NBT-033: Waste Treatment and Management

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UNIT I **(8)**

Waste management: the definition of waste, and its classification in the context of EU legislation, policy and other drivers for change, including the planning and permitting regime for the delivery of waste management solutions.

UNIT II **(8)**

Waste treatment technologies including waste incineration and energy from waste, advanced conversion technologies of pyrolysis and gasification, anaerobic digestion, composting and mechanical biological treatment of wastes.

UNIT III **(8)**

Health considerations in the context of operation of facilities, handling of materials and impact of outputs on the environment; Advances in waste recycling and recovery technologies to deliver added value products; Landfill engineering and the management of landfill leachate and the mining of old landfills.

UNIT IV **(8)**

Specific waste streams including healthcare wastes, food wastes, mineral and mining wastes, hazardous wastes and producer responsibility wastes; Sustainability and resource efficiency with consideration for materials flow through the economy, steps towards designing out waste and maximizing the value of outputs from waste treatment processes;

UNIT V **(8)**

Interface of waste and resource management and civil engineering in the context of sustainable waste management in global cities and developing countries; and Use of decision support tools including multi-criteria analysis, carbon foot-printing and life-cycle analysis, as appropriate.