Course Code	Course Name	Credits
26ZY601	VERMITECHNOLOGY	04

Course Objectives

- To understand the biology, ecology, and economic importance of earthworms.
- To study the principles and techniques of vermiculture and vermicomposting.
- To gain knowledge about vermiproducts and their applications in agriculture.
- To understand the role of vermitechnology in organic farming and waste management.
- To develop entrepreneurial skills related to commercial vermiculture and vermicomposting.

Learning Outcomes

- Explain the morphology, life cycle, and ecological significance of earthworms.
- Demonstrate knowledge of vermiculture methods and compost production techniques.
- Analyze the nutrient composition and applications of vermiproducts.
- Apply vermitechnology principles in organic waste recycling and sustainable agriculture.
- Evaluate the commercial potential and environmental benefits of vermitechnology.

Unit 1 – Introduction to Vermitechnology (12 Hrs.)

History, scope, and importance of Vermitechnology; classification and biology of earthworms; morphology, anatomy, and life cycle of earthworms; ecological role of earthworms in soil fertility; types of earthworms used in vermicomposting; economic importance of vermiculture.

Unit 2 – Vermiculture and Earthworm Management (12 Hrs.)

Selection of suitable earthworm species; methods of vermiculture; construction and maintenance of vermiculture units; environmental factors affecting earthworm growth; feeding and breeding of earthworms; harvesting and storage of earthworms.

Unit 3 - Vermicomposting Technology (12 Hrs.)

Principles and process of vermicomposting; raw materials used for vermicomposting; preparation and maintenance of vermicompost beds; physical, chemical, and biological changes during composting; harvesting, processing, and storage of vermicompost; quality assessment of vermicompost.

Unit 4 – Vermiproducts and Their Applications (12 Hrs.)

Vermicompost and its nutrient composition; vermiwash and vermicast; preparation and applications of vermiwash; role of vermiproducts in organic farming; use of vermicompost in agriculture, horticulture, and waste management; commercial value of vermiproducts.

Unit 5 - Environmental and Commercial Applications of Vermitechnology (12 Hrs.)

Role of vermitechnology in solid waste management; biodegradation and recycling of organic wastes; vermitechnology in sustainable agriculture; economics and entrepreneurship in vermiculture; large-scale production and marketing of vermiproducts; recent advances and future prospects in vermitechnology.

Reference Books:

1. Edwards, C.A. and Lofty, J.R. (1977). Biology of Earthworms. Chapman and Hall, London.
2. Satchell, J.E. (1983). Earthworm Ecology: From Darwin to Vermiculture. Chapman and Hall.
3. Ismail, S.A. (2005). The Earthworm Book. Other India Press, Goa.
4. Dash, M.C. (1996). Earthworms and Soil Fertility. A.P.H. Publishing Corporation, New Delhi.
5. Kale, R.D. (1998). Earthworms: Nature's Gift for Utilization of Organic Wastes. Prism Books Pvt. Ltd., Bangalore.

Websites and eLearning Sources:

https://www.biologydiscussion.com/vermicomposting
https://www.easybiologyclass.com/vermicomposting/
https://agricoop.nic.in/en/vermicomposting