

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Master of Environmental Engineering

Subject Name MAJOR ELECTIVE2.2 SOLID WASTE MANAGEMENT

Sr.No	Course content
1	Types and sources of solid wastes: Characteristics : Physical and chemical
2	Solid waste Services and collection System : Street sweeping Types of solid waste services:- door to door, alley or street collection backyard collection etc. , Solid waste Collection Services Stationary and hauled collection system ,Route analysis and economics
3	Solid waste Storage and Volume reduction : Storage at point of generation , shredding and cutting, compressing and bailing, Incineration.
4	Transfer and transport :Solid waste transfer stations – location ,types and layouts Transfer and transportation vehicles and routes.
5	Solid waste Treatment system: Physical ,Chemical and Biological – rasing , Air and magnetic separation Incineration : Types, Features and different types of incinerator. Selection, economics and application.
6	Reuse and recycling of solid waste. Heat recovery. Composting and composting plants.
7	Ultimate disposal of solid waste. Sanitary land fills planning, Methods and cost comparison. Ocean dumping, Fusion torch.
8	Relevant legislations : international and national levels acts and legislations on solid waste management their implementation of them.

List of Experiments: Practical Exercise

- 1. Collection of Municipal solid waste sample using quartering process**
2. experiment on moisture content, volatile matter and fixed matter.
3. experiment on physical size classification
4. testing of calorific values and other properties of solid wastes
5. collection of data with detail investigation on system of solid waste management and analysis of the system
6. Visit on sites of transfer station and disposal of solid waste
7. Experimentation on proximate and ultimate analysis of solid waste
8. exercise of collection route analysis
9. preparation of report of a city solid waste management system including positive points and lacuna in the present system
10. presentation of report

Reference Books:

- (i) Solid Wastes by Tchobanoglous, Theisen, Eliassen - McGraw Hill
- (ii) Management of Solid Wastes in Developing Countries by Flintoff - WHO
- (iii) Environmental Sanitation by Salvato - Wiley International
- (iv) Environmental Law and Policy in India –Rosencranz & Divan & Noble