

WASTE WATER TREATMENT

(Professional Elective-V)

Course Code: 15CH1141

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Course Outcomes :

At the end of the Course, the Student will be able to:

- CO 1** Recognize type of waste water and decide degree of treatment.
- CO 2** Explain the processes for treatment of liquid waste from pulp and paper, Breweries, Tannery, Textile and Dairy wastes.
- CO 3** Explain the processes for treatment of liquid waste from fertilizer, sugar mill steel plant and oil refinery waste.
- CO 4** Describe primary waste water treatment and review design principles in biological treatment.
- CO 5** Describe sludge treatment and disposal, examine low cost waste treatment systems and their design.

UNIT-I **(8 Lectures)**

Characterization and degree of treatment of waste water, odour and its removal, Removal of color from waste water.

UNIT-II **(12 Lectures)**

Pulp and paper mill waste water, Breweries Wineries and Distilleries Waste. Tannery waste,

Textile mill waste, Dairy wastes.

UNIT-III **(10 Lectures)**

Fertilizer plant waste, sugar mill wastes, steel plant wastes, Oil Refineries Wastes.

UNIT-IV **(12 Lectures)**

Primary treatment of waste water, Design Principles in biological treatment facilities.

UNIT-V

(8 Lectures)

Sludge treatment and disposal, Low cost waste treatment systems and their design.

TEXT BOOKS:

1. Rao. C.S., “Environmental Pollution and Control Engineering”, 2nd Edition, Revised, Wiley.
2. Rao. M.N and Datta A.K, “Waste Water Treatment”, 3rd Edition, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.

REFERENCES:

1. Mark. J.Hammer, Mark J.Hammer, Jr., “Water and Wastewater Technology”, 7th Edition, PHI, New Delhi, 2012.
2. Metcalf & Eddy, Wastewater Engineering. Treatment and Reuse. 4th Edition, McGraw Hill, 2004