



Rayat Shikshan Sanstha's,  
S.S.G.M. College, Kopargaon  
Department of Zoology  
Short Term Course : 2018-19

### **A CERTIFICATE COURSE IN VERMICULTURE**

Department of Zoology have decided to start short term course "A CERTIFICATE COURSE IN VERMICULTURE" for framing the syllabus of said course, committee was constituted as follow :

- 1) I/c Prin. Dr. D. P. Gade (Chairman)
- 2) Mr. R. S. Naik (Head and member)
- 3) Dr. R. G. Pawar (Member)
- 4) Dr. D. R. Wakchaure (Member, Ashwamedh Agrotech.[Director])
- 5) Dr. R. R. Gawali (Alumni)

#### **Aims and Objectives of the syllabus :**

- 1) Students are expected to understand the principle of Vermicomposting.
- 2) They are expected to understand morphology, physiology and composting mechanism of the animal.
- 3) The practicals are implemented to understand the concepts and it would help in the development of practical skills of the students.
- 4) It is expected to inspire and boost the interest of students towards the subject, which will be helpful to avoid the use of chemical fertilizers and more and more application of organic fertilizers.
- 5) It will enable to develop interdisciplinary approach of the subject.



Rayat Shikshan Sanstha's,  
S.S.G.M. College, Kopargaon  
Department of Zoology  
Short Term Course : 2018-19

**A CERTIFICATE COURSE IN VERMICULTURE**

Marks : 100 (T-40 & P- 60)

Total Lecture : 32

**Section : I**

- 1) Introduction
- 2) Vermicompost
- 3) Earthworm :
  - a) Habit and habitat
  - b) Different species of Earthworm, Indigenous and Exotic species
  - c) Life cycle of Earthworm
  - d) Digestive system
  - e) Reproductive system
- 4) Role of Earthworm in Vermicomposting
- 5) Uses of Earthworm
- 6) Methods of Vermicomposting
  - a) Surface Bed method (farm)
  - b) Vermicomposting at home
  - c) Vermicomposting in plastic tub or wooden box
- 7) Methods for Preparation of Vermiwash
  - a) Cot method
  - b) Barrel Method
- 8) Enemies of Earthworm
- 9) Importance & Composition of Vermicompost

**Section : II Practical on hand (field work)**

- 1) Preparation of bed- selection of site, collection of cow dung, soil, garbage and making water available. Mixing all the above material and making into hump.
- 2) Release of Earthworm into the bed
- 3) Regular watering of bed so as to keep proper humidity
- 4) Regular addition of garbage and dry leaves into the bed.

**Section : III**

- 1) Harvesting of cocoon and Earthworms
- 2) Separation of Vermicompost from the bed

  
Course Coordinator



  
Head  
Department of Zoology,  
S.S.G.M. College, Kopargaon  
Department of Zoology  
S.S.G.M. College, Kopargaon



Rayat Shikshan Santha's  
Shri Sadguru Gangageer Maharaj Science , Gautam Arts & Sanjivani Commerce College,  
Kopargaon – 423601,  
Dist.- Ahmednagar, M. S. – India

**Internal Quality Assurance Cell  
(IQAC)**

**Syllabus Approval Letter**

The IQAC committee has approved the submitted syllabus of short term/Certificate course planned to be conducted by the Department of Zoology.

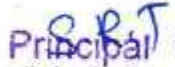
Sr.No.	Name of Course	Type of Course
01	Vermiculture	Short term course/Certificate course

HOD of Zoology Department may proceed accordingly.

Date: 25/07/2018

Place: Kopargaon

  
IQAC Coordinator  
S.S.G.M.College,Kopargaon

  
Principal  
S.S.G.M.College  
Kopargaon,Dist.A/Nagar



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Department of Zoology  
Short Term Course: 2018-19

**A CERTIFICATE COURSE IN VERMICULTURE**

**Students List**

Sr. No.	Name of Students	Signature
1.	Bacchav Purushottam Dattu	
2.	Pawar Vijay Vishnu	
3.	Katkar Mayur Ramdas	
4.	Kote Ashwini Machindra	
5.	Shaikh Sadaf Aziz	
6.	Pawar Vrushali Sagar	

Co-ordinator

Head,  
Department of Zoology  
Department of Zoology  
S.S.G.M. College, Kopargac



Rayat Shikshan Sanstha's,  
**S.S.G.M. College, Kopergaon**  
**Department of Zoology**  
Short Term Course : 2018-19

**A CERTIFICATE COURSE IN VERMICULTURE**

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Marks : 100 (T-40 & P- 60)

Total Lecture : 45

**Section : I-25 lecture**

- 1) Introduction
- 2) Vermicompost
- 3) Earthworm :
  - a) Habit and habitat
  - b) Different species of Earthworm, Indigenous and Exotic species
  - c) Life cycle of Earthworm
  - d) Digestive system
  - e) Reproductive system
- 4) Role of Earthworm in Vermicomposting
- 5) Uses of Earthworm
- 6) Methods of Vermicomposting
  - a) Surface Bed method (farm)
  - b) Vermicomposting at home
  - c) Vermicomposting in plastic tub or wooden box
- 7) Methods for Preparation of Vermiwash
  - a) Cot method
  - b) Barrel Method
- 8) Enemies of Earthworm
- 9) Importance & Composition of Vermicompost

**Section : II** Practical on hand (field work)- 14 lecture

- 1) Preparation of bed- selection of site, collection of cow dung, soil, garbage and making water available. Mixing all the above material and making into hump.
- 2) Release of Earthworm into the bed
- 3) Regular watering of bed so as to keep proper humidity
- 4) Regular addition of garbage and dry leaves into the bed.

**Section : III-06 lecture**

- 1) Harvesting of cocoon and Earthworms
- 2) Separation of Vermicompost from the bed



Course Coordinator



Head

Department of Zoology,  
S.S.G.M. College, Kopargaon  
Department of Zoology  
S.S.G.M. College, Kopargaon





## CERTIFICATE COURSE IN VERMICOMPOSTING

<b>Co - ordinate by:</b>	Department of Zoology
<b>Class:</b>	T.Y. B.Sc. (Zoology)
<b>Batch Capacity:</b>	06
<b>No. of students Admitted:</b>	06
<b>Duration of the course:</b>	3 Months
<b>Lecture and Practical started:</b>	September, October, November , December
<b>Tentative Date of Examination:</b>	2 <sup>nd</sup> Week of December
<b>Tentative date of Result:</b>	3 <sup>rd</sup> Week of December
<b>Syllabus:</b>	4 Credits

**Co-ordinator**  
**Mr. V. R. Jiwatode**





Rayat Shikshan Sanstha's,  
**S.S.G.M. College, Kopargaon**  
**Department of Zoology**  
**SHORT TERM COURSE : 2018-19**  
**A CERTIFICATE COURSE IN VERMICULTURE**

Date : 10 /08 /2018

**Meeting Notice**

All the faculty members of Department of Zoology are hereby informed that Department of Zoology is going to conduct a short term course A Certificate Course in Vermiculture in academic year 2018-19. The syllabus and working hours have been discussed and a complete programme has been prepared. Following members are requested to attend the meeting for the implementation of this academic year 2018-2019. The meeting will be held in Department of Zoology.

  
**Co-ordinator**

  
**Head**  
**Department of Zoology**  
**Department of Zoology**  
**S.S.G.M.College,Kopargaon**

**Committee Members**

- 1) Mr. R.S. Naik
- 2) Dr. R.G. Pawar
- 3) Mr. R. K. Bhusnale
- 4) Mr. R. R. Raut
- 5) Miss. J. M. Petare





Rayat Shikshan Sanstha's,  
**S.S.G.M. College, Kopargaon**  
**Department of Zoology**  
**SHORT TERM COURSE : 2018-19**  
**A CERTIFICATE COURSE IN VERMICULTURE**

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Date : 10/08/2018

**Minutes of Meeting**

The meeting of the Short Term Course Committee has been conducted on 10/08/2018 at Department of Zoology. In meeting the following resolutions and decisions were made:

- 1) It was decided to revise the syllabus of Short term course A Certificate Course in Vermiculture.
- 2) For conducting the course the complete program of Theory and Practicals was designed.
- 3) As per the requirements of completion of the syllabus of short term course the working hours were decided.

**Co-ordinator**



**Head**

**Department of Zoology**  
**Department of Zoology**  
**S.S.G.M. College, Kopargaon**



Rayat Shikshan Sanstha's,  
S.S.G.M. College, Kopargaon  
Department of Zoology  
SHORT TERM COURSE : Year 2018-19

**A CERTIFICATE COURSE IN VERMICULTURE**

Date: 10/08/2018

**Notice**

All students of Science faculty are hereby informed that Department of Zoology is going to commence the short term course A Certificate Course in Vermiculture in academic year 2018-19. Those who are interested can register their names in the Department of Zoology for same course.

**Information regarding course:**

Name: Vermiculture assistant.

Qualification: XII<sup>th</sup> Science pass.

Duration: 3 months.

Job profile: The trained person will be able to work in Vermiculture farm independently.

Co-ordinator



Head

Department of Zoology,  
Department of Zoology  
S.S.G.M. College, Kopargaon

Rayat Shikshan Sanstha's  
S.S.G.M. College, Kopergaon  
Department of Zoology 2018-19

Total Marks: 40

Date:  
Time : 2 hrs.

Paper: A certificate course in Vermiculture

Q. 1) Define the followings :

10 M

- 1) Vermiculture
- 2) Two species of name of earthworm.
- 3) Habit & Habitat of earthworm.
- 4) organic farming
- 5) phylum of earthworm.
- 6) use of earthworm.
- 7) composition of vermicompost.
- 8) Vermicompost
- 9) Cocoon.
- 10) Vermiwash.

Q. 2) Write short notes on (Any 2)

10 M

- 1) Cot method of vermiwash.
- 2) Importance of vermicompost.
- 3) surface bed method of vermicompositing.

Q.3) Attempt the following (Any 2)

10 M

- 1) Draw the well labelled diagram of reproductive system of earthworm
- 2) Enemies of earthworm
- 3) why earthworm called friend of farmer.

Q. 4) Describe the digestive system of earthworm.

10 M

OR

Vermicompositing is a organic farming method.



Rayat Shikshan Sanstha's

**Shri Sadguru Gangageer Maharaj  
Science, Gautam Arts & Sanjiwani  
Commerce College, Kopergaon**

Jr. Supervisor's Signature

Examination 200 - 200

Class - \_\_\_\_\_ Sub. \_\_\_\_\_

Roll No. \_\_\_\_\_ Paper No. \_\_\_\_\_

Date \_\_\_\_\_ Marks Obtained

Answer Book	Suppliments	Total

20  
/ 40

Please Write from here. Write on both Sides.

Solve

- Q. 1
- ① the cultivation of earthworm, especially in order to use convert organic waste in fertilizer.
- 01
- ② Night crawler (common)  
Red earthworm (*Lumbricus rubellus*)
- 01
- ③ Terrestrial in nature, moist soil burrowing habitat, nocturnal (active at night)
- 01
- ④ Natural waste are used in agriculture called as organic farming.
- 01
- ⑤ phylum - annelida (earthworm)
- 01
- ⑥ Increased nutrient ability, better drainage as a decomposer.
- 01

→ ⑦ It contains Carbon, Nitrogen, NPK, potassium sodium as a nutrient, enzymes plant growth, hormones, etc.

→ ⑧ Worms (earthworm) are used as to convert organic material / or natural waste into humus-like material is called vermicompost.

→ ⑨ Covering of thin threads in silkworm to protect pupa during formation of adult.

→ ⑩ Collection of excretory products & mucus secretion of earthworm along with micro-nutrients to form soil organic molecule is called Vermiwash.

Q. 2)

→ ① Collection of excretory products & mucus secretion of earthworm along with micro-nutrients to form soil organic molecule is called Vermiwash.

→ ② Important of vermicompost :-

- Vermicompost is used as Organic Fertilizer in agriculture.
- These Fertilizers is used to improve ~~soil~~ soil quality and crop production.
- Vermicompost are rich in nutrients, enzymes, plant growth regulators, etc.
- Earthworm species are mainly used in making of vermicompost.
- ~~Waste material~~ Waste material is again used or recycle in this process.
- plant leaves, cowdung, housemade ~~waste material~~ waste material are used to make vermicompost.
- Inshort, this process is economically and in our daily life is useful.

→ ③ Composting of worms is done on pucca or kachcha floor by making bed of organic mixture is known as bed type of vermicomposting.

- It is very easy & simplest method of vermicompost.
- Economically and locally available material like grass is covered on bed in this process.
- Composting is done in cement pits of size 5x5x3 feet.
- This is not preferred method, due to poor aeration, etc.

Q. 3

→ ② Enemies of Earthworm :-

- Enemies like ants, centipedes, birds, snakes, toads, etc. caused damage to earthworm.
- Small Carnivorous like frog are direct ~~its~~ eats earthworm when they are come on ground.
- Birds attack on earthworm and eat directly.
- Earthworm are suitably available in nature, so are very easy to catch.
- Therefore, many enemies attack on earthworm and feed on them.

→ ③ Earthworm are commonly known as 'Friends of Farmer', because ;

- i) Soil fertility is increased by earthworm so soil make fertile.
- ii) Due to burrowing habitat soil ~~is~~ layer is alter by earthworm which improve soil quality.
- iii) Organic matter such as cowdung, plant, leaves, etc, are directly converted into minerals and nutrients.
- iv) Increasing drainage enzymes plant growth regulators are done by using earthworm.
- v) In short earthworm are very important organism in agricultural field, so it is called as 'Friends of Farmer'.





Rayat Shikshan Sanstha's

**Shri Sadguru Gangageer Maharaj  
Science, Gautam Arts & Sanjiwani  
Commerce College, Kopergaon**

Jr. Supervisor's Signature

Examination 200 - 200

Class - \_\_\_\_\_ Sub. \_\_\_\_\_

Roll No. \_\_\_\_\_ Paper No. \_\_\_\_\_

Date - \_\_\_\_\_ Marks Obtained

Answer Book	Suppliments	Total	Marks Obtained

Please Write from here. Write on both Sides.

Q. 4

→ ② Vermicompost is organic farming method

i) Yes, it is true Vermicompost is very essential and useful in modern agriculture.

ii) Using natural such as green leaves Cowdung other wastage material are directly converted into organic fertilizer.

iii) Which are used to improve soil fertility, quality.

iv) By using of organic farming better crops is formed.

v) Which is healthy for human life.

vi) Life cycle

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*Rayat shikshan Sanstha's,*

**S. S. G. M. College Kopargaon**

**Department of zoology**

**Short term course 2018-19**

**A CERTIFICATE COURSE IN VERMICULTURE**

**Result**

<b>Sr.No</b>	<b>Name of student</b>	<b>Marks ( out of 40)</b>
1.	Bacchav Purushottam Dattu	20
2.	Pawar Vijay Vishnu	22
3.	Katkar Mayur Ramdas	18
4.	Kote Ashwini Machinrda	28
5.	Shaikh Sadaf Aziz	21
6.	Pawar Vrushali Sagar	28



Course co-ordinator



Head of Department of Zoology

**Department of Zoology**  
**S.S.G.M.College,Kopargaon**





"Education Through Self - Help is our Motto" - Karmaveer

Rayat Shikshan Sanstha's

Shri Sadguru Gangageer Maharaj Science,  
Gautam Arts & Sanjivani Commerce College

Kopergaon, Dist. Ahmednagar (M.S.)



**Short Term Course**

**CERTIFICATE OF COMPLETION**

This is to Certify that Shri/Kum. Pawar Vijay Vishnu  
of Class I.Y.B.Sc. has Completed Short Term Course in A certificate course  
in Vermiculture conducted by the department of Zoology  
during the academic year 2018 /2019

  
Course Co-ordinator

  
Co-ordinator

  
Principal

  
Principal  
S.S.G.M. College  
Kopergaon