MANGALORE UNIVERSITY

Department of Biosciences
MSc Environmental Science

ESH502 SOLID WASTE MANAGEMENT 52 hrs.

Course Outcomes:

CO1 Learn solid waste, its management and utilization in detail.
CO2 Studying about solid waste and its management and utilization.
CO3 Get the knowledge of reuse, recycle and reduce waste.
CO4 Learn hazardous waste in detail.

UNIT I (13 hours)

Waste: Introduction, sources, characteristics, composition, classification, waste generated per capita - Global scenario. Solid Waste – collection, storage, segregation - transportation and disposal methods - sanitary landfills and types, composting, anaerobic digestion, incineration, types of incineration, pyrolysis. Medical waste and technology options for biomedical waste treatment.

UNIT II (13 hours)

Hazardous waste: Introduction, characteristics, resource conservation and recovery Act, listed hazardous waste, listing criteria. Classification of hazardous waste and handling of hazardous solid wastes. Radioactive wastes - sources, pollution, types of radioactive waste and its control and management.

UNIT III (13 hours)

Waste management: Waste minimization program, typical material recovery facility operation (TMRF). Reuse and recycling of paper, glass, rubber. Plastic waste status in India, effect of plastic wastes on environment, control and management of plastic waste, e-waste management.

UNIT IV (13 hours)

Waste Utilization: Utilization of wastes - plantation crop waste, domestic waste, poultry waste. Pharmaceutical waste: Types and management, Refinery waste - Types and disposal methods. Pesticide waste, detergent waste.

References:

1. Baker, K.M. and Herson, B.S. Bioremediation, Mc. Graw-Hill Inc. (1994)
2. Bhide and Sundaresan. Solid waste management in Developing countries, Indian National Scientific Documentation Center, New Delhi (2000)
3. CPHEEO. Manual on solid waste management.
4. Eweis, J.B., Ergas, S.J., Change, D.P.Y. and Schroeder, E.D. Bioremediation - Principles, Mc Graw Hill Inc. (1998)
5. La Grega, M.D., Buckingham, P.L. and Evans, J.C. Hazardous waste management, II Ed., Mc Graw Hill Inc. (2001)
6. Lie, D.H.F. and Liptak, B.G. Hazardous Wastes and Solid Wastes, Lewis publishers, New York (2000)
7. Milary Theiren and Samuel A Vigil. Solid waste management, George Tehobanaglous Integrated, Mc Graw Hill Inc. (1993)
8. WHO. Manual on Solid waste management.