

AMEV-27 INDUSTRIAL WASTE MANAGEMENT

OBJECTIVES:

To impart knowledge on sources and characteristics of various industrial wastes and strategies for its prevention and control

UNIT I INTRODUCTION

Sources and characteristics of various industrial, process and wastes - Population equivalent - Effects of industrial effluents on streams, sewer, land, sewage treatment plants and on human health - Environmental legislations and standards related to prevention and control of industrial pollution and hazardous wastes.

UNIT II CLEANER PRODUCTION

Volume reduction - Strength reduction - Material and process modifications - Recycle, reuse and byproduct recovery - Applications - Waste minimization

UNIT III TREATMENT TECHNOLOGIES

Equalisation - Neutralisation - Removal of suspended, floating and dissolved organic solids - Chemical oxidation - Adsorption - Removal of dissolved inorganic - Combined treatment of industrial and municipal wastes - Residue management - Dewatering - Disposal.

UNIT IV POLLUTION FROM MAJOR INDUSTRIES

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Sources - Characteristics - Waste treatment flow charts for selected industries such as Textiles - Tanneries - Pharmaceuticals - Electroplating industries - Dairy - Sugar - Paper - distilleries - Steel plants - Refineries - Fertilizer - thermal power plants - Wastewater reclamation and reuse concepts.

UNIT V HAZARDOUS WASTE MANAGEMENT

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Hazardous wastes - Types - Sources - Collection - Physico chemical treatment - Solidification - Incineration - Secured landfills.

OUTCOMES:

The students completing the course will have

- an insight into the pollution from major industries including the sources and characteristics of pollutants
- ability to plan minimization of industrial wastes
- ability to design facilities for the processing and reclamation of industrial wastewater

TEXT BOOKS:

- M.N. Rao & A. K. Dutta, "Wastewater Treatment", Oxford - IBH Publication, 1--5.
- Eckenfelder W.W. Jr., "Industrial Water Pollution Control", McGraw Hill Book Company, New Delhi, 2000.
- Patwardhan. A.D., "Industrial Wastewater Treatment", Prentice Hall of India, 2010.

REFERENCES:

- Shen T.T., "Industrial Pollution Prevention", Springer, 1---.
- Stephenson R.L and .Blackburn J.B, Jr., "Industrial Wastewater Systems Hand book", Lewis Publisher, New York, 1--8
- Freeman H.M., "Industrial Pollution Prevention Hand Book", McGraw Hill Inc., New Delhi, 1--5.
- Bishop P.L., "Pollution Prevention: Fundamental & Practice", McGraw Hill, 2000.
- Pandey, "Environmental Management" Vikas Publications, 2010.
- Industrial Wastewater Management, Treatment and Disposal", (WEF Manual of practice - FD3) McGraw Hill, 2008.