M.Sc. (Final) Environmental Sciences
Semester –III

Paper- I

ENVIRONMENTAL TOXICOLOGY

Unit I

General aspects of toxicology; Principles in toxicology: Concept of dose response relationship; Chronic toxicity, Short term toxicity and acute toxicity; Median tolerance limit; Statistical concepts of LD_{50}; Risk assessment; Biological and chemical factors that influence toxicity; Influence of ecological factors on the effects of toxicity.

Unit II

Toxicity testing: Holistic and numeric approach; Drug toxicity and abuse; Metal toxicity in animals; Teratogenicity and carcinogenicity; Practical problems in toxicity testing. Global dispersion of toxic substance; Dispersion and circulating mechanisms of pollutants; degradable and non-degradable toxic substances; food chain. Eco-system influence on the fate and transport of toxicants.

Unit III

Uptake of toxic substances by plants, metabolic basis of toxicity of SO_2, NO_2, and O_3 and heavy metals in plants; Microbial transport of toxic metals; Air and water borne toxic and diseases; Radiation toxicity and safety measures.

Unit IV

Uptake of toxic substances by animals; Accumulation and chemical localization of toxic substances by animals; detoxification and excretion of toxic substances by animals; Metabolism of toxic substances by animals.

Unit V

Toxic effect of pollution on terrestrial animals; toxic effects of pollution on aquatic animals; effect of pollutants on plants and plant communities, plankton and microorganisms; chemical hazard assessment and communication; Information management system in Eco-toxicology. Occupational hazards and associated diseases; Nuclear pollution and human health- case studies, Agriculture chemicals and human health; Hazardous wastes- human health and management.