

## SOLID WASTE MANAGEMENT

### Course Learning Objectives

The objectives of this course are:

- To impart the knowledge the methods of collection and optimization of collection routing of municipal solid waste.
- To acquire the principles of treatment of municipal solid waste
- To know the impact of solid waste on the health of the living beings
- To learn the criterion for selection of landfill site and its design
- To plan the methods of processing such as composting the municipal organic waste.

### Course Learning Outcomes

Upon successful completion of this course, the students will be able to:

- Implement legislation for Solid Waste Management
- Design the collection systems of solid waste of a town
- Design transfer station for municipal solid waste
- To characterize the solid waste and design a composting facility
- Select site for a landfill

## SYLLABUS

### UNIT I

**Introduction to Solid Waste Management:** Goals and objectives of solid waste management, Classification of Solid Waste - characterization of Solid Waste – major legislation, monitoring responsibilities.

### UNIT II

**Basic Elements In Solid Waste Management:** Elements and their inter relationship – principles of solid waste management- onsite handling, storage and processing of solid waste  
**Collection of Solid Waste:** Type and methods of waste collection systems - optimization of collection routes.

### UNIT III

**Transfer and Transport:** Need for transfer operation, compaction of solid waste - transport means and methods, transfer station types and design requirements. Separation and Transformation of Solid Waste

### UNIT IV

**Processing and Treatment:** Processing of solid waste – Waste transformation through combustion and composting, anaerobic methods for materials recovery and treatment – Energy recovery – Incinerators.

### UNIT V

**Disposal of Solid Waste:** Methods of Disposal, Landfills: Site selection, design and operation, drainage and leachate collection systems –designated waste landfill remediation.

## **TEXT BOOKS**

1. George Tchobanoglous “Integrated Solid Waste Management”, McGraw Hill Publication, 1993

## **REFERENCES**

1. Vesilind, P.A., Worrell, W., Reinhart, D. “Solid Waste Engineering”, Cenage learning, New Delhi, 2004
2. Charles A. Wentz; “Hazardous Waste Management”, McGraw Hill Publication, 1995.