

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE  
CIVIL ENGINEERING & APPLIED MECHANICS DEPARTMENT  
B.E. IV YEAR (4YDC) CIVIL ENGINEERING  
**Theory Lecture Plan**

Subject Code: CE41711

Subject: MUNICIPAL SOLID WASTE MANAGEMENT

Session: Jan-May 2024

Semester: B

Name of faculties: Prof. Devendra Dohare & Ms. Shruti Bajpai

S.NO.	TOPIC TO BE COVERED	DATE
	<b>Faculty name: Prof. Devendra Dohare</b>	
	Unit - 1 FUNDAMENTALS OF MUNICIPAL SOLID WASTE ENGINEERING:	
1.	Introduction to solid waste, Functional elements	
2.	Types and sources of solid waste	
3.	Objectives of solid waste management, waste management and Reduction.	
4.	Composition of municipal solid waste.	
5.	Characteristics, Estimation.	
6.	Numerical examples	
7.	Factors affecting solid waste generation rate.	
8.	Integrated Solid Waste Management.	
	Unit - 2 TECHNICAL ASPECTS: STORAGE, COLLECTION AND TRANSPORTATION OF WASTE	
9.	Storage of waste, segregation of waste at source,	
10.	Collection of commingled wastes, collection of segregated waste.	
11.	Types of collection and hauling of vehicles.	
12.	Numerical examples	
13.	Equipments used for collection of waste.	
14.	Transfer stations.	
15.	Transportation of solid waste.	
	Unit - 3 TECHNICAL ASPECTS: PROCESSING AND TREATMENT OF MUNICIPAL SOLID WASTES	
16.	Biological Processing-Composting	
17.	Principles of composting, types of composting-manual and mechanised.	
18.	Indore and Bangalore methods of composting.	
19.	Factors affecting the composting process.	
20.	Control of composting process, Mechanical composting.	
	<b>Faculty name: Prof. Shruti Bajpai</b>	
	Unit - 3 TECHNICAL ASPECTS: PROCESSING AND TREATMENT OF MUNICIPAL SOLID WASTES:	
21.	Vermiculture.	
22.	Anaerobic conversion.	
23.	Thermal Processing-Combustion and Incineration.	
24.	Pyrolysis and Gasification.	

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25.	Pelletization.	
26.	Other methods like Autoclaving, Hydroclaving etc.	
	Unit - 4 SOLID WASTE DISPOSAL IN MUNICIPAL SANITARY LANDFILLS:	
27.	Landfill.	
28.	Types of landfills.	
29.	components of a landfill.	
30.	Decomposition of solid wastes in landfill.	
31.	Site selection and layout.	
32.	Landfill operations, management and environmental monitoring of Landfill site.	
33.	Components and main elements in design of final cover.	
34.	Leachate management.	
	Unit - 5 RECYCLE, RECOVERY AND REUSE OF SOLID WASTES:	
35.	Recyclable components.	
36.	Biogas from municipal solid waste, Energy Recovery.	
37.	Refused derived fuel.	
38.	Beneficial aspects of wastes.	
39.	Utilization by Civil Engineers and Case studies.	
40.	Solid Wastes Legislation.	

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**Department of Civil Engineering And Applied mechanics**  
**B.Tech\_IV Year**  
**Theory Lecture Plan**

Subject Code: CE 41674 (ELECTIVE -V)

Subject Nomenclature: Advanced Transportation Engineering


Session: Jan-Jun-2024

Semester: B

Name of Faculties: Ms. Suninda Parmar & Ms. Namrata Khede

Lecture No.	Date	Topic Covered (Unit No.)
		<b>Unit no. 1</b>
1.		<b>Transportation economics:</b> Introduction of transportation economics.
2.		Introduction of Indian Roads and its present scenarios.
3.		Some parameters used in economic analysis.
4.		Cost components in transportation systems.
5.		Economic evaluation of highway projects.
		<b>Unit no. 2</b>
6.		<b>Transportation Demand Analysis :</b> Transportation Demand Analysis and zoning
7.		Travel behaviour, travel demand modelling
8.		Types of model, trip generation models, trip distribution model.
9.		Numerical on trip generation model.
10.		Numerical on trip distribution model.
11.		Numerical on trip distribution model.
12.		Mode choice models, trip assignment models.
13.		Model split and its flow chart.
14.		Numerical on trip assignment models.
15.		Numerical on trip assignment models.
16.		Numerical on Model split.
		<b>Unit no. 3</b>
17.		<b>Modes of transportation:</b> Introduction of mode of transportation, Traffic and transportation problem of city(urbanization and industrialization, growth of traffic )
18.		Nature of the present difficulties in urban traffic condition.
19.		Measure to meet the problems, land use and city planning control, transportation studies, traffic restraint measures.
20.		Mass transport system, modes of transportation & characteristics Public transport in cities, types of IPT vehicles
21.		Characteristics of IPT modes, Traffic and the environment .

22.		Role of transportation in mass transportation, Advantage and disadvantage
23.		Public-private transportation system, Advantage and disadvantage public transport system.
		<b>Unit no. 4</b>
24.		<b>Urban Public Transportation system:</b> Transportation modes and their characteristics, transportation modes of India, transportation system and studies.
25.		Transportation system and studies in brief.
26.		Development in bus system, Integrated transportation system.
27.		Development in rapid rail system, light rail transit, multi-modal transportation system, para- transit.
28.		BRTS, Bus lane system, Advantage and disadvantage and limitations in Indian scenario.
29.		Rail system, types of rails system, Advantage and disadvantage of rail system.
		<b>Unit no. 5</b>
30.		<b>Construction Equipments used in pavement construction:</b> Introduction, Mechanization in Construction, need for mechanization in construction, and classification of equipments used in road work, factors affecting selection of equipments.
31.		Classification of equipments used in road work, factors affecting selection of equipments.
32.		Earthmoving equipment: Excavating equipment and Earth moving and excavating equipments and Hauling equipments (Types, Output Efficiency, Size, Application, Operation)
33.		Hoisting equipments (cranes), compaction and grouting (Types, Output Efficiency, Size, Application, Operation) Dewatering equipment.
34.		Conveying Equipments and dredging .(Types, Output Efficiency, Size, Application, Operation).
35.		Tunneling and rock drilling equipments ((Types, Output Efficiency, Size, Application, Operation)
36.		Pile driving equipments (Types, Output Efficiency, Size, Application, Operation).
37.		Paving equipments. (Types, Output Efficiency, Size, Application, Operation).
38.		Numerical.
39.		Numerical.
40.		Numerical.

  
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