EN651: Design of Water and Waste Water Treatment Systems

Teaching Scheme			Credits	Marks Distribution				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	CE	ESE	CE	
4	0	2	6	70	30	30	20	150

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	**Combination of Unit Processes:** Study of fundamental factors affecting choice of treatment units and combination of unit processes into integrated plant.	03
2	**Design of water supply system:** Design of Flow measuring device, Source yield, Collecting system design, Transportation system design, Treatment units for surface and ground water sources by physiochemical processes.	10
3	**Special design units :** Special design units for specific water treatment for Ion exchange, Reverse Osmosis, Electro dialysis	10
4	**Design of Waste water system:** Collecting system, Transportation system, Treatment units by conventional methods of physiochemical and biological processes and detailed drawings of units designed thereof. This may include Screen, grit chamber, flow equalization, clariflocculator, Rapid sand filter, plain sedimentation tank, activated sludge process, Rotating biological contactor, Up flow sludge blanket reactor and digesters	17
	Total Hrs.	**40**

Reference Books:

1. WPCF (USA), "*Waste Water Treatment Plant Design*" Manual of Practice.
2. Schroeder, "*Water & Waste Water Treatment*", McGraw Hill.
3. S. J. Arceivala, "*Waste Water Treatment & Disposal*" Marcel Dekker.
4. Ministry of Urban Development, "*Manual of Water Supply*", latest Ed. Manual of Waste Water Treatment.

5. Treatment Disposal Reuse, waste Water Engg., Metcalf Eddy Incorporation "*Waste Water Engineering Disposal & Reuse",* McGraw Hill.
6. Qasim, "*Wastewater treatment Plan*t".
7. Qasim ,"*Waterworks Engineering*".
8. Benefield and Randall,Biological Process "*Design for wastewater Treatment*".
9. Steel and Mcghee, "*Water supply and sewerage*".