

Branch Name:	Environment Engineering
Program Code:	ET212
Subject Title:	Urban Environment and Sustainability
Subject Code:	2ET2120302T
Pre-requisite Subject:	Basic Knowledge of water and wastewater parameters & Basic concepts regarding water and wastewater treatment units

Course Objective:

- Student should acquire knowledge related to industrial water and wastewater treatment technologies and its design.
- To study basic concept of sustainability and urban development
- Prepare plan strategies to control and reduce Urban environmental issues and its management.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
4	3	1	-	4	24	60	16	40	-	-	-	-	100

Subject Contents				
Sr. No	Topic	Total Hours	Weightage (%)	
1	Introduction to Sustainability: Concept of sustainability, Objectives of sustainability, urbanization and its impact, scenario of sustainability at micro and macro level, approach towards sustainability.	4	10	
2	Urban Environmental Issues: urban heat island, climate change, GHG emission, Socio economics impact, disease, urban noise.	6	15	
3	Urban Waste Management: urban water and wastewater management, reuse and recycling of water and waste water, water conservation techniques, evaluation of ambient air quality, vehicular emissions, indoor air quality, odour evaluation and control, urban solid waste management, integrated municipal solid waste management, management of plastic waste, E-waste, segregation at source, decentralized solid waste management, 4 R's Management, waste to energy.	20	45	
4	Urban Planning for sustainability: Location of waste handling facilities, sustainable transportation: Mass transportation and green fuel, green building and energy efficient building, Carbon Footprint	12	30	

Reference Books:

1. Management of municipal solid waste by T.V. Ramachandra, TERI press.
2. Water Quality and Treatment Hand Book of Public Water Supplies by AWWA - McGraw Hill
3. Quenching the thirst sustainable water supply and climate change by George Annandale, createspace independent publishing platform
4. Sustainable Urban Environments and eco system approach by Ellen van bueren, hein van bohemian, laure itard, henk visscher editors, Springer publications

List of Open-Source Software/learning website:

1. <https://nptel.ac.in/>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To study basic concept of sustainability and urban development	L-2 and L-3
CLO2	To study the environmental urban issues and management	L-2
CLO3	Prepare plan strategies to control and reduce Urban environmental pollution.	L-4 and L-6

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with POs & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1		M	M			M	M		M					M	M
CLO2		M	M				M		M					M	M
CLO3	L	M	M			M	M							M	M

H: High, M: Medium, L: Low