

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

ENVIRONMENT ENGINEERING

Subject Name: **MUNICIPAL AND HAZARDOUS SOLID WASTE MANAGEMENT**

Sr. No.	Course Contents	Total Hrs
	[A] Municipal Solid Waste Management:	
1.	Solid Waste Terminology	1
2.	Municipal Solid Waste Generation: Sources; Characteristics; Composition ; Generation rate	3
3.	Onsite Handling, Storage and Processing: Handling Methods; Factors Considered for Storage; Onsite Processing	2
4.	Collection of Solid Waste : Collection Services; Collection Systems and Equipments	2
5.	Transfer and Transport of Solid Waste : Need; Transfer stations; Means of Transport; Location of Transport Station	3
6.	Processing of Municipal Solid Waste: Importance; Processing Techniques Equipments : Compaction ,Incineration ,Shredding ,Component Separation ,Drying and Dewatering	8
7.	Recovery of Resources, Conversion Products and Energy : Material Recovery; Recovery of chemical and biological products; Recovery of Energy	6
8.	Disposal of Solid Waste and Residual Matter : Landfilling Methods ;Basic Aspects of Landfill Implementation ; landfill operations; post-closure care and use of old landfills; landfill mining	6
	[B] Hazardous Solid Waste Management:	
9.	Definition, Identification And Classification Of Hazardous Solid Waste	1
10.	Hazardous Waste Management: Waste Minimization; Waste Exchange; Recycling	4
11.	Treatment Technologies: Biological, Chemical; Physico-Chemical Treatment: Incineration, Stabilization, Solidification	4
12.	Disposal Of Hazardous Waste	4
13.	Biomedical Waste Management: Sources; Generation; Classification; Storage; Transportation; Disposal; Waste Treatment: Disinfection, Irradiation, Incineration.	4

Reference Books:

1. Environmental Engineering by Arcadio Sincero and Gregoria Sincero, Second Edition, Prentice - Hall India
2. Integrated Solid Waste Management : Engineering Principles and Management Issues by George Tchobanoglous, McGraw-Hill Publication
3. Hazardous Waste Management by M LaGrega and others, McGraw-Hill Publication

Term Work:

1. Examples based on Generation Rate of solid waste.
2. Questions based on Sources & Characteristics of Municipal Solid Waste.
3. Questions based on Onsite Handling, storage and processing of Solid waste.
4. Examples on Haul Container System and Stationary Container System.
5. Questions based on Transfer and Transport of Solid Waste.
6. Questions based on processing of Municipal Solid Waste.
7. Questions based on Recovery of Resources, Conversion Products & energy from MSW.
8. Questions based on Disposal of Solid Waste.
9. Questions based on Hazardous Solid Waste.
10. Biomedical Waste management