

Programme Code:	B.Sc.	Programme Title:	Bachelor of Chemistry	
Course Code:	23UCY3VA1	Title	Batch:	2023 – 2026
Lecture Hrs./Week	30	Value Added Course - Pesticide Chemistry	Semester:	III
			Credits:	2*

Course Objective

This course aims to providing the students to knowledge about the various types of pesticides and their toxicity. To understand the accumulation of pesticides in the form of residues and its analysis. To knowledge on choice of alternate and eco-friendly pesticides.

Course Outcomes

On completion of the course the students should be able to

CO Number	CO Statement	Knowledge Level
CO1	Inculcate about the pesticides and their toxicity with respect to structure and category	K2
CO2	Explain the preparation and property of pesticides	K2
CO3	Investigate the pesticide residues, prevention and care	K3
CO4	Demonstrate the analytical methods of pesticide residues	K1 & K2
CO5	Make awareness to the public on bio-pesticides	K2

Mapping with PO / PSO Vs CO

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	H	H	M	M	H	-	-
CO2	H	H	M	H	H	M	M	H	-	-
CO3	H	H	M	H	H	M	M	H	-	-
CO4	H	H	M	H	H	M	M	H	-	-
CO5	H	H	M	H	H	M	M	H	-	-

H – High; M – Medium; L – Low

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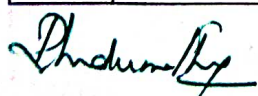
Units	Content	Hrs
Unit I	Chemistry of Pesticides: Brief introduction to classes of pesticides (Chemical class), structures, chemical names, physical and chemical properties.	6
Unit II	Insecticides: Classification and study with respect to structure, chemical name, physical properties, chemical properties, synthesis, degradation, metabolism, formulations, Mode of action, uses, toxicity.	6
Unit III	Pesticides residues: Pesticide residues in atmosphere - entry into atmosphere, action of pesticides, effects on environments. Pesticides residues in water - entry into water systems, action and effect in aquatic environment.	6
Unit IV	Pesticide Residues analysis: Analysis of pesticides residues- sample preparation, extraction of pesticides residues (soil, water and vegetables/fruits) simple methods and schemes of analysis, multi-residue analysis.	6
Unit V	Biopesticides: Pheromones, attractants, repellents - Introduction, types and application (Trimedlure, Cue-lure, methyl eugenol, N,N- Diethyl-m-toluamide). Iron (II) phosphate, Zinc Phosphide, Bromadiolone.	6
	Total Contact Hrs	30

Pedagogy: Direct Instruction, Digital Presentation and Flipped Class

Assessment Methods: Test, Seminar, Quiz, Assignments, Group Task.

Text Books

S.No.	Author	Title of the Book	Publishers \ Edition	Year of Publication
1	Handa SK	Principles of pesticide chemistry.	Agrobios (India)	2012
2	Matolcsy G, Nádasy M, Andriska V.	Pesticide chemistry.	Elsevier	1989



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3	J. Miyamoto and P. C. Kearney	Pesticide Chemistry Human Welfare and the Environment vol. IV Pesticide Residue and Formulation Chemistry	Pergamon Press	1985
4	R. Cremling	Pesticides	John Wiley	-

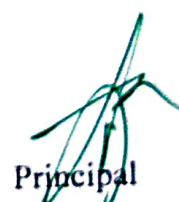
Reference Books

S.No.	Author	Title of the Book	Publishers \ Edition	Year of Publication
1	Roy N. K	Chemistry of Pesticides	CBS Publisher & Distributors P Ltd; 1 st Ed.	2010
2	Nollet L.M., Rathore H.S	Handbook of pesticides: methods of Pesticide residues analysis.	CRC Press	2016
3	Ellerbrock R.H.	Pesticide Residues: Significance, Management and Analysis	-	2005



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