

20CE4702D–SOLID WASTE MANAGEMENT

Offering Branches	CE		
Course Category:	Professional Elective course	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	20MC1301 – Environmental Science 20CE3501 – Environmental Engineering	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

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

CO1	Analyse the sources, composition, handling and storage of Municipal Solid Waste	K4
CO2	Understand the process of collection and transport of Municipal Solid Waste	K2
CO3	Classify the processing, separation & Transformation of Municipal Solid Waste	K3
CO4	Design the construction and operations of landfill facilities, management of leachate and landfill gases	K4
CO5	Categorize different composting methods and management of Plastic waste	K4

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2			3	3						2	3
CO2	2	2	2			2	2						2	2
CO3	3	3	3			2	2						3	2
CO4	2	2	2			3	3						2	3
CO5	2	2	2			3	3						2	3
Avg.	2	2	2			3	3						2	3

1- Low

2-Medium

3-High

Course Content

	Sources, Types And Composition Of Municipal Solid Waste	
I	Sources- Types- Composition of Solid Waste- Effects of improper disposal of solid waste- public health effects-Types of materials recovered from MSW. Waste Handling, Separation And Storage: On- site handling and separation at solid waste- on - site storage of solid waste-options under Indian conditions.	CO1
II	Collection Of Municipal Solid Waste: Methods of collection-equipment- types of vehicles-man power requirement-collection routes. Transfer And Transport Of Municipal Solid Waste: Need for Transfer operations-Transfer Stations-Selection of Location of Transfer Station-Transport means and methods.	CO2
III	Processing, Separation & Transformation: Objectives of waste processing –material separation and processing technologies –biological & chemical conversion technologies –methods and controls of Composting -thermal conversion technologies –incineration – energy recovery methods	CO3
IV	Disposal of Solid Waste: Disposal of Solid Waste – Sanitary land Fills- Site selection-Planning-Design and operation of Sanitary landfills- Leachate collection & treatment-composition of land fill gases.	CO4
V	Composting: Principle – types- factors affecting compost process- mechanical composting methods. Reuse and recycling of paper, glass, rubber. Plastic waste status in India. Effect of plastic wastes on environment, management of plastic waste.	CO5

Learning Resources

Text Books	1. Integrated Solid waste management by Goerge Tchobanolous, Hilary Theisen & Samuel A. Vigil. McGraw Hill International Editions 2. Design of Land Fills and Integrated Solid waste management by Amalendu Bagchi , John Wiley & Sons
Reference Books	1. CPCB Manual on solid waste Management 2. Solid waste management K.sasikumar, sanoop Gopi Krishna PHI Learning (P) Ltd. 3. Solid waste management in India by Urvashi Dhamija.
e- Resources & other digital material	1. www.nptel.ac.in/courses/120108005 2. nptel.ac.in/courses/10510605 3. https://www.coursera.org/learn/solid-waste-management