

NON MAJOR ELECTIVE II

VERMITECHONOLGY

Semester	Subject code	Category	Lecture		Theory		Practical		Credit
			Total hrs	Hrs/week	Total hrs	Hrs / week	Total hrs	Hrs/week	
IV		Non major	30	2	30	2	0	0	2

COURSE OUTCOMES

To enable the students to understand the concepts of vermicomposting.

COURSE OUTCOMES

On the successful completion of the course, students will be able to develop strong and potential skills to work with vermicomposting.

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	To study about the types and properties of soil.	K3
CO2	To understand the biology of Earthworms and its role in Vermicomposting.	K2
CO3	To learn the ability of Earthworms in Organic farming and Solid waste reclamation.	K2
CO4	To provide the knowledge to the students about Organic farming through Composting and Vermicomposting.	K2
CO5	To understand the advantages of using Vermicompost.	K3

MAPPING WITH PROGRAMME OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	M	M
CO2	S	S	M	M	M	M
CO3	S	S	S	S	M	M
CO4	S	M	S	S	S	S
CO5	S	S	S	S	S	S

S- Strong;**M- Medium;****L- Low****Unit I: Types and properties of soil****6 hrs**

Soil general properties of the soil – structure of the soil – sand, clay, silt, types of soils – soil organisms. Properties of soil.

Unit II: Earthworm Biology**6 hrs**

Earthworms – Ecological classification of earth worms as Epigenesists – Introduction to earthworm biology – physical and chemical effects of earth worms on soils – Role of earthworms in soil – classification of earthworms based on ecological strategies – Burrowing activity of earthworms – Drilospheres – Microorganisms and their relationship with earthworms.

Unit III: Composting**6 hrs**

Composting – types of composting, Vermicompost - Earthworm species used in vermicompost production; Materials used for Vermicomposting; Vermicomposting methods – Small scale and Large scale; Packaging, marketing and Cost benefit analysis of Vermicompost.

Unit IV: Vermicomposting**6 hrs**

Vermiculture; Vermiculture unit – Materials required and maintenance; Vermiwash and its applications; Feeding habits and food for Composting worms; Importance of microorganisms as food for Earthworms; Problems in Vermiculture units and remedial suggestions. Pests, parasites and pathogens affecting Earthworms.

Unit V: Benefits of Vermicompost**6 hrs**

Applications of Vermicomposting in Agriculture and Horticulture practices; Earthworms in recycling of various solid wastes; Benefits of Earthworms other than Vermicomposting. Advantages of Vermicompost over Chemical inputs.

DISTRIBUTION OF MARKS: Theory - 100% and Problems – Nil

TEACHING METHODOLOGY:

- ❖ Lectures
- ❖ Power point presentation
- ❖ Charts
- ❖ Models
- ❖ Group discussion
- ❖ Group assignments

TEXT BOOKS

SL NO:	BOOK NAME	AUTHOR	PUBLISHER	YEAR OF PUBLICAT ION
01	Biotechnology	Satyanarayana, U.	12 th Edition Books and Allied (P) Ltd., Kolkata, India.	2018
02	Soil Microbiology	Subba Rao N.S.	4 th Edition Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, India.	2020

REFERENCE BOOKS

SL NO:	BOOK NAME	AUTHOR	PUBLISHER	YEAR OF PUBLICAT ION
01	Biology and Ecology of Earthworms.	Edwards, C. A and Bohlen, P. J.	Chapman and Hall, London.	1996
02	Earthworm Ecology: From Darwin to Agriculture.	Satchell, J. E.	Chapman and Hall, London Stephenson J., 1923. The fauna of British India - Oligo.	1983
03	Earthworm: Cinderella of organic farming.	Kale Radha, D.	Prism Books Pvt. Ltd., Bangalore, India.	2004
04	Vermicology: The Biology Earth worm.	Ismail, S. A.	Orient Longman, United Kingdom.	1997

SYLLABUS DESIGNER

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