



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Agriculture
Vocational Agriculture Course

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		Theory			Practical		Credits		
		END SEM University Exam	Mid term exam	Teachers Assessment	END SEM University Exam	Teachers Assessment	L	P	Total
VOAG202	Vermicompost Technology	50	30	00	15	05	3	1	4

Aims & Objective:

Students will be able to compost in a limited space and describe the *decomposing process*.
The interested students will get the knowledge of composting.
Students will get the employment,
They can generate employments,
They will also turn towards organic farming,
Will help to maintain the environment pollution free and
Will get the knowledge of biodiversity of local earthworms.
The detail of the course is as follows⁹

Focus:

To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.

Unit-I: General Vermiculture/ Vermicompost

Introduction to vermiculture. definition, meaning, history, economic important, their value in maintenance of soil structure, role as four r's of recycling reduce, reuse, recycle, restore. His role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature work. The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter. Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms. Complementary activities of autoevaluation.

Unit-II: Earthworm Biology and Rearing

Key to identify the species of earthworms. Biology of *Eisenia fetida*. Taxonomy Anatomy, physiology and reproduction of Lumbricidae. Vital cycle of *Eisenia fetida*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors). Complementary activities of auto evaluation. Biology of *Eudrilus eugeniae*. Taxonomy Anatomy, physiology and reproduction of Eudrilidae. Vital cycle of *Eudrilus eugeniae*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors). Complementary activities of auto evaluation.

Unit-III: Vermicompost Technology (Methods and Products)

Small Scale Earthworm farming for home gardens

Earthworm compost for home gardens

Conventional commercial composting

Earthworm Composting larger scale

Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing. Nutritional Composition of Vermicompost for plants, comparison with other



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fertilizers, Vermiwash collection, composition & use, Enemies of Earthworms, Sickness and worm's enemies. Frequent problems. How to prevent and fix them.

Unit-IV: Applied vermiculture.

The working group experience with *E. fetida* populations compartment with farm industrial residues (frigorific, cow places, feed-lot, aviaries exploitations, and solid urban residues). Lineaments to vermicomposting elaboration projects.

Unit-V: vermiculture harvesting and economics.

Harvesting of vermiculture. Toxins released by the worms (harmful effects) Complementary activities of auto evaluation. Packaging, storing and marketing of vermiculture, vermiwash and earthworms. Evaluate cost of production and profit of vermiculture unit.

Practical's:

- Key to identify different types of earthworms
- Field trip- Collection of native earthworms & their identification
- Study of Systematic position, habits, habitat & External characters of *Eisenia fetida*
- Study of Life stages & development of *Eisenia fetida*
- Study of Life stages & development of *Eudrilus eugeniae*
- Comparison of morphology & life stages of *Eisenia fetida* & *Eudrilus eugeniae*
- Study of Vermiculture, Vermiwash & Vermicompost equipments, devices, Preparation vermibeds, maintenance of vermicompost & climatic conditions.
- Harvesting, packaging, transport and storage of Vermicompost and separation of life stages
- Study of verms diseases & enemies
- Study the effects of vermicompost & vermiwash on any two short duration crop plants
- Study the effects of sewage water on development of worms

Reference books:

- Bhatt J.V. & S.R. Khambata (1959) "Role of Earthworms in Agriculture" Indian Council of Agricultural Research, New Delhi
- Dash, M.C., B.K.Senapati, P.C. Mishra (1980) " Vermes and Vermicomposting" Proceedings of the National Seminar on Organic Waste Utilization and Vermicomposting Dec. 5-8, 1984, (Part B), School of Life Sciences, Sambalpur University, Jyoti Vihar, Orissa.
- Edwards, C.A. and J.R. Lofty (1977) "Biology of Earthworms" Chapman and Hall Ltd., London.
- Lee, K.E. (1985) "Earthworms: Their ecology and Relationship with Soils and Land Use" Academic Press, Sydney.
- Kevin, A and K.E.Lee (1989) " Earthworm for Gardeners and Fisherman" (CSIRO, Australia, Division of Soils)
- Rahudakar V.B. (2004). Gandul khatashivay Naisargeek Paryay, Atul Book Agency, Pune.
- Satchel, J.E. (1983) "Earthworm Ecology" Chapman Hall, London.
- Wallwork, J.A. (1983) "Earthworm Biology" Edward Arnold (Publishers) Ltd. London.

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