

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Physical Chemistry)
Semester: IV
Syllabus with Effect from: June – 2013

Paper Code: PS04ECHE05	Total Credit: 4
Title Of Paper: Environmental Chemistry	

Unit	Description in detail	Weightage (%)
I	<p>Introduction to Environmental Chemistry: Concepts and scope of study, Environmental composition, nomenclature of some useful Terms, and ecology.</p> <p>Hydrosphere: Water resources, Physical and Chemical properties of water, sea water model, microbiological processes, organic and inorganic matters in water.</p> <p>Lithosphere: Concentric layers of earth, Physical and Chemical weathering processes, composition of soil, Nitrogen cycle and NPK in soil.</p> <p>Atmosphere: Composition & structure of atmosphere, particles, ions, radicals and chemical reactions in atmosphere.</p> <p>Biosphere: Definition, ecosystem and natural cycles.</p>	25%
II	<p>Air Pollution: Environmental pollution, classification of pollutants, environmental indicators. Sources and effect of air pollutants: SMOK, FOG, SMOG, PAN, PAH, greenhouse effect, acid rain, ozone depletion, EL Nino phenomena. Analysis of air pollution.</p>	25%
III	<p>Water pollution: Definition, types of waters pollutants, Environmental toxicology and toxic elements & pesticides in water, Impact on enzymes, Biochemical effect of pesticides. Water and waste water analysis; collection of sample, Determinations of water quality parameters: Alkalinity, acidity, TDS, TH, D.O., BOD, COD, Chlorides, sulphate, nitrate and nitrite etc.</p>	25%
IV	<p>Soil pollution and Waste management: Introduction to soil pollution; waste and pollutants in soil. Classification of wastes, overview of waste management program, green chemistry, methodologies, techniques available and new approaches.</p>	25%

Basic Text & Reference Books:-

- Environmental Chemistry by J. W. Moore & E. A. Moore, Academic Press. Inc. New York, 1976.
- Environmental Chemistry by A.K.De, 4th edition, New Age International Publishers.
- Principles of Environmental Science: Inquiry and applications by William P. Cunningham & Mary A. Cunningham, 1st edition, 2002, Tata McGraw Hill Publishing Company Ltd., New Delhi.

