

Environmental Science/Studies Syllabus
B.Sc. Programme
Nagaland University

Credit=4, Total Marks= 100

Unit-1: Fundamentals of Environment

Environment definition, components-biotic and abiotic, structure-lithosphere, hydrosphere, atmosphere, biosphere and its importance; Environmental Science as an interdisciplinary subject, scope and significance; Major environmental and socio-economical problems; Population growth, variation among nations; Environment and human health.

Unit-2: Environmental Earth Science

Hydrology and Hydrologic cycle; Atmosphere-structure and composition; Lithosphere-soil and soil formation, soil types, soil types in India, Biogeochemical cycles; Wetland and wetland management; Environmental hazards in NE India-flood, earthquake, landslide.

Unit-3: Ecosystems

Concept of an ecosystem; Structure and function of an ecosystem; Energy flow in the ecosystem; Ecological succession; Food chains, food webs and ecological pyramids; Types, characteristic features, structure and function of the different ecosystems.

Unit 4: Biodiversity and its conservation

Concept of diversity; Hot-spots of biodiversity; Biodiversity at global, National and local levels; Value of biodiversity; Threats to biodiversity; Biological invasions, endangered and endemic species; Conservation of biodiversity; In-situ and Ex-situ conservation techniques.

Unit 5: Environmental Pollution

Concept and scope of environmental chemistry, Classification and sources of pollutants and their global, regional and local aspects; Transport, transformation and fate of chemicals in the environment; Treatment of water and waste water; Control of air pollutants; Control devices for particulate matter; Sound pollution and its management; Management of solid waste pollution; Plastic waste; E-waste; Hazardous waste.

Recommended Books:

1. Odum, E. P., Odum, H. T. and Andrews, J., Fundamentals of Ecology. Philadelphia, Saunders, 1971.
2. Bharucha, E., Textbook for Environmental Studies, University Grants Commission, New Delhi and Bharati Vidhyapeet Institute of Environmental Education and Research, Pune, 2003.
3. Sodhi, N. S., Gibson, L. and Raven, P. HG., Conservation biology: voices from the Tropics. John Wiley and Sons, 2013.
4. Grotzinger, J. and Jordan, T.H., Understanding Earth (7th ed.), W.H. Freeman and company, 2014.
5. Singh, V. P., Elementary Hydrology, Prentice-Hall, India, 1994.
6. De, A. K., Environmental Chemistry (8th ed.), New Age Publishing Pvt. Ltd., New Delhi, 2016.
7. Manahan, S.E., Fundamental of Environmental Chemistry (8th ed.), CRC Press, Florida, 2004.
8. Handbook of Environmental Health and Safety – principle and practices (Vol. II): H. Koren; Lewis Publishers.