

SYLLABUS FOR CERTIFICATE COURSE

Name of the Course: **Solid Waste Management**

Mission and Objectives:

This course is envisaged to provide integrated knowledge and training in waste management and technology. Tackling the problem of waste is a challenge the world over. Managerial measures from the source of waste production to the treatment and disposal levels need updated knowledge and effective practices. Proper management measures of wastes – liquid, solid and hazardous - all are integral to human health as well as on environmental well being. Development of innovative research in specific areas under waste management technology giving due importance to R & D as well as creation of awareness among the public are the thrust areas recognized. The curriculum formed aims to impart full justice to the subject matter with a strong knowledge base and skill development in waste management technology. In order to fully achieve the waste prevention goals there is the need for innovations in the technological design and operation, the so called clean technologies.

Module 01: Generation and characteristics of waste(6 hours)

Sources, Types, composition, quantity, sampling and characteristics of waste, factors affecting generation of solid wastes.

Module 02: Waste collection, storage and transport(10hours)

Collection and storage of municipal solid waste; Methods of collection - House to House collection - collection routes; on site storage methods-materials used for containers -Recycling and Reuse of waste -Need for transfer and transport; transfer station-selection of location, operation and maintenance; transportation Methods-manual, Mechanical methods with or without compaction, economy in transportation of waste, optimization of transportation routes.

Module 03: Waste processing techniques(6 hours)

Processing techniques-biological and chemical conversion technologies – composting and its methods, Vermi-composting, mechanical composting, In vessel composting, incineration, pyrolysis, gasification.

Module 04: Disposal of Solid Waste(8 hours)

Segregation, Volume reduction at source, recovery and recycle; dumping of solid waste-sanitary waste- sanitary landfills-site selection-design and operation of sanitary landfill - leachate and landfill gas management- landfill closure and environmental monitoring-landfill remediation;Municipal solid waste in Indian conditions, legal aspects of solid waste disposal, Plastic waste disposal.