

EN505: Industrial Water and Wastewater Treatment

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

Course Contents:

Sr. No.	Topics	Teaching Hrs.
1	<p><u>Industrial Water Treatment:</u></p> <p>Treatment of water for cooling, heating, steam generation and other process water.</p>	04
2	<p><u>Basics of Industrial waste treatment:</u></p> <p>Stream sampling, economics of waste treatment, Concept CETP, Zero Effluent discharge.</p>	04
3	<p><u>Industrial waste treatment theory:</u></p> <p>Volume reduction, Strength reduction, Neutralization, Equalization and proportioning, Treatment and disposal of sludge solid.</p>	14
4	<p><u>Applications:</u></p> <p>Disposal standards for Disposal to various sinks: Stream standards, Effluent standards.</p>	04
5	<p><u>Origin Characteristics and Treatment of Major Industrial Waste:</u></p> <p>Textile waste, Tannery waste, Cannery waste, Dairy waste, Brewery - Distillery and Pharmaceutical waste, Cane sugar waste, paper and pulp mill waste, Oil field & Refinery waste, Cement industry waste, Metal plating waste.</p>	14
Total Hrs.		40

Reference Books:

1. Nemerow Nelson L, “*Industrial Water Pollution*” - Addison Wesley Pub. Co.
2. Besselièvre E.B. and Schwartz M., “*Treatment of Industrial Waste*”, International Student Edition, McGraw Hill, Kega Kusha Ltd. Publication (latest).

3. Quasim S.R., “*Wastewater Treatment Plants Planning Designing & Operation*” - H.R.W. (Holf Rine Heart & Winstone).
4. Eckenfelder W. W., Jr. Ford Davis L. and Englande Andrew, “*Industrial water Quality*”, McGraw Hill Publishing Co, 2009.
5. “*Water Quality and Treatment*” Hand Book of Public Water Supplies, AWWA McGraw Hill.
6. Gurnham, “*Industrial Waste Treatment*”.
7. Tchobanoglous George, “*Wastewater Engineering: Treatment and Reuse*”, Publisher Tata McGraw Hill.