



ANDHRA UNIVERSITY

TRANS-DISCIPLINARY RESEARCH HUB

ENVIRONMENTAL POLLUTION AND TREATMENT TECHNOLOGIES

UNIT I

WASTEWATER TREATMENT TECHNOLOGIES:

Sampling Techniques - Methods of Analysis - Characterization Origin of Wastewater - Sources and classification of water pollutants. Primary treatment-Sedimentation- Flocculation-Flotation.

UNIT II

SECONDARY TREATMENT:

Low cost biological treatment systems: Activated Sludge Process (ASP) – Trickling Filters – oxidation ponds. Bioreactors – RBC, ETP Sludge management

UNIT III

TERTIARY TREATMENT SYSTEMS:

Introduction, definition, Removal of suspended solids – micro straining – coagulation and filtration, biological phosphorous removal – advanced biological systems – aerobic ponds facultative ponds, aerated ponds – anaerobic ponds – chemical oxidation – recovery of materials from process effluents.

UNIT IV

SOLID WASTE MANAGEMENT:

Definition of solid wastes — types of domestic solid wastes – collection – transportation – characteristics of solid waste – segregation – types of disposal methods

– sanitary land fill – incineration – composting – Vermicompost – recovery of energy from solid wastes.

UNIT V

INDUSTRIAL POLLUTION:

Waste generation and characterization from different industries like a) paper and pulp b) breweries and distilleries, c) textile, d) tannery, e) bulk drugs and pharmaceutical industries

Text Books:

1. Water Supply and Sanitary Engineering 1993. G.S.Bridie & J.S.Bridie, Dhanpat Rai & sons.
2. Waste water treatment, Metcalf and Eddy.
3. A treatise on Rural, Municipal, and industrial water management. KVSG Murali Krishna

Reference Books:

1. Municipal and Rural Sanitation 1987. Ehlers, V.M. & Steel, E.W. McGRAW-HILL Book Company, Inc V. edition.
2. Environmental Sanitation. Ehlers, V.M., add Steel, E.W., McGraw-Hill Book Co. Inc.



ANDHRA UNIVERSITY TRANS-DISCIPLINARY RESEARCH HUB

MODEL QUESTION PAPER

ENVIRONMENTAL POLLUTION AND TREATMENT TECHNOLOGIES

Time: 3 Hrs

Max. Marks 100

Answer any five questions.

5 X 20 M =

100 All questions carry equal marks.

- Explain in detail about sampling collection techniques
 - What is meant by primary treatment in waste water treatment
- Explain in detail about BOD and COD and write its importance in waste watertreatment
 - Describe about oxidation pond with diagram
- Describe in detail about Activated Sludge process with neat sketch
 - Explain about facultative ponds
- What are various sources of Solid waste
 - Explain in detail about incineration method in solid waste disposal
- Describe about collection and transportation of municipal solid waste
 - Explain various disposal methods of solids waste
- What are pollutant characteristic & treatment method for bulk drugs industry
 - Explain about source & treatment of paper and pulp effluents
- Explain in detail about sludge drying beds and its functionality
 - What are various impacts of industrial waste on land disposal
- Explain about various biological reactors in anaerobic biological treatment units ?
 - Explain about aerobic ponds with neat sketch