



MANGALORE UNIVERSITY
DEPARTMENT OF BIOSCIENCES
M.Sc. ENVIRONMENTAL SCIENCE
ESS453 ENVIRONMENTAL CHEMISTRY

Course Outcomes:

CO1 Understand the fundamentals of environmental chemistry with reference to atmospheric and water chemistry.

CO2 Describe chemical composition of air.

CO3 Discuss on air pollutants and their reactions in the atmosphere.

CO4 Describe the biogeochemical cycles.

UNIT I (13 hours)

Environmental segment: Evolution of the atmosphere, composition & structure; hydrologic cycle; soil composition; bio-geochemical cycles (C, O, N, P, S, CO₂ etc.) Biodistribution of elements, chemical speciation.

UNIT II (13 hours)

Chemistry of atmosphere, air pollutants – sources, photo-chemical smog, green house effect, ozone depletion, acid rain (particulates - source and environment effects). Aerosols - sources, composition and environmental effect.

UNIT III (13 hours)

Chemistry of water: Ground and surface water composition, criteria and standards of water quality – organic, inorganic, radiological and microbial contaminants; Water purification for drinking and industrial process (Demineralization, desalination and reverse osmosis).

References

1. Levit, B.P., Fidlays practical physical chemistry, Longmann, London.
2. Yadav, 1989. Advanced practical physical chemistry.
3. Day, A.K. 1984. Environmental Chemistry, Willey Eastern, III Ed.
4. Faust, S.D. and Dly, O.M., 1983. Chemistry of water treatment, Butter
5. Sawyer, C.W. and McCarty P.L., 1978. Chemistry for Environmental Engineering, McGraw Hill.
6. Vogel, A.L. 1978. A text book of quantitative inorganic analysis. ELBS.
7. APHA, 1989. Standard methods for the examination of water and waste water, Washington D.C.
8. Ghosh G.K., 1999. Biopesticide and Integrated Pest Management.
9. Prabha Shastri Ranade, 2000. Industries and Environment. A study of Impact Assessment.