V.S.M. COLLEGE (AUTONOMOUS),

RAMACHANDRAPURAM

NAAC Re-accredited with 'B' Grade at 2.69 CGPA

(Affiliated To Adikavi Nannaya University, Rajamahendravaram)

BORD OF STUDIES

DEPARTMENT OF ZOOLOGY

ADD-ON-PROGRAMME SYLLABUS

VERMICOMPOST TECHNOLOGY

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DEPARTMENT OF ZOOLOGY

AIM AND OBJECTIVES OF THE PROGRAMME

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.

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PAPER CODE : CCZOO01

Department of Zoology

Certificate Course : VERMICOMPOST

S.No.	Unit-I General Vermiculture/ Vermicompost
1	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.
2	His role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature works.
3	The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter.
4	Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms. Complementary activities of Auto evaluation.
	Unit-II Earthworm Biology and Rearing
5	Key to identify the species of earthworms.
6	Biology of Eisenia fetida. a) Taxonomy Anatomy, physiology and reproduction of Lumbricidae. b) 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.
7	Biology of Eudrilus eugeniae. c) Taxonomy Anatomy, physiology and reproduction of Eudrilidae. d) 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)
7	Small Scale Earthworm farming for home gardens - Earthworm compost for home gardens
8	Conventional commercial composting - Earthworm Composting larger scale
9	- Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing.
10	Nutritional Composition of Vermicompost for plants, comparison with other fertilizers

11	Vermiwash collection, composition & use
12	Enemies of Earthworms, Sickness and worm's enemies. Frequent problems. How to prevent and fix them. Complementary activities of auto evaluation.
	Unit-IV Applied vermiculture.
13	a) The working group experience with E. fetida populations comportment with farm industrial residues (frigorific, cow places, feed-lot, aviaries exploitations, and solid urban residues). b) Lineaments to vermicomposting elaboration projects.
14	c) Considerations about economical aspects of this activity. Research and ratability according to different exploitation orientations (worm's meat production, worm's humus production, or integrated projects). Toxins released by the worms (harmful effects) Complementary activities of auto evaluation.

Theory Exam Model Question Paper Blue Print

S. No.	Short Answer Questions	Essay Question	Allowed Marks	Total
Section - A	---	1	15	15
Section - B	2	---	10	10
Total Marks				25

Theory Exam Model Question Paper

Section - A

Answer the Essay Question. **1 x 15 = 15M**

1. Explain the techniques involved in the production of Vermi-compost

Section - B

Answer the Short Questions. **2 x 5 = 10M**

1. Economic importance of Vermi-culture?
2. Feed for Earthworms?

PRACTICALS

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

Advantage of the Course & Future Prospects:

I. Students can construct their own compost farm & thereby can get monthly income of Rs. 7000-8000.

II. Students/ farmers by using vermicompost in their field can increase the crop yield.

III. Students residing in cities can produce vermicompost in small scale for garden/household plants.

IV. They can get the jobs in educational institutes as vermicompost/vermiculture technician.

V. The candidate can generate income by supplying verms, vermiwash, & vermicompost.

VI. By developing & propagating vermicompost technology he/she will directly or indirectly help to prevent environmental pollution, by using vermicompost in the field & thereby increasing crop yield he will help to solve food problems.

VII. It will lead towards organic farming & healthy food.

VIII. In today's world, recycling of garbage has become necessary in order to sustain our health and environment. So let's join for **Four R's of Recycling Reduce, Reuse, Recycle, Restore** i.e. certificate course in vermicompost technology.

Reference books:

1. Bhatt J.V. & S.R. Khambata (1959) "Role of Earthworms in Agriculture" Indian Council of Agricultural Research, New Delhi
2. Dash, M.C., B.K.Senapati, P.C. Mishra (1980) " Verms 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.
3. Edwards, C.A. and J.R. Lofty (1977) "Biology of Earthworms" Chapman and Hall Ltd., London.
4. Lee, K.E. (1985) "Earthworms: Their ecology and Relationship with Soils and Land Use" Academic Press, Sydney.