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	CreditValue	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: Preventention and Management. **Vermicomposting:** Definition and features. Scientific names and distinguishing features of native and exotic vermicomposting earthworms (Native Indian earthworms. *Perionyx excovatus, Perionyx ceylanensis*, European earthworms. *Eisenia fetida, Eisenia andrei*, South African earthworms. *Eudriluseugeniae*), 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 (vermiprotein), 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 *Eisenia fetida.* ➢ Study of Life stages & development of *Eisenia fetida.* ➢ 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 Mirobes, 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 andEvaluation

Suggested Continuous Evaluation Methods:

MaximumMarks: 50 Marks

ContinuousInternal Assessment(CIA):15 Marks

EndSemesterExam(ESE):35Marks

Continuous InternalAssessment(CIA)(By Course Coordinator)	Internal Test / Quiz-(2): **10 &10** Assignment/Seminar +Attendance- 05 Total Marks - 15	Better marks out of thetwo 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. Shubhada Rahalkar

(Dr. Naseem Ahmed Mansuri)

Dr Ajit Tendulkar

Shobha Ram Yadav

10.6.24 (Dr. R.K. Tambol)

10.6.24 (Dr. Lata Meshram)