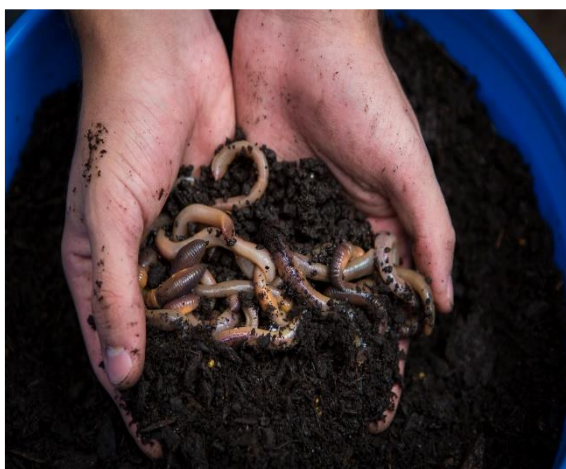


**Bhagwantrao Arts and Science College, Etapalli  
Dist-Gadchiroli**

**"VERMICOMPOSTING COURSE WORK  
CERTIFICATE"**



This Photo by Unknown Author is licensed under CC

**Course Co-ordinators**

-----\*-----

**Dr.ShrutiD.Gubbawar(HOD)  
Dr.Swati A. Tantarapale**

## Contents

Sr.No	Topics	Page No
1	Introduction	3-4
2	<ul style="list-style-type: none"><li>• Aims &amp; objective</li><li>• Details of Course work</li></ul>	5
3	Examination Structure & Schedule	6
4	Course content {Syllabus}	7-10

## Introduction

Vermicomposting is a process in which earthworms are used to convert organic materials into humus-like material known as vermicompost. Vermicompost can enhance soil fertility physically, chemically, and biologically. The vermicompost merely refers to the earthworm's excrement, which provides essential nutrients, aeration, porosity, structure, fertility, and water-holding capacity. Aristotle once said "*Worms are the Intestines of the Earth*". Using worms to convert decomposing food waste into nutrient-rich fertilizer is simple, inexpensive, energy efficient, and a great way to teach students to become life-long recyclers. Thus, Earthworms which are often referred to as farmer's friends and nature's ploughmen.

Earthworms are extremely important in soil formation, principally through their activities in consuming organic matter, fragmenting and mixing it intimately with mineral particles to form aggregates. Michigan biology teacher Mary Appelhof arrived at the idea of home vermicomposting. In 1972, she realized she wanted to continue composting in winter months despite living in a northern

climate, and ordered 1 pound of red wiggler worms, or *Eisenia fetida*, from a bait dealer by mail order. She created a shallow bin in her basement, loaded it with bedding and added her food scraps. By the end of the winter, they had consumed 65 lbs. of garbage and produced worm compost that resulted in impressive vegetables in her garden.

In the wake of pioneer work by Appelhof vermicomposting now attracts global interest. Using organic waste in agriculture has manifold relevance to today's rural and urban environment. It is extremely useful for organic farming and is also an important technology for solid waste management. The use of organic waste materials in agriculture is not new. From centuries of experience farmers are composting organic matter for obtaining fertilizers. It is a green technology which converts organic waste into useful fertilizers. In India the wastes like food waste, leaves and

garden waste, crop residues are regularly generated in large quantities from domestic garbage, garden, industry, and the agriculture sector. Three quarters of total crop residues in India are produced by three crops viz. rice, wheat, and oilseeds. Composting technology has been recognized as an eco-friendly and cost-effective method to convert wastes of plant and animal origin into a product that nourishes plants.

## **Aims & Objectives:**

- Establishment of an idea of vermicomposting as project and its applicability.
- Hands on training experience.
- How it helps in maintaining contamination free Environment.
- Effectively will be able to gain benefits by themselves and educate others.
- To inculcate the idea of Ecological Agriculture.

## **Details of the Course work**

Name of the course: “Certificate Course in Vermicompost”

- Level: Certificate
- Stream: Science
- Subject: vermicompost

Eligibility Criteria: 10+2

Duration: 32 hours

Language: English/Marathi

Intake: 20 seats

Fees: No fees

Selection /Admission Criteria: First come first serve

Attendance: 75 % Lecture/practical

Timing: 3:00 pm to 5:00 pm.

- ❖ Academic calendar for the course: Two days in a week (1 day’ theory period & 1day practical)
- ❖ Available infrastructure: Well-equipped laboratory, vermicomposting units
- ❖ Teaching Staff: Qualified, & Eminent person will be invited.
- ❖ Non-teaching staff: 1 lab assistant

## **Examination structure & schedule:**

At the end of course, the examination will be conducted. Its notice & time table will be displayed for communication to the students at least before 10 days of the date of examination.

1. Course VT-01 Theory paper (objective) = 20 marks, 45min duration.
2. Course VT-02 Practical paper (objective) =15 marks, 30 min duration
3. Assignment -10 marks
4. Viva-voce-5 marks

### **Marking Scheme: -**

- |   |                               |
|---|-------------------------------|
| 1. Student with more than 90 % marks                    | : – A Grade                   |
| 2. Student with more than 75 % but less than 90 % marks | : – B Grade                   |
| 3. Student with more than 60 % but less than 75 % marks | : – C Grade                   |
| 4. Student with more than 40 % but less than 60 % marks | : – D Grade                   |
| 5. Student with less than 40 % marks                    | : – Do not Qualify [No Grade] |

After successful completion of course, “**Certificate**“indicating Grade will be awarded to the students

Reservation: NA

## Theory/Practical -Syllabus Certificate Course- Vermicomposting

Sr.No	Theory	Practical's
<b>Unit-I</b>	Introduction to vermicomposting, definition, history of vermicompost, characteristics of good quality vermicompost, scope and Economic Importance	<b>1.</b> Preparation of Flow chart depicting steps of vermicomposting and methodology  <b>2.</b> Aim to study the requirements of Vermicomposting.  <b>3.</b> To study Waste materials Classification techniques biodegradable and non-Biodegradable.  <b>4.</b> Preliminary treatment of Organic waste.  <b>5.</b> Collection of native earthworms and their Classification.  <b>6.</b> Preparation of Bed for vermicomposting.  <b>7.</b> Test the moisture level by taking a small
<b>Unit-II</b>	Earthworm and its role- Selection of useful, Local species of Earthworm	
	Earthworm Taxonomic Position, Diversity of different species of Earthworms	
	Providing Food for worms	
	Earthworms as “Biological Indicators”	
	Vermicomposting-Materials required, preliminary treatment	
	Methods of Vermicomposting	

<b>Unit-III</b>	Bed Method/Pith Method   Steps of Vermicomposting and Methodology  Precautions to be taken	quantity of Vermicompost.   <b>8.</b> Harvesting of vermicompost.
<b>Unit-IV</b>	Methods of Harvesting Compost  Harvesting Compost  Nutrient content of vermicompost with other fertilizers  Vermicompost and its Utilization	

## References: -

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) " 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.
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.
5. Kevin, A and K.E.Lee (1989) " Earthworm for Gardeners and Fisherman" (CSIRO, Australia, Division of Soils)
6. Rahudakar V.B. (2004). GandulkhatashivayNaisargeekParyay, Atul Book Agency, Pune.
- 7.Nair, J., Sekiozoic, V., and Anda, M. 2006. Effect of pre-composting on vermicomposting of kitchen waste. *Bioresource Technology* 97(16):2091-2095.
8. Satchel, J.E. (1983) "Earthworm Ecology" Chapman Hall, London. 8. Wallwork, J.A. (1983) "Earthworm Biology" Edward Arnold (Publishers) Ltd. London.
- 9.Holcombe, D., and J.J. Longfellow. 2003. OSCR: blueprint for a successful vermicomposting system. Technical document. 57 p.
10. Semi. C. L.. (1974). Role of composting in waste utilization. *Compost Science*, 15(4), 24-28.



**BHAGWANTRAO ARTS AND SCIENCE COLLEGE, ETAPALLI**  
**DIST-GADCHIROLI**



**VERMICOMPOSTING COURSE WORK CERTIFICATE**

**Awarded To** \_\_\_\_\_

**FOR ATTENDING AND COMPLETING " A VERMICOMPOSTING COURSE WORK" ORGANIZED BY ZOOLOGY  
DEPARTMENT .  
DURING ..... TO .....**

*{ It's Incredible ! An Emerging technology for recycling of crops residues and other organic solid  
waste by Utilization of Earthworms to convert them into Vermicompost }*

Dr.Swati Tantarale

Dr. Shruti Gubbawar  
(Head of Zoology Department)

Dr.S N.Bute  
(Principal)