

III B.Sc (BC)	TOXICOLOGY AND PHYTOMEDICINE	COURSE CODE: 19EBC51B
SEMESTER-V		HRS/WK-5
Elective – I		CREDIT-4

OBJECTIVES:

- To study various harmful chemical agents in environment and its impacts.
- To study the basics of medicinal and therapeutic use of plants

Course Outcomes:

CO1: To understand and gain knowledge about the toxic substances, types, mechanism and factors influencing the toxicity .

CO2: Able to understand the toxic substances, sources and routes of exposure and transport of toxicants in environment.

CO3: To gain & understand Bioassy, neurotoxicity & nephrotoxicity.

CO4: To acquire knowledge about the herbs, characterization, usage and active constituents of plants and Preparation of herbal formulations for common ailments.

CO5: To gain insights about the herbal drugs for Dengue fever, urinogenital disorders, memory stimulants, kidney stones, inflammation and cancer.

SEMESTER V	COURSE CODE: 19EBC51B					COURSE TITLE: TOXICOLOGY AND PHYTOMEDICINE								HOURS:5 CREDITS:4
COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO8	MEAN SCORE OF CO'S
CO1	5	4	3	2	3	5	5	4	4	3	5	4	3	3.8
CO2	4	3	3	2	3	4	3	3	4	5	4	3	3	3.4
CO3	3	4	3	2	3	3	4	4	3	3	3	4	3	3.2
CO4	4	4	2	2	2	4	4	3	4	3	4	4	3	3.2
CO5	3	3	2	3	3	4	3	4	3	3	4	3	3	3.2
Mean overall score														3.4

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - TOXICOLOGY

[15 hrs]

Introduction to toxicology, Toxic substances: Types-degradable & non-degradable. Factors influencing toxicity. Drug toxicity. Mechanism of toxicity, Acute and chronic toxicity.

UNIT II - TOXIC SUBSTANCES IN ENVIRONMENT

[15hrs]

Toxic substances in environment: sources and routes. Transport of toxicants through food chain-bioaccumulation and bio-magnification. Toxicology of major pesticides, Biotransformation, bio-monitoring, bio-indicator and its examples. Environmental impact of pesticides.

UNIT III - BIOASSAY

[15 hrs]

Bioassay- Types, characteristics and importance. Microbial bioassay for toxicity testing. LC50, LD50. Hepatotoxicity- examples of hepatotoxicants and its impacts on liver. Nephrotoxicity - examples of nephrotoxicants and its impacts on kidney. Neurotoxicity - examples of neurotoxicants and its impacts on brain.

UNIT IV - INTRODUCTION TO HERBAL SCIENCE

[15 hrs]

Herbs, characterization of herbs based on plant properties, usage and active constituents. medicinal uses and health benefits of Ginger, Garlic, Green tea, kabsurakudineer and Herbal tea Preparation of herbal medicine. Bioavailability and bioequivalence. Dosage and formulation.

UNIT V - PHYTOMEDICINE

[15 hrs]

Drugs for urinogenital disorders – *Withaniasomnifera*, Memory stimulants – *Centellaasiatica*, Herbal drugs for dissolving kidney stones – *Musa paradisiaca*, Anti-inflammatory drugs from plants– *Curcuma longa*, *Cardiospermum*. Anticancer drugs from plants - *Catharanthus roseus* and *Azardica indica*. Dengue fever – Papaya leaves.

TEXT BOOKS:

1. David Hoffmann., 2003. Medical Herbalism: The Science Principles and Practices of Herbal Medicine, 1ST edition, Healing Arts Press publishers.
2. Agnes Arbe, 1987. Herbs: Their Origin and Evolution, Cambridge University Press; 3 edition,
3. Kumar, N.C. 1993. An Introduction to Medical botany and Pharmacognosy. Emkay Publications, New Delhi.

REFERENCE BOOKS:

1. Gupta, P.K. and Salunka, D.K. 1985. Modern toxicology. Vol I and II. Metropolitan, New Delhi.
2. Ming-Ho Yu, HumioTsunoda, Masashi Tsunoda, 2011. Environmental Toxicology: Biological and Health Effects of Pollutants, CRC Press; 3 edition