

Course title: Urban Water Supply and Waste Water				
Course code: MEU 178		No. of credits: 2	L-T-P: 28-0-4	Learning hours: 30
Pre-requisite course code and title (if any): NA				
Department: Energy and Environment				
Course coordinator: Ms. Ranjana Ray Chaudhuri			Course instructor: Ms. Ranjana Ray Chaudhuri	
Contact details: ranjana.chaudhuri@terisas.ac.in				
Course type: Elective			Course offered in: Semester 3	
Course description:				
<p>Provisioning of water in urban areas is one of the most important responsibilities with the urban local body. With a rapidly growing urban population in India, the pressure on service delivery is enormous, with both quantity and quality of water being the critical issues. An equally important segment, but often neglected, is the waste water disposal. Given the funds crunch often faced by the urban local bodies, the provision of these services is far from satisfactory. An added challenge is the lack of will on the part of users to pay for services being provided. The efficient functioning and delivery of these two services could contribute to enhancing the liveability of Indian cities.</p> <p>In this context, the course is designed as an advanced version of this theme dealt with in the first semester core course on Sustainable Provision and Management of Urban Services to create an in depth understanding about the level of provisioning of both the services by focussing on the physical (design) as well as financial aspects of the provision of these two services. Further, it also throws light on how these services are being managed with institutional reforms involving private partnerships in service provisions, which had largely remained the sole responsibility of the local government.</p>				
Course objectives				
<p>The course aims to provide a comprehensive view on the provisioning and management of water supply and treatment of waste water in urban areas in India by focussing on key issues of demand-supply, infrastructure, financial implications and institutional reforms.</p>				
Course contents				
Module	Topic	L	T	P
1	Module 1: Urban Water Supply and Waste Water a) Norms and standards for urban water supply b) Service level benchmark c) Challenges in managing urban water supply and waste water d) Urban Flooding	4		
2	Module 2: Provision of Urban Water Supply a) Water availability, sources of water and their management b) Water supply and demand management (per capita water supply and basic needs), water conservation c) Building urban water supply infrastructure (design, construction, and operations and management) <ul style="list-style-type: none"> • Water treatment methods and quality controls • Components of water distribution system d) Water auditing and balancing; metering of flows and water use; leak detection and control e) Improving efficiency of existing water supply network f) Costing and pricing (water tariff - tax, user charges) g) Institutional structures for urban water supply, reforms to improve the	15		4

	status of water supply, PPP in water supply			
3	Module 3: Waste Water Conveyance and Drainage a) Waste water generation b) Conveyance and drainage c) Treatment, reuse and disposal d) Design, construction and operations and management of waste water systems e) Avenues for financial sustainability of waste water infrastructure f) Institutional structures for waste water management, reforms to improve the status of waste water g) Decentralised systems and solutions: PPP in waste water management	9		
	Total	28	0	4
Evaluation criteria:				
Weightage (%)				
Assignment/Presentations : 60%				
Final Examination : 40%				
Learning outcomes:				
On completion of this course, the students would:				
a) Have acquired an understanding of the institutional mechanisms in the delivery of the two services, water supply and waste water disposal. b) Have developed understanding the challenges of the delivery of these services as well as the strategies to address the challenges.				
Pedagogical approach:				
The course will be delivered through a mix of classroom lectures, case studies discussions and field visits.				
Readings:				
1. India Assessment 2002, Water Supply & Sanitation, Planning Commission, Government of India. 2. Manual on Water Supply and Treatment (3rd edition), Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development (MoUD),1999. 3. Status of Water Supply, Wastewater Generation and Treatment in Class-I Cities & Class-II Towns of India, Central Pollution Control Board (CPCB), MoEF, 2009-10. 4. MoUD – Ministry of Urban Development of Government of India (2010), Improving Urban Services through Service Level Benchmarking, New Delhi, PS Press Service Pvt. Ltd.				
Additional information (if any):NA				
Student responsibilities:				
Attendance, feedback, discipline: as per university rules.				

Course Reviewers:

1. Dr Pradip Nandi, Chief Technical Advisor, Water for Asian Cities Programme, UN-HABITAT, New Delhi
2. Mr Saugata Dasgupta, Senior Project Officer (Urban), Asian Development Bank, India Resident Mission, New Delhi