6CE128 Environmental Engineering - II

L-T-P-Cr: 3-1-0 -4

Objective: Students should impart upon knowledge of Environmental Engineering using basic principles of Fluid mechanics, Biological and Chemical Science to develop basic and empirical equations for Environmental Engineering Applications. Theory: 1. Generation and collection of wastewater, sanitary, storm and combined sewerage systems, Quantities of sanitary wastes and storm water. 5 Lectures 2. Physical Chemical and Biological characteristics of wastewater, Primary, secondary and tertiary treatment of wastewater; Wastewater disposal standards.

4 Lectures

3. Basics of microbiology. Biological wastewater treatment systems: BOD Kinetics, Kinetics and Design of Aerobic processes - activated sludge process and its modifications. Trickling filter, RBC, Oxidation Ponds and Aerated lagoons. 10 Lectures

4. Anaerobic Processes- Anaerobic digester, UASB reactor, Septic tanks, Imhoff tank, Sludge handling, Disposal of effluent and sludge. 9 Lectures

5. Design problems on sewerage, wastewater treatment units and sludge digestion. 10 Lectures 6. Introduction to Municipal Solid Waste Management. 4 Lectures

Reference Books/ Text Books: 1. Waste Water Engineering: Treatment and Reuse, Metcalf & Eddy, T.M.H. Publication. 2. Environmental Engineering by Peavy H.S, Rowe D.R. and Tchobanoglous G, Tata McGraw Hills, New Delhi. 3. Environmental Engineering (Vol II), S.K. Garg, Khanna Publishers, New Delhi. 4. G.M. Fair, J.C. Geyer, D.A. Okan, Elements of Water Supply and Wastewater Disposal, John Wiley and Sons Inc. 5. Terence, J. McGhee Water Supply and Sewerage, McGraw Hill Book Co. 6. M.J. Hammer, Water and Waste Water Technology, John Wiley and Sons, New York. 7. CPHEEO: Manual on water supply and treatment, Ministry of Urban Development.

End Semester Examination: The end semester examination will be of a predetermined duration covering the entire syllabus covering both theoretical and (or) numerical exercises upon the instructor's discretion where all questions will need to be answered. Expected Outcome: Students will be able to understand and develop basic and empirical equations for Environmental Engineering Applications.