

Programme: B. Tech

Course Name: Environmental Engineering - I

Course Code: ECE 358

Tutorial – 2

Topics Covered – Unit 2 (CO2)

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1. Design a river intake to serve a population of 80,000 with an average water requirement of 250lpcd in context of (a) number and size of openings in the intake well, (b) size and shape of height of intake well and (c) gravity pipe for raw water connecting intake well and jack well. The following information is available R.L of river bed = 180 m; R.L of lowest water level = 185 m; R.L of normal water = 195 m; R.L of HFL = 215 m. Illustrate the design results with a neat sketch of river intake.

2. Design a bell mouth canal intake to serve a population of 95,000 drawing water from a canal and operating only 12 hours in a day with a depth of 2.2 m. Also determine the head loss in the conduit in the intake if the treatment plant is 1.5 kms away. The average water consumption is 200lpcd and assume that velocity through the bar screen and bell mouth is 0.18m/s and 0.35m/s respectively. Illustrate the design results with a neat sketch of canal intake.