

# Municipal Solid Waste Management - Web course

## COURSE OUTLINE

Due to rapid increase in the production and consumption processes, societies generate as well as reject solid materials regularly from various sectors - agricultural, commercial, domestic, industrial and institutional.

The considerable volume of wastes thus generated and rejected is called solid wastes.

In other words, solid wastes are the wastes arising from human and animal activities that are normally solid and are discarded as useless or unwanted.

This inevitably places an enormous strain on natural resources and seriously undermines efficient and sustainable development.

One of the ways to salvage the situation is through efficient management of solid wastes, and this is the focus of this Course, Management of Municipal Solid Waste.

In the 10 Units that constitute this Course, we will discuss the processes involved in the management of solid wastes - from waste generation to final disposal.

In Unit 1, we will describe solid wastes and introduce you to the classification of solid wastes and the functional elements, such as waste generation, storage, collection, transport, processing, recovery and disposal, in the management of solid wastes.

In Units 2 to 7, we will explain with the support of case studies each of these functional elements.

In Unit 8, we will explain the treatment of solid wastes by incineration and energy recovery from the incineration process.

Subsequently, in Unit 9, we will deal with the treatment and management of hazardous (biomedical) wastes.

Finally, in Unit 10, we will discuss the concept of integrated waste management.

## COURSE DETAIL

Lectures (each topic – 2 hours duration: 20\*2= 40 hours).

S.No	Topics
1	Municipal Solid Waste Management.
2	Generation and Characteristics of Waste.
3	Health and Environmental Effects.
4	Waste Collection, Storage and Transport.



# NPTEL

<http://npTEL.iitm.ac.in>

## Environmental Science

### Pre-requisites:

Basic knowledge in science and mathematics.

### Additional Reading:

1. Ramachandra T.V., 2006. Management of Municipal Solid Waste, Commonwealth Of Learning, Canada and Indian Institute of Science, Bangalore.
2. Ramachandra T.V., 2006. Soil and Groundwater Pollution from Agricultural Activities, Commonwealth Of Learning, Canada and Indian Institute of Science, Bangalore.
3. Vijay Kulkarni and Ramachandra T.V., 2006. Environmental Management, Commonwealth Of Learning, Canada and Indian Institute of Science, Bangalore.

### Hyperlinks:

1. [www.ces.iisc.ernet.in/energy](http://www.ces.iisc.ernet.in/energy)
2. [www.wgbis.ces.iisc.ernet.in](http://www.wgbis.ces.iisc.ernet.in)
3. [www.ces.iisc.ernet.in/biodiversity](http://www.ces.iisc.ernet.in/biodiversity)
4. [www.astra.iisc.ernet.in](http://www.astra.iisc.ernet.in)

### Coordinators:

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5	Record Keeping, Control, Inventory and Monitoring.
6	Implementing Collection and Transfer System.
7	Case Study-Waste Storage, Collection and Transport.
8	Waste Disposal - Key issues and features.
9	Sanitary Landfill.
10	Waste Processing Techniques.
11	Volume, size and Chemical reduction techniques.
12	Source Reduction, Product Recovery and Recycling.
13	Planning of a Recycling Programme.
14	Recycling Programme Elements.
15	Recovery of Biological Conversion Products: Composts and Biogas.
16	Composting and Biogasification: Technology.
17	Environmental Effects of Composting and Biogasification.
18	Incineration and Energy Recovery.
19	Hazardous Waste: Management and Treatment.
20	Integrated Waste Management (IWM).

**References:**

Ramachandra T.V., 2006. Management of Municipal Solid Waste, Commonwealth Of Learning, Canada and Indian Institute of Science, Bangalore.