M.Sc. Environmental Science
Semester-I
ENVIRONMENTAL CHEMISTRY

UNIT-I: CHEMISTRY FOR ENVIRONMENT

Fundamental Chemistry: Elements, Chemical bonding, chemical reactions and equations, Organic functional groups, classes of organic compounds. Free radical reactions, catalytic processes.

Fundamental of environmental chemistry: Solubility, Electrochemistry, Chemical kinetics and Chemical equilibrium. acid-base reactions.

UNIT-II: AIR CHEMISTRY

Atmospheric chemistry: Composition of air, Chemical speciation, particles, ion and radicals, Formation of particulate matter, Photochemical reactions in the atmosphere, Chemistry of air pollutants, Photochemical smog, Acid rain, Chemistry of Ozone layer depletion, Greenhouse gases and Global warming.

UNIT-III: SOIL CHEMISTRY

Chemistry of Soil: Physio-chemical composition of soil, humus, Inorganic and organic components of soil, Reactions in soil solution, Ion exchange (Physiosorption), Ligand exchange (Chemisorption), Complexations, Chelation; Precipitation / dissolution.

UNIT IV: WATER CHEMISTRY

Water Chemistry: Chemistry of water, Concept of DO, BOD, COD, Sedimentation, coagulation, filtration, redox potential