel H D, Wastewater engineering – treatment and reuse, Tata-McGraw Hill, New Delhi (2009).	