

Course Code	Course Name	Credits
26ZY102	VERMICULTURE	04

Course Objectives

- To understand the principles and importance of vermiculture and vermicomposting.
- To study the biology and ecology of earthworms used in vermiculture.
- To develop knowledge on methods of vermicompost production and management.
- To understand the role of vermiculture in sustainable agriculture and waste management.
- To enhance practical knowledge on vermiculture techniques and applications.

Learning Outcomes

- Explain the importance and applications of vermiculture.
- Identify different species of earthworms used in vermiculture.
- Demonstrate knowledge of vermicomposting methods and maintenance.
- Analyze the role of vermiculture in organic farming and environmental management.
- Apply vermiculture techniques for sustainable agricultural practices.

Unit 1 - Introduction to Vermiculture (12 Hrs.)

Definition, scope and importance of vermiculture; history of vermiculture; Classification and biology of earthworms; ecological importance of earthworms; types of earthworms – epigeic, endogeic and anecic forms; economically important species used in vermiculture.

Unit 2 - Biology and Ecology of Earthworms (12 Hrs.)

Morphology, anatomy and physiology of earthworms; reproduction and life cycle; feeding habits and digestion; environmental requirements for growth and reproduction; role of earthworms in soil fertility and nutrient cycling.

Unit 3 - Vermicomposting Technology (12 Hrs.)

Principles of vermicomposting; raw materials used in vermicomposting; preparation of vermibeds and vermipits; methods of vermicomposting; maintenance and harvesting of vermicompost; factors affecting vermicomposting process; quality and nutrient composition of vermicompost.

Unit 4 - Applications of Vermiculture (12 Hrs.)

Use of vermicompost in organic farming and horticulture; vermiwash and its applications; role of vermiculture in waste management and recycling of agricultural and domestic wastes; use of vermiculture in sustainable agriculture and environmental protection.

Unit 5 - Commercial Vermiculture and Management (12 Hrs.)

Commercial production of vermicompost; small-scale and large-scale vermiculture units; packaging and marketing of vermicompost; diseases and predators of earthworms; economic importance and future prospects of vermiculture.

Reference Books

1. Edwards, C.A. and Bohlen, P.J. (1996). Biology and Ecology of Earthworms. Chapman and Hall.
2. Satchell, J.F. (2018). Earthworm Ecology. Springer Publications.
3. Ismail, S.A. (2005). The Earthworm Book. Other India Press.
4. Kale, R.D. (2016). Earthworms and Vermicomposting. Orient Longman.
5. Dash, M.C. (2019). Fundamentals of Ecology and Environmental Biology. Tata McGraw Hill.

Websites and eLearning Sources

1. <https://www.biologydiscussion.com/vermicomposting>
2. <https://www.easybiologyclass.com/category/environmental-biology/>
3. <https://www.agrifarming.in/vermicomposting>

