

MANGALORE UNIVERSITY
DEPARTMENT OF BIOSCIENCES
M.Sc. ENVIRONMENTAL SCIENCE

ESH 501 ENVIRONMENTAL POLLUTION ABATEMENT

52 hrs.

Course Outcomes:

- CO1 Demonstrate principles of pollution abatement.
- CO2 Demonstrate various air pollution mitigation measures.
- CO3 Demonstrate various laws for pollution control.
- CO4 Understand the role of microorganisms in pollution abatement.

UNIT I (13 hours)

Principles of pollution abatement – air, water, soil, noise pollution control principles; Basis and necessity for standards in drinking water, sewage, marine water, air and soil; Point and non-point pollution problems and remedies; Treatment methods of industrial, municipal and agricultural wastes, aerobic and anaerobic waste treatment methods of solid and liquid wastes.

UNIT II (13 hours)

Air pollution: Definition and types – indoor air pollution, particulates in air and their control and management, Instruments used in air sampling and air pollution control; emission standards; Pollution control and abatement methods in marine, brackish water and freshwater; standards for potable, industrial and irrigation purposes; Biomedical wastes.

UNIT III (13 hours)

Pollution control measures – soil, water, air and noise; International and national pollution regulatory Acts – Water Act, Air Act, Environment Protection Act, Cess Act, Factories Act, Biodiversity Acts, Biomedical Acts; Permissible levels of toxicants in the environment and pollution indices.

UNIT IV (13 hours)

Biological tools used in pollution abatement: Use of bacteria, fungi, actinomycetes, algae in bioremediation and biodegradation of wastes; Case studies on pollution abatement programmes at local, national and global levels; Case studies on Urban Solid Waste Management. Pollution abatement instruments. Recycling and reuse of solid and liquid wastes.

References:

1. Hosetti, B.B. and Arvind Kumar, 1998. Environmental Impact Assessment and Management, Daya Publishing House, Delhi.
2. Shukla, A.C., 1999. Advances in Environmental Pollution.
3. APHA, 1995. Standard methods for the examination of water and waste water 19th Edition, Washington, D.C.
4. Schimitz, R.J. 1996. Introduction to water pollution biology. Asian Books Pvt. Ltd., New Delhi.
5. Khana, G.N., 2002. Environmental Problems, U.N APH Publishers.
6. Kumar, R., 1999. Environmental Pollution and Health Hazards in India.
7. Tripathy, D.B. Environmental Pollution Research.
8. Odum, Ecology.
9. Jogdanand, Environmental Biotechnology, Himalaya Publ. House.

10. Alexander, G., Microbial Biotechnology, WH Freeman and Co.
11. John Arundel, Sewage and Industrial Effluent Treatment, Blackwell Science Pub

