



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF CIVIL ENGINEERING

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CE7001	SOLID WASTE MANAGEMENT (R20)	VII	AIML, EEE	4	2025-26	09-06-2025
COURSE OUTCOMES: Students are able to						
1	Recall classification of solid waste generated. (K2)					
2	Know the collection systems of solid waste of a town. (K2)					
3	Analyze the importance of transfer and transport of solid waste. (K4)					
4	Apply the knowledge in processing of solid waste. (K3)					
5	Design treatment of municipal solid waste and landfill. (K3)					
UNIT	OutComes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I : Introduction to Solid Waste Management	CO 1: Recall classification of solid waste generated. (K2)	1.1	Introduction, Goals and objectives of solid waste management	T4,R2	1	Chalk & Talk, PPT, Active Learning & Tutorial
		1.2	Classification of Solid Waste	T4,R2	1	
		1.3	Factors Influencing generation of solid waste	T4,R2	1	
		1.4	Sampling for characterization	T4,R2	1	
		1.5	Characterization of solid waste	T4,R2	1	
		1.6	Future changes in waste composition	T4,R2	1	
		1.7	Major legislation	T4,R2	1	
		1.8	Solid waste management rules	T4,R2	1	
		1.9	Monitoring responsibilities	T4,R2	1	
	Course beyond syllabus	1.10	Role of NGO's	T4,R2	1	
Total					10	

II : Collection of Solid Waste	CO2: Know the collection systems of solid waste of a town. (K2)	2.1	Basic waste collection systems	T4,R2	01	Chalk & Talk, PPT Tutorial, Active Learning
		2.2	Types & Methodsof waste collection.	T4,R2	01	
		2.3	Analysis of collection system:Haul container system	T4,R2	01	
		2.4	Analysis of collection system: Haul container system	T4,R2	01	
		2.5	Analysis of collection system: Stationary container system	T4,R2	01	
		2.6	Analysis of collection system: Stationary container system	T4,R2	01	
		2.7	Collection routes	T4,R2	01	
		2.8	Optimization of collection routes.	T4,R2	01	
		2.9	Alternative techniques for collection system	T4,R2	01	
	Course beyond syllabus	2.10	Issues regarding collection of solid waste	T4,R2	01	
Total				10		
III: Transfer and Transport	CO 3:Analyze the importance of transfer and transport of solid waste. (K4)	3.1	Need for transfer operation	T4,R2	01	Chalk & Talk, PPT, Tutorial.
		3.2	Compaction of solid waste	T4,R2	01	
		3.3	Transport means and methods	T4,R2	01	
		3.4	Transfer station and it's types	T4,R2	01	
		3.5	Design requirements of transfer station	T4,R2	01	
	Course beyond syllabus	3.6	Selection of site location	T4,R2	01	
		3.7	Operation and maintenance	T4,R2	01	
		3.8	Field Problems-Solving	T4,R2	01	
Total				8		

IV: Processing and Treatment	CO 4 : <i>Apply the knowledge in processing of solid waste.(K3)</i>	4.1	Processing of solid waste: Need of Processing	T4,R2	01	Chalk & Talk, PPT, Tutorial
		4.2	Processing techniques & Equipments	T4,R2	01	
		4.3	Processing Equipments	T4,R2	01	
		4.4	Waste transformation through combustion	T4,R2	01	
		4.5	Composting and types of composting	T4,R2	01	
		4.6	Composting methods	T4,R2	01	
		4.7	Anaerobic methods for materials recovery and treatment	T4,R2	01	
		4.8	Energy recovery methods	T4,R2	01	
		4.9	Biogas generation and cleaning	T4,R2	01	
		4.10	Incinerators	T4,R2	01	
Total					10	
V : Disposal of Solid Waste	CO 5: <i>Design treatment of municipal solid waste and landfill.(K3)</i>	5.1	Methods of Disposal	T4,R2	01	Chalk & Talk, PPT, Tutorial
		5.2	Landfills: Principle & Requirements	T4,R2	01	
		5.3	Landfill operation	T4,R2	01	
		5.4	Methods of landfill	T4,R2	01	
		5.5	Design of landfills	T4,R2	01	
		5.6	Site selection	T4,R2	01	
		5.7	Site investigation and site characterization	T4,R2	01	
		5.8	Landfill planning and design	T4,R2	01	
		5.9	Leachate collection system	T4,R2	01	
		5.10	Designated waste landfill remediation	T4,R2	01	
Total					10	
CUMULATIVE PROPOSED PERIODS					48	
Text Books/ Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	George Tchobanoglous, Frank Kreith , Integrated Solid Waste Management- McGraw Hill Publication, 1993.					
2	R.Saravanan, R.Dinesh Kumar, A.Suriya , Muncipal solid waste management, Lakshmi publications- 2015.					
3	Vesilind, P.A., Worrell, W., Reinhart, D., “Solid Waste Engineering”, Cenage learning, New Delhi, 2004.					
Web Details						
1	https://nptel.ac.in/courses/105103205					

2	https://mohua.gov.in/upload/uploadfiles/files/Part2.pdf
3	https://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/TGM_%20Comman%20Municipal%20Sold%20Waste%20Management_160910_NK.pdf

	Name	Signature with Date
i. Faculty	Mr.V.Manikayala Rao	V.Manikayala Rao
ii. Faculty	Mr.N. Bulli Raju	Mr.N. Bulli Raju
iii. Course Coordinator	Mr.V.Manikyala Rao	V.Manikyala Rao
iv. Module Coordinator	Mr.V.Manikyala Rao	V.Manikyala Rao
v. Programme Coordinator	Dr.G.V.L.N Murthy	Dr.G.V.L.N Murthy

A-
Principal