

Course title: Sustainable Provision and Management of Urban Services				
Course code: MEU 163	No. of credits: 3	L-T-P: 29-12-8	Learning hours: 45	
Pre-requisite course code and title (if any): none				
Department: Sustainable Engineering				
Course coordinator: Prof. Shaleen Singhal		Course instructor: Prof. Shaleen Singhal		
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Course type: Compulsory		Course offered in: Semester 1		
Course description				
<p>Rapid urbanization is accentuating the pressure on urban services and making it difficult to provide urban services in a sustainable and equitable manner. Provision and delivery of resource-efficient, cost-effective, equitable and environment-friendly urban services is a first key step towards urban sustainability. Sustainable Provision and Management of Urban Services is a Semester I course offered to the M Tech Urban Development and Management programme students. This course introduces the complex issues related to the key urban services such as water supply, sewerage, solid waste, transport, energy and buildings. The comprehensive coverage of urban services is further advanced through a set of sector specific elective courses.</p> <p>The course is structured under seven modules: Module 1 introduces the status of urban services in India. Module 2 to module 6 respectively focus on the provision and management issues relating to municipal solid waste management, water and wastewater, sustainable urban transport, housing and buildings and energy. Module 7 is focuses on benchmarking and performance measurement aspects of urban services.</p>				
Course objectives				
To impart foundational knowledge of multi-dimensional and complex issues related to key urban services such as water supply, sewerage, solid waste, transport, energy and buildings.				
Course contents				
Module	Topic	L	T	P
1	Module 1: Status of urban services in India <ul style="list-style-type: none"> ▪ Towards sustainable urban services ▪ Overview of urban infrastructure and services in Indian cities ▪ Introduction to assignments 	4		
2	Module 2: Municipal Solid Waste (MSW) management <ul style="list-style-type: none"> ▪ MSW management: collection transportation and disposal ▪ MSW management: innovative technological interventions 	4	2	
3	Module 3: Water and wastewater <ul style="list-style-type: none"> ▪ Water supply challenges and technology ▪ Water conservation, demand management and pricing ▪ Wastewater management; treatment technology and reuse ▪ Business models case studies 	4	2	
4	Module 4: Sustainable transport <ul style="list-style-type: none"> ▪ Sustainable and low carbon transport: parameters for inter-city and intra-city transport ▪ Sustainable and low carbon urban transport: issues and interventions 	4		
5	Module 5: Housing and buildings <ul style="list-style-type: none"> ▪ Sustainable habitat and green buildings ▪ Green buildings rating methods 	4		8

6	Module 6: Energy in provision of services <ul style="list-style-type: none"> ▪ Energy efficiency management in utilities ▪ Energy access 	3	2	
7	Module 7: Service benchmarking <ul style="list-style-type: none"> ▪ Service level benchmarks ▪ Performance measurement approach to service management ▪ Urban services and health impacts on urban poor ▪ Studio sessions: assignment progress 	6	6	
	Total	29	12	8
Evaluation criteria:				
Minor Test 1: 20 %				
Project Work: 40 %				
Major Test: 40 %				
Learning outcomes				
On successfully completing this course the students will be able to:				
1. Gain exposure to the key management issues on challenges in the provision of urban services such as water supply, sewerage, solid waste, transport, energy and buildings				
2. Enhance knowledge and understanding of the multi-dimensional and complex systems relating to delivery of and ways to manage urban services in a sustainable manner.				
Pedagogical approach				
The course will be delivered through a mix of classroom lectures and case studies discussions.				
Materials				
Books/Reports				
1. SDG India Index 2020-21 (2021), Niti Aayog, Government of India				
2. World Cities Report 2020 (2020), United Nations Human Settlements Programme.				
3. WEF (2015), Inspiring Future Cities & Urban Services: Shaping the Future of Urban Development & Services Initiative, World Economic Forum.				
4. Finance Commission of India (2009), Thirteenth Finance Commission 2010–2015, Volume I: Report and Volume II: Annexes.				
5. Indo-US FIRE-D (2011), Developing Sustainable and Inclusive Urban Infrastructure Services, Ministry of Urban Development, Government of India and USAID.				
6. Joel Ruet, Stephanie Tawa Lama-Rewal (ed) (2009), “Cities and the Urban Imperative Governing India's Metropolises”, Routledge, India				
7. NIUA (2011), HPEC Report on Urban Infrastructure, NIUA, Ministry of Urban Development.				
8. PEARL (Peer experience and reflective learning) portal of Ministry of Urban Development, GOI.				
9. Rakesh Mohan committee (2011), Working Group Report on Financing Urban Infrastructure for XII Plan.				
10. Sridhar Kala and O. P. Mathur (2009), Cost and challenges of local urban services. Oxford University Press, New Delhi, pages 261				
11. TERI (2009), “An exploration of sustainability in the provision of basic urban services in Indian Cities”				
12. PwC (2015), Transforming central business districts Taking the smart route, 2015 PricewaterhouseCoopers Private Limited.				
Additional information (if any): NA				
Student responsibilities				
Attendance, feedback, discipline: as per university rules.				

Course Reviewers

The course is reviewed by the following experts.

1. Dr. Suneel Pandey, TERI, IHC, Lodhi Road, New Delhi
2. Mr. Anshuman, TERI, IHC, Lodhi Road, New Delhi