

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm
SEMESTER: VII

Subject Name: Environmental Toxicology and Green Audit

Subject Code: 2270007

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	0	3	80	20	0	0

Sr No	Course Contents	Total Hrs
1.	Concepts and Principles of Ecotoxicology: Principles of Ecology and Toxicology; Dose effect and Dose response relationship, acute toxicity, chronic toxicity, carcinogenicity and mutagenicity; Pathways of toxicants into ecosystem, bioconcentration, biotransfer factors, biomarkers and effects of toxicants; Factors affecting toxicity; Tests for assessing toxicity (carcinogenicity and mutagenesis); Bio-assay techniques; Concepts of LD ₅₀ and LC ₅₀	8
2.	Classification of toxicants: Natural and synthetic toxins; Toxic natural products: Mycotoxins, plant toxin, insect toxin, spider toxin and reptile toxin; Toxic inorganic compounds: carbon, nitrogen, silicon, phosphorus and sulfur compounds; Toxicology of Hydrocarbons (Alkanes, unsaturated non-aromatic hydrocarbon and aromatic hydrocarbons); Toxicology of organooxygen compounds, organonitrogen compounds, organosulfur compounds; Toxicology of metals	12
3.	Toxicological Chemistry: The role of environment in carcinogenesis; Metabolic reactions of xenobiotic compounds, Phase I reactions, Phase II reactions of toxicants, Biochemical mechanism of toxicity, Biochemistry of mutagenesis, Biochemistry of carcinogenesis, Ionizing radiation; Risk assessment, Human health risk assessment, and Ecological risk assessment; Regulatory toxicology: Legal approaches to the regulation of toxic substances	14
4.	Green (Environmental) Audit: Sustainable development; Framework of environmental auditing, Nature conservation, Energy, land use planning, conservation audit, Pollution control, Wastes and recycling, community awareness; Management of the environment auditing process and future prospect of environment auditing; Environmental regulatory criteria, standards for environmentally friendly products.	11

Reference Books:

1. Stanley E. Manahan, Toxicological Chemistry and Biochemistry 3rd Edition, Lewis Publishers, CRC Press, 2003.
2. Lorris G. Cockerham and S. Shane. Basic Environmental Toxicology, CRC Press, 1993.
3. Wayne G. Landi, Ming-Ho Yu, Introduction to Environmental Toxicology: Introduction to Environmental Toxicology: Impacts of Chemicals Upon Ecological Systems, Third Edition, CRC Press, 2003.
4. David A. Wright and Pamela Welbourn, Environmental Toxicology. Cambridge University Press, First Edition, 2002.
A. K. Shrivastava, Environment Auditing. APH Publishing Corporation.
5. Donald G. Crosby. (1998) Environmental Toxicology and Chemistry. Oxford University Press