

CE/BOS/CE 342/0513

K L UNIVERSITY
SOLID WASTE MANAGEMENT AND LANDFILLS (11 – CE 342)

Pre – requisite: 11 - CE 207
SYLLABUS

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Municipal Solid Wastes: Types of solid wastes, Sources of Municipal and Hazardous wastes, Properties of solid wastes-Physical and Chemical composition. Solid Waste Management: An Overview, Introduction – Reduction, Reuse and Recovery, Waste Disposal Options, Current Scenario and Challenges Engineered Systems For Solid Waste Management: Functional Elements, Solid waste generation, On-site handling, Storage and Processing, Collection of solid wastes, Transfer and Transport, Processing of Solid wastes, Ultimate disposal. Conversion of Solid wastes and Recovery: Mechanical processing and Material recovery systems. Biological Conversion-Composting, Anaerobic Digestion. Thermal Conversion- Combustion, Incineration, Gasification, Pyrolysis, Refuse Derived Fuel, Energy recovery systems. Landfills for Municipal Solid Wastes: Land Filling of Municipal Solid Wastes, Site selection, Planning, Design and Operation. Landfill Gas- composition, Collection. Lechate-environmental effects, Lechate collection systems, Treatment of lechate, MoEF rules, CPCB guidelines for hazardous waste land filling. Lechate Control By Clay Liners: Clay Liners-Types-Compacted clay liners and their design-Construction of clay liners. Geosynthetic Lining Systems: Geosynthetics – Types and Functions-Geosynthetic clay liners-Properties , Hydraulic conductivity, Installation.

TEXT BOOKS:

1. Howard S. Peavy, Donald R. Rowe and George Tchobanoglous (1985), Environmental Engineering, Mc Graw-Hill International Editions, NewYork.

REFERENCE BOOKS:

1. Solid waste Engineering by P. Aarne Vesilind, William Worrell and Debra Reinhart,(2004), Cengage Learning India Private Limited, New Delhi.
2. Environmental Science and Engineering by J.Glynn Henry, Gary W.Heinke,(2004),Low Price Edition, Pearson Education Inc, Singapore.
3. MoEF(2000) Municipal Waste Management and Handling Rules, Govt. of India.
4. CPCB(2001) Criteria for Hazardous waste Landfill(HASWAMS/17/2000-01)
5. Solid and hazardous waste management by M.N.Rao and Razia Sultana, BS Publications, Hyderabad.
6. Venkatappa Rao. G and Sasidhar. R.S.(2009), Solid waste management and Engineered Landfills, Sai Master Geoenvironmental Services Pvt.Ltd, Hyderabad.