ENVIRONMENTAL MANAGEMENT

Course Code	19ES5601A	**Year**	III	**Semester**	II
Course Category:	Open Elective	**Branch**	ME	**Course Type**	Theory
Credits:	3	**L – T – P**	3 – 0 – 0	**Prerequisites:**	Nil
Continuous Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Upon successful completion of the course, the student will be able to:	
CO1	**Analyze** the sources and composition of Municipal Solid Waste
CO2	**Distinguish** between different solid waste management methods and relate its effect on soil
CO3	**Determine** different types of Hazardous wastes and their safe disposal methods
CO4	**Illustrate** importance of EIA and its assessment methodologies
CO5	**Assess** impacts of air and water and their significance

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	2	1		1		2	2					1	2
CO2	3		2		2		2	2					1	2
CO3	3		2		1		2	2					1	2
CO4	3		1		1		2		1				1	2
CO5	3		1		1		2		1				1	2
1- Low							**2-Medium**					**3-High**		

Course Content		
UNIT-1	Introduction: Sources and types of municipal solid wastes-waste generation rates-factors affecting generation, characteristics-methods of sampling and characterization, segregation of solid wastes – source reduction of waste – objectives of waste processing, elements of solid waste management – municipal and bio medical solid waste rules – public role in solid waste management.	CO1.
UNIT-2	Resource recovery from solid waste composting and biomethanation; materials- soil pollution: sources, types of soil pollution, effects of fertilizers, pesticides and radioactive material on soils, land disposal of solid waste; sanitary landfills – site selection; landfill liners – management of leachate.	CO2.
UNIT-3	Hazardous Waste Management: Sources and types of hazardous waste characteristics of hazardous wastes; collection-handling-processing techniques-disposal methods; hospital waste management - processing techniques - disposal.	CO3
UNIT-4	Conceptual Facts of EIA: Introduction, definition and scope of EIA objectives in EIA, basic EIA principles, classification of EIA, strategic EIA (SEIA), regional EIA, sectoral EIA, project level EIA and life cycle assessment, project cycle, Environmental baseline monitoring (EBM), preliminary study to determine impact significance, Impact Assessment Methodologies.	CO4
UNIT-5	Prediction of Impacts (Air and Water): Air and water environment, sources and basic information on water and air conceptual approach for addressing air and water environment impacts, assessment of impacts air, water, noise,	CO5

	soil, biological and socioeconomic impacts, assessment of impact significance.	
Learning Resources		
Text Books	1. Integrated Solid waste management by GoergeTchobanolous, Hilary Theisen& Samuel A. Vigil. McGraw Hill International Editions 2. Y. Anjaneyulu, Environmental Impact Assessment, B.S. Publications, 2003.	
Reference Books	1. CPCB Manual on solid waste Management 2. Technological guidance manuals of EIA, MoEF 3. M. Anjireddy, Textbook of Environmental Science and Technology, BS Publications, 2010.	
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	