

Shiksha Mandal's
Bajaj College of Science, Wardha

Department of Zoology

**Certificate course on
Vermicompost Technology**

Specifications of the course

A) Nature	Certificate course
B) Duration	45 hrs
C) Number of students to be admitted	15 to 20
D) Fee proposed	Rs. 200/-
E) Eligibility	10+2 (Open to all)
F) Credits	2
G) Total Marks	50

I. Brief Proposal:

Earthworms have been on this planet over 20 million years. It is well known that earthworms are nature's way of recycling organic nutrients. From the ancient times, earthworms are used to recycle organic wastes and production of manure. Earthworms are able in converting decomposing food and other organic wastes into nutrient-rich fertilizer which are in expensive, energy efficient and free of harmful chemicals. In the present time, look in gat the growing need of waste management and the need of organic bio fertilizer in agriculture industry, vermicomposting technology is the need of the hour. Vermicomposting can be considered a faster, environment friendly method in recycling of organic waste materials simultaneously producing a superior quality of manure. Vermicomposting is not only useful in recycling of food wastes but can be utilized in recycling cardboard and paper as well as agriculture waste, manures and biosolids which may be an environmental hazard.

Wardha district is one of the agriculture based districts of Maharashtra. Most of the agriculture farms grows cotton as well as other seasonal crops. Presently, the farmers are

Switching from the conventional chemicals to the organic fertilizer, vermicompost and biofertilizers. Similar trends are also observed in adjoining districts as well as the state of Maharashtra where use of chemical free organic fertilization has taken a giant leap. There are several industry and institutes in Maharashtra who are in the business of making the organic biofertilizers including Vermicompost.

Shiksha Mandal (Parent organization) is dispersing Education in various fields like science, commerce and agriculture from a century. This organization is known for its ethics and Gandhian thoughts. One of our sister institute Rural Institute, Pipri is engaged producing vermicompost for the last 30 years and successfully providing it to the local farmers.

On the basis of guidance with this college and Pune based Industry; supplier of Vermicompost through out India is the driving force for us to propose this course.

Another aspect of this proposal is 90% of students commute from nearby places and are from agricultural background. So this practice will add a source of income to them as well as it is an attempt to reduce dumped waste contribution from houses and gardens.

As Wardha district is the agriculture based district vermicompost is having good demand from the farmers as well as by the homemakers for gardens and kitchen garden.

II. Objective of the course:

- I. To develop scientific temperament among the students on vermiculture and vermicompost with special reference to natural production of organic manure.
- II. To develop the knowledge of recycling of garbage waste to compost which can be a source of income.
- III. To develop and give ideas to students to be come entrepreneurs by making vermicompost and selling them.
- IV. To make students residing in cities start vermicompost in small scale at houses / society and hostels.
- V. To develop skills in students so that they can be job ready for different posts in

Biofertilizer industry as Product manager, Marketing manager, Delivery manager, Project associate, Technical manager, Technician, Research associate, trainer, product analyst, processing and packaging manager, etc.

III. Expected Outcome of the Course:

- I. This course will lead into production of organic manure.
- II. The Kitchen Waste and other garden waste would be used for this compost preparation hence decrease in the dumped garbage waste is expected.
- III. Promote students to become entrepreneurs and get jobs as Product manager, Marketing manager, Delivery manager, Project associate, Technical manager, Technician, Research associate, trainer, product analyst, processing and packaging manager, etc. in Biofertilizer industry.

Syllabus

Theory	
Unit-I: Introduction to Vermiculture and Vermicompost	
4 hours	
1.1	Vermiculture: definition, history, economic importance
1.2	Biological transformation of organic wastes for generating biofertilizers
Unit-II: Earthworm Biology	
6 hours	
2.1	Useful species of earthworms, Local and exotic species of earthworm, Key to Identify species of earthworm
2.2	<i>Eisenia fetida</i> : Identification, Taxonomy, Anatomy, Life cycle and vital cycle
2.3	<i>Eudrilus eugeniae</i> : Identification, Taxonomy, Anatomy, Life cycle and vital Cycle
Unit-III Vermicompost technology	
5 hours	
3.1	Earthworm farming, harvesting, vermicomposting harvest and processing
3.2	Small scale and commercial scale of earthworm farming and vermicomposting
3.2	Vermiwash collection and uses
3.4	Packaging and marketing of vermicompost and vermiwash
Practical	
Unit–PI: Earthworm Biology	
10 hours	
P1.1	Identification of earthworms and handling of earthworms
P1.2	Study of External characters of <i>Eisenia fetida</i> and <i>Eudrilus eugeniae</i>
P1.3	Study of life cycles of <i>Eisenia fetida</i> and <i>Eudrilus eugeniae</i>
P1.4	Rearing of Earthworms
Unit-PII: Vermicompost technology	
10 hours	
P2.1	Study of Instruments and devices used in Vermiculture and vermicompost
P2.2	Preparation and maintenance of vermibeds
P2.3	Harvesting of vermicompost

P 2.4	Drying and storage of Vermicompost
P 2.5	Packaging of Vermicompost
Unit P-III: Compost and Soil Analysis	
	10 hours
P 3.1	Study of soil and compost Texture
P 3.2	Biochemical analysis of soil
P 3.3	Biochemical analysis of vermicompost
P 3.4	Biochemical analysis of vermiwash
Project will be a part of practical examination. Students have to perform a project under supervision of Guide/ Mentor. Students have to present the project work in front of External and Internal Examiners	

Mode of teaching -

Blended mode of teaching - theory online through recorded video lectures / Zoom lectures and practicals offline as well as online through recorded video lectures / Zoom meeting.

Assessment:

[50 Marks]

- Quizzes and end term exam
- Field Reports: Documentation of observations and insights from field visits.
- Detailed records of practical activities.