# M.Sc III Semester 2018-19

## Value Added Course

## ECOTOXICOLOGY

**32 hrs**

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| **CO1** | Develop an understanding of the general principles of toxicology, including the importance of dose and dose-response relationships, factors influencing toxicity, and the use of bioassay-toxicity evaluation |
| **CO2** | Analyze the classification of pesticides, their sources, and the various toxic effects |
| **CO3** | Evaluate the toxicological properties and effects of heavy metals (lead, mercury), hydrocarbons (aromatic and aliphatic), cyanides, and toxic gase |
| **CO4** | Examine natural toxins, venoms, and poisons, their properties, effects, major sites, and mechanisms of action, as well as the use of toxin and venom therapy |

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| Unit I | General Principles of Toxicology: Introduction, Definition of toxicology. Importance of Dose and Dose-response, factors influencing toxicity, Bioassay-toxicity evaluation studies using fish as model<br><br>Pesticides: Classification of pesticides, Sources and their effects to man, toxicity of Pesticides-viz. Hematotoxicity, Nephrotoxicity, Neurotoxicity, Immunotoxicity and Biopesticides | 08 hrs |
| Unit II | Toxic compounds: Heavy metals-Lead and mercury, Hydrocarbons-Aromatic and Aliphatic, and cyanides, and toxic gases - Bhopal tragedy<br><br>Biotransformation: Bioactivation, Biodetoxification of organo phosphates and organo chorines in the bodies of animals | 08 hrs |
| Unit III | Natural toxins, Venoms and poisons: Properties and their effects, Major Sites and mechanism of action, Toxins in lower and higher organisms, Toxin and Venom therapy<br><br>Smoking aids: Active and Passive smoking, Consumption of tobacco, Mariguana(Ganja), their effects and Prevention measures | 08 hrs |
| Unit IV | Cosmetics: Types of cosmetics, Chemical Characteristics , Applications, Exposure and risk assessment, Cosmetic safety regulations.<br><br>Risk assessment: Exposure assessment, Dose-Dosage, Risk characterization, Risk analysis and communications, Occupational health and illness | 08 hrs |

**Reference:**

1. Gorge W. Warne, 1988. Reviews of Environmental contamination of Toxicology, Springer-verlag, New York.
2. Subramanian, M.A. 2004. Toxicology Principles and methods MJP Publishers Chennai.

3. Philip, L. Williams, Robert C. Jawes, Stephen M. Roberts, 2000. Principles of Toxicology, II Ed. A Wiley Science publication John Wiley & Sons. INC. New York.
4. Pandey, K. and J.P. Shukla, 1990. Elements of Toxicology. Radha publ. New Delhi. 48
5. Pandey, B.N. and G.K. Kulkarni, 1995. Fisheries and Fish Toxicology. A.P.H. Publishing Corporation, New Delhi.