

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF ZOOLOGY
COURSE CURRICULUM

PART-A: Introduction				
Program: Bachelor in Life Science (Certificate / Diploma / Degree)			Semester – II/IV/V/VI	Session: 2024-2025
1	Course Code	ZOSEC-01		
2	Course Title	Vermiculture and Vermicomposting		
3	Course Type	Skill Enhancement Course		
4	Pre-requisite (if, any)	As per Program		
5	Course Learning Outcomes (CLO)	After successfully completing this course, the students will be able to: ➤ Learn the identifiable features of earthworm species for vermiculture and vermicomposting. ➤ Cultivate the skills of vermiculture. ➤ Understand the challenges in vermiculture and vermicomposting. ➤ Analyze the features of different vermicomposting methods. ➤ Create entrepreneurial prospects in this field.		
6	Credit Value	2 Credits (1C + 1C)	Credit = 15 Hours –Theoretical learning and = 30 Hours Laboratory or Field learning/Training	
7	Total Marks	Max.Marks:50		Min Passing Marks:20
PART -B: Content of the Course				
Total No. of Teaching-learning Periods: Theory–15 Periods (15 Hrs) and Lab. or Field learning/Training 30 Periods (30 Hours)				
Module	Topics (Course contents)			No. of Period
Theory Contents	General Introduction: Distribution and habit, habitat. Food: Phytophagous and Geophagous earthworm. Morphology of earthworm. Ecological categories: Epigeic, Endogeic and Anecic earthworms. Ecological requirements: moisture, temperature, light, pH and, organic matter. Ecosystem services: role played by earthworms in soil ecosystem. Difference between vermiculture and vermicomposting. Role of earthworm and vermicompost in growth of plants. Vermiculture: Definition and features. Selective features of earthworms for vermiculture. Vermiculture methods: Wormery, breeding techniques: indoor and outdoor cultures, monoculture and polyculture, merits and demerits. Obstacles in Vermiculture: Prevention and Management. Vermicomposting: Definition and features. Scientific names and distinguishing features of native and exotic vermicomposting earthworms (Native Indian earthworms. <i>Perionyx excavatus</i> , <i>Perionyx ceylanensis</i> , European earthworms. <i>Eisenia fetida</i> , <i>Eisenia andrei</i> , South African earthworms. <i>Eudriluseugeniae</i>), Principle of vermicomposting, Methods of vermicomposting: Low-cost Floor beds, Grow bags & Tank system. Management during vermicomposting (Physical and Biological). Products of vermicomposting, physiochemical features and their utility: earthworm biomass (vermi-protein), vermicompost and vermiwash. Harvesting the vermicompost & storage. Marketing prospects of Vermicomposting in Chhattisgarh and India.			15
Lab./Field Training Contents	➤ Key to identify different types of earthworms. ➤ Identification of materials/waste products for vermiculture and vermicomposting. ➤ Study of systematic position, habits, and habitat & External characters of <i>Eisenia fetida</i> . ➤ Study of Life stages & development of <i>Eisenia fetida</i> . ➤ Culture of earthworms in Grow Bags. ➤ Study of devices and instruments of Vermiculture and Vermicomposting. ➤ Preparation of vermibed, maintenance of vermicompost & management of climatic conditions. ➤ Study the effects of vermicompost & vermiwash on any two short duration plants. ➤ Study of different methods of vermicomposting (NADEP Composting, Bangalore Method, Coimbatore Method & Indore Method). ➤ Creation of set up for vermiwash collection. ➤ Field Visit to Vermiculture & Vermicomposting sites and interaction with self help groups/ personnel engaged in these activities. ➤ Projects/ Assignments/ Chart/ Model preparation. ➤ Practical Record			30
Keywords	Earthworm, Vermiculture, Vermicomposting, Vermiwash, Grow Bags, NADEP.			
Signature of Convener & Members (CBoS):				

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

- Chauhan, A. (2012) Vermitechnology, Vermiculture, Vermicompost and Earthworms: Vermiculture, Vermicomposting, Vermitechnology and Microbes, Lambert Academic Publishing, Germany.
- National Institute of Industrial Research, (2010): The Complete Technology Book on Vermiculture and Vermicompost, Published by National Institute of Industrial Research, Delhi-7, India.
- Kumar, A. (2005) Verms and Vermitechnology, APH Publishing.
- Bhatnagar & Patla, 2007. Earthworm vermiculture and vermin-composting, Kalyani Publishers, New Delhi.
- Sultan Ahmed Ismail, 2005. The Earthworm Book, Second Revised Edition. Other India Press, Goa, India.
- Panda Himadri: The Complete Technology Book on Vermiculture and Vermicompost (Earthworm) with Manufacturing Process, Machinery Equipment Details & Plant Layout; Asia Pacific Business Press Inc.
- EIRI Board : Hand Book Of Biofertilizers & Vermiculture.

Online Resources–

- https://agritech.tnau.ac.in/org_farm/orgfarm_composting.html#:~:text=In%20the%20Bangalore%20method%20of,laid%20over%20the%20moistened%20layer.
- <https://www.thepharmajournal.com/archives/2021/vol10issue12/PartAR/11-5-248-926.pdf>

Online Resources–

- <https://megbrdc.nic.in/publications/fliers-Pamphlets/nadep-composting-english.pdf>

PART-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA) By Course Coordinator)	Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar + Attendance- 05 Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment A. Performed the Task based on learned skill - 20 Marks B. Spotting based on tools (written) - 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Coordinator as per skilling

Name and Signature of Convener & Members of CBoS:

Dr. Subhadra Rahalkar

Dr. Naseem Ahmed
Mansuri

Dr. Ajit Kumar

Shobha Ram Yadav

Dr. Lata Meshram

Dr. R. K. Tamboli