

Maulana Abul Kalam Azad University of Technology, West Bengal*(Formerly West Bengal University of Technology)***Syllabus for B. Tech in Civil Engineering**

(Applicable from the academic session 2018-2019)

CE(PC)595	Environmental Engineering Laboratory	2P	1 Credits
Course Outcome	On completion of the course the students will be able to: 1. Experiment various physical characteristics for a given sample of water and wastewater 2. Determine various chemical characteristics for a given sample of water and wastewater 3. Examine the bacteriological characteristics for a given sample of water and wastewater 4. Examine the suitability of a few treatment options for a given sample of water and wastewater		
	5. Compare the determined quality parameters with standards to decide on the suitability of use for the tested water and disposal of tested wastewater		
Prerequisite	Class-XII level knowledge of Physics, Chemistry, Mathematics, Biology and Environmental Science; Undergraduate level knowledge of Environmental Engineering, Biology for Engineers, Chemistry Laboratory, Physics Laboratory		
Experiment 1	Determination of turbidity for a given sample of water		
Experiment 2	Determination of electrical conductivity for a given sample of water		
Experiment 3	Determination of Total Solids, Suspended Solids, Dissolved Solids and Volatile Solids in a given sample of water		
Experiment 4	Determination of pH for a given sample of water		
Experiment 5	Determination of carbonate, bi-carbonate and hydroxide alkalinity for a given sample of water		
Experiment 6	Determination of acidity for a given sample of water		
Experiment 7	Determination of hardness for a given sample of water		
Experiment 8	Determination of concentration of Iron in a given sample of water		
Experiment 9	Determination of concentration of Chlorides in a given sample of water		
Experiment 10	Determination of the Optimum Alum Dose for a given sample of water through Jar Test		
Experiment 11	Determination of the Chlorine Demand and Break-Point Chlorination for a given sample of water		
Experiment 12	Determination of amount of Dissolved Oxygen (DO) in a given sample of water		
Experiment 13	Determination of the Biochemical Oxygen Demand (BOD) for a given sample of wastewater		
Experiment 14	Determination of the Chemical Oxygen Demand (COD) for a given sample of wastewater		
Experiment 15	Determination of Colliform Bacteria: presumptive test, Confirmative test and Determination of MPN		
Reference	1. Garg, S.K. <i>Environmental Engineering</i> . Volume-1 and Volume-2. Khanna Publishers 2. Peavy, H.S., Rowe, D.R., Tchobanoglous, G. <i>Environmental Engineering</i> . McGraw Hill International Edition / Tata McGraw Hill Indian Edition 3. Sawyer, C.N., McCarty, P.L., Parkin, G.F. <i>Chemistry for Environmental Engineering and Science</i> . McGraw Hill International Edition / Tata McGraw Hill Indian Edition 4. IS: 3025 (Different Parts), "METHODS OF SAMPLING AND TEST (PHYSICAL AND CHEMICAL) FOR WATER AND WASTE WATER". 5. APHA Standard Methods for the Examination of Water and Wastewater. 6. IS: 10500 – 2012, "DRINKING WATER SPECIFICATION (SECOND REVISION)".		