

**Bharati Vidyapeeth's,**  
**Dr. Patangrao Kadam Mahavidyalaya, Sangli.**  
**Add on Course – 2022 - 23**

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**Bharati Vidyapeeth's**  
**Dr. Patangrao Kadam Mahavidyalaya Sangli.**  
**Department of Zoology**  
**Add on Course (2022 - 23)**

**Name of the course- The Study of Vermiculture**

**Name of the Convener- Mr. N. G. Bahiram**



**Bharati Vidyapeeth's**  
**Dr. Patangrao Kadam Mahavidyalaya Sangli.**  
**Department of Zoology**  
**Add on Course**  
**In**  
**The Study of Vermiculture**  
**(2022 - 23)**  
**Students List**

Sr. No	Roll. No.	Name of Student
1	501201	Athawale Darpan Rajendra
2	501202	Chavan Anuradha Sadashiv
3	501203	Chavan Shubham Mahadev
4	501204	Harale Priyanka Ashok
5	501205	Hanchanale Tanuja Nandkumar
6	501206	Harugade Samrat Prithviraj
7	501207	Jamadar Afrin Sayyad
8	501208	Kamble Karuna Shahaji
9	501209	Kamble Sonali Siddhu
10	501210	Mane Dipali Sanjay
11	501211	Mali Sumit Sukumar
12	501212	Naik Ruhan Imam
13	501213	Patil Ashvini Nivruti
14	501214	Pandhare Sushant Shashikant
15	501215	Pukale Vikas Rajendra
16	501216	Pirjade Mahamadshahid Abusaid
17	501217	Pawar Manthan Mahadev
18	501218	Saymote Pawan Biru



  
Principal,  
Dr. Patangrao Kadam Mahavidyalaya,  
Sangli.



**Department of Zoology**  
**Short term course in Zoology**  
**The Study of Vermiculture**  
**Syllabus**

<b>Sr. No.</b>	<b>Theory</b>	<b>Practical</b>
1)	External Characters of Earthworm segmentation	Study of cocoons & gut microflora
2)	Digestive system	Preparation of shade
3)	Nervous system	Preparation of shade
4)	Study of breeding biology	Arranging composting Unit
5)	Study of Excretory system	Collection of compost
6)	Reproductive system	Arrangement of Composting unit
7)	Study of locomotory system & locomotory organ	Collection of Verm wash
8)	Verm resources & Annelids	External morphology & Systematic position
9)	History & paleontology	Digestive system
10)	Classification & spp. diversity	Nervous system
11)	Study of various species & distribution in India	Male reproductive system



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**Department of Zoology**

**Add on Course**

**In**

**The Study of Vermiculture**  
**(2022 - 23)**

**Time - Table**

**THEORY AND PRACTICAL**

<b>Period</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
10 .00 - 11.00	Theory	Theory	Practical



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**Department of Zoology**  
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**The Study of Vermiculture**  
**(2022 - 23)**

**Teaching Faculty— Mr. N. G. Bahiram**



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**Add on Course**  
**In**  
**The Study of Vermiculture**  
**(2022 - 23)**  
**Workload Distribution**

<b>Name of Teacher</b>	<b>B. Sc. I</b>	
	<b>Theory</b>	<b>Practical</b>
<b>Mr. N. G. Bahiram</b>	<b>20</b>	<b>10</b>







**Bharati Vidyapeeth's**  
**Dr. Patangrao Kadam Mahavidyalaya, Sangli**

**TEACHING PROGRAMME 2022 - 23**

Term I / II From -September 2022 to November 2022

- 1) Name of Teacher: Mr. N. G. Bahiram      2) Class: - B. Sc- III  
3) Title of the Paper: The Study of Vermiculture      4) Date of commencement of Lecture  
02/09/2023  
5) No. of lectures per week --- 03      6) Total Lectures required --30

Month	Topics to be covered (in detail)	No of Lectures required
January	1) External characters of Earthworm segmentation 2) Digestive system 3) Nervous system 4) Study of breeding biology <b>Practical's—</b> Study of cocoons & gut microflora Preparation of shade Arranging composting Unit	08
		04





<p><b>February</b></p>	<p>Study of Excretory system  Reproductive system  Study of locomotary system &amp; locomotary organ  Vermiresources &amp; Annelids</p> <p>Practicals—  Collection of compost  Arrangement of Composting unit  Collection of Vermiwash  External morphology &amp; Systematic position</p>	
<p><b>March</b></p>	<p>History &amp; paleontology  Classification &amp; spp. diversity  Study of various species &amp; distribution in India</p> <p>Practical—  Digestive system  Nervous system  Male reproductive system</p>	<p>08</p> <p>04</p>

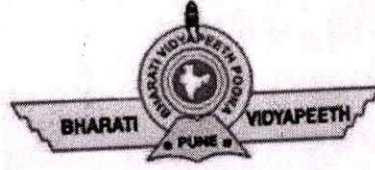
*Ngazhivam*  
Subject Teacher

*Sambhan*  
Head of Dept.  
**HEAD.**

Department of Zoology  
Dr. Patangrao Kadam Mahavidyalaya  
SANGLI-416 416

*Satish*  
Principal  
Principal,  
Dr. Patangrao Kadam Mahavidyalaya,  
Sangli.





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**Dr. Patangrao Kadam Mahavidyalaya, Sangli**

**TEACHING COMPLETION REPORT**

Term I / II (2022 - 23)

Jr./Sr./Arts/Science/Commerce Faculty

I **Mr. N. G. Bahiram** Lecturer in **Zoology** hereby affirm that, I have full and comprehensively completed the teaching in the following papers during term I / II (2022 -23)

Sr. No	Name of the Paper	Total Lectures Engaged	Date of Completion of the portion
1	1) External characters of Earthworm segmentation 2) Digestive system 3) Nervous system 4) Study of breeding biology <b>Practical's—</b> Study of cocoons & gut microflora Preparation of shade Arranging composting Unit Larva, Pupa and Adult.	09	02/09/2022



2	Study of Excretory system Reproductive system Study of locomotory system & locomotory organ Vermireources & Annelids  Practicals— Collection of compost Arrangement of Composting unit Collection of Vermiwash External morphology & Systematic position	10	30/10/2022
3	History & paleontology Classification & spp. diversity Study of various species & distribution in India  Practical— Digestive system Nervous system Male reproductive system	05	30/11/2022

Date: 30 /11/2023

*Ngabhisam*  
 Name & Signature of  
 Subject Teacher



*Dr. Patangrao Kadam*  
 Principal  
 Principal,  
 Dr. Patangrao Kadam Mahavidyalaya,  
 Sangli.

**Add on Course**  
**In**  
**The Study of Vermiculture**  
**(2022 - 23)**

**Attendance sheets of students**



**Bharati Vidyapeeth's**  
**Dr. Patangrao Kadam Mahavidyalaya Sangli.**  
**Department of Zoology**  
**Add on Course**  
**In**  
**The Study of Vermiculture**  
**(2022 - 23)**

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**Theory Question Paper**

**Total Marks -50**

**Time – 10.00 a.m.- 12.00pm**

**Q.1) Select the correct alternative from the given options and rewrite the sentence** **[10]**

**1. What is vermicomposting?**

- a) Composting using earthworms      b) Composting using fungi  
c) Composting using bacteria      d) Composting using ants

**2. Which type of earthworm is typically used for vermicomposting?**

- a) Nightcrawler      b) Red wiggler  
c) African nightcrawler      d) Canadian nightcrawler

**3. What is the ideal temperature range for vermicomposting?**

- a) 0-10°C      b) 10-20°C      c) 20-30°C      d) 30-40°C

**4. Which of the following is a benefit of vermicomposting?**

- a) Decreased soil fertility      b) Increased soil erosion  
c) Reduced waste disposal costs      d) Increased greenhouse gas emissions

**5. What type of food waste is suitable for vermicomposting?**

- a) Meat and dairy products      b) Bread and grains  
c) Citrus and other acidic fruits      d) All of the above

**6. What should be the moisture content of the vermicomposting bin?**

- a) 0-10%      b) 10-20%      c) 60-80%      d) 80-100%



7. How long does it typically take for vermicomposting to produce compost?

- a) 1 week b) 1 month c) 6 months d) 1 year

8. What is the best material for bedding in a vermicomposting bin?

- a) Straw b) Sawdust c) Shredded newspaper d) Plastic

9. What is the pH range that is suitable for vermicomposting?

- a) 1-3 b) 4-6 c) 7-9 d) 10-12

10. What is the ideal carbon-to-nitrogen ratio for vermicomposting?

- a) 1:1 b) 2:1 c) 30:1 d) 50:1

**Q.2) Attempt any two from the following**

**[20]**

- a) Describe the digestive System of the earthworm.
- b) Define excretion? Describe excretory system of earthworm.
- c) Explain in detail about vermiculture techniques with its four required materials.

**Q.2) Attempt any four from the following**

**[20]**

- a) External character of earthworm.
- b) Give an account on the requirements for earthworm culture.
- c) Describe the locomotory organ of earthworm.
- d) What are the advantages of vermicomposting.
- e) Write a note on Septal Nephridia of earthworm.
- f) Describe the various species of earthworm.





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**(2022 - 23)**

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**Practical Question Paper**

**Total Marks -50**

**Time – 10.00 a.m.- 12.00pm**

Q.1.A) Identify and describe the digestive system of..... (10)  
**Digestive system of Earthworm / Nervous system of Earthworm**

Q.2. Describe the external morphology and systematic position of given specimen..... (10)  
**Earthworm**

Q.3. Make a temporary preparation of..... (10)  
Stain is necessary  
**A) Spermathica**  
**B) Septal Nephridia**

Q.4. Identification- (10)

I) Identify and classify give it's reason - **Earthworm**

II) Identify and describe - **Setae**

III) Identify and give it's uses. - **Vermi-wash**

IV) Identify and describe - **Earthworm cocoon**

V) Identify and give it's uses - **Vermicompost**

Q.5. Write a report on visit to vermicomposting center. (10)



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**(2022 - 23)**

**Mark List- (Theory and Practical)**

Sr. No	Roll No	Name of Student	Mark (100)		Total
			Theory (50)	Practical (50)	
1	501201	Athawale Darpan Rajendra	39	42	81
2	501202	Chavan Anuradha Sadashiv	37	41	78
3	501203	Chavan Shubham Mahadev	35	39	74
4	501204	Harale Priyanka Ashok	41	38	79
5	501205	Hanchanale Tanuja Nandkumar	36	34	70
6	501206	Harugade Samrat Prithviraj	37	39	76
7	501207	Jamadar Afrin Sayyad	43	42	85
8	501208	Kamble Karuna Shahaji	41	38	79
9	501209	Kamble Sonali Siddhu	37	35	72
10	501210	Mane Dipali Sanjay	42	40	82
11	501211	Mali Sumit Sukumar	36	34	70
12	501212	Naik Ruhan Imam	42	39	81





13	501213	Patil Ashvini Nivruti	42	40	82
14	501214	Pandhare Sushant Shashikant	36	34	70
15	501215	Pukale Vikas Rajendra	38	34	72
16	501216	Pirjade Mahamadshahid Abusaid	39	35	74
17	501217	Pawar Manthan Mahadev	36	34	70
18	501218	Saymote Pawan Biru	41	39	80

  
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**(2022 - 23)**

**Result Analysis**

Class	No of Appearance	Absent	Pass	Fail	Distinction	I <sup>st</sup> Class	II <sup>nd</sup> Class	III <sup>rd</sup> Class	% of Passing
B. Sc - III	18	-	18	-	18	-	-	-	100



  
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# Bharati Vidyapeeth's DR. PATANGRAO KADAM MAHAVIDYALAYA, SANGLI

Accredited with B<sup>+</sup> Grade by NAAC (3<sup>rd</sup> Cycle)

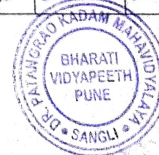
## STUDENTS' ATTENDANCE SHEET

Name of the Teacher Mr. N. G. Bahiram Class B.Sc.-III Subject Vermiculture (Term - I)

Sr. No.	Name of the Student	Date/Time →													
		15/10/22	20/10/22	21/10/22	24/10/22	27/10/22	28/10/22	29/10/22	04/11/22	05/11/22	11/11/22	12/11/22	17/11/22	19/11/22	
		Signature of the Student													
1.	Harole priyanka S.	Priya	Priya	Priya	Priya	Ab	Priya	Ab	Priya	Priya	Ab	Priya	Priya	Priya	
2.	Tamadar S. Arin	ASJandar	ASJandar	ASJandar	ASJandar	ASJandar	ASJandar	ASJandar	ASJandar	ASJandar	Ab	ASJandar	Ab	ASJandar	
3.	saymate B. Pawan	Ab	Praymate	Ab	Praymate	Praymate	Praymate	Praymate	Praymate	Praymate	Praymate	Praymate	Praymate	Ab	
4.	Chavan Anuradha.	Aschavan	Ab	Aschavan	Aschavan	Aschavan	Aschavan	Aschavan	Aschavan	Ab	Aschavan	Ab	Aschavan	Aschavan	
5.	Chavan shubham	Schavan	Schavan	Schavan	Ab	Schavan	Schavan	Ab	Schavan	Ab	Ab	Schavan	Ab	Schavan	
6.	kamble S. Karuna	Kskamble	Kskamble	Ab	Kskamble	Kskamble	Ab	Kskamble	Kskamble	Kskamble	Ab	Kskamble	Kskamble	Ab	
7.	Hunchande Tanuja	Huncha	Huncha	Huncha	Huncha	Ab	Huncha	Huncha	Huncha	Ab	Ab	Huncha	Ab	Huncha	
8.	Athawale R. Darpan	Dithawale	Dithawale	Ab	Dithawale	Dithawale	Dithawale	Dithawale	Ab	Dithawale	Dithawale	Ab	Dithawale	Dithawale	
9.	Sumit S. Mahi	Sumit	Sumit	Ab	Sumit	Ab	Ab	Sumit	Ab	Sumit	Ab	Sumit	Sumit	Ab	
10.	Suyant S. Pandur	SPANDUR	Ab	Ab	SPANDUR	Ab	Ab	SPANDUR	Ab	SPANDUR	Ab	Ab	SPANDUR	Ab	
11.	Patil Ashvini Nivuruti.	Apatil	Ab	Apatil	Apatil	Ab	Apatil	Apatil	Apatil	Apatil	Apatil	Ab	Apatil	Apatil	
12.	kamble sonali siddhu	skamble	Ab	skamble	skamble	Ab	skamble	Ab	skamble	skamble	Ab	skamble	skamble	Ab	
13.	Mane Dipali sanjay	Dmane	Dmane	Ab	Dmane	Dmane	Ab	Dmane	Dmane	Ab	Dmane	Dmane	Ab	Dmane	
14.	Harugade samrat	S.P.H	Ab	S.P.H	S.P.H		S.P.H	S.P.H	S.P.H	Ab	S.P.H	S.P.H	Ab	S.P.H	

N. G. Bahiram  
Subject Teacher

S. M. Bhanu  
Head of the Department



S. M. Bhanu  
Principal









# Bharati Vidyapeeth's DR. PATANGRAO KADAM MAHAVIDYALAYA, SANGLI

Accredited with B<sup>+</sup> Grade by NAAC (3<sup>rd</sup> Cycle)

## STUDENTS' ATTENDANCE SHEET

Name of the Teacher Mrs. N. G. Bahiram Class B.Sc.-III Subject Vermiculture (Term-I)

Sr. No.	Date/Time →	Signature of the Student												
		Name of the Student												
1.	02/09/22	02/09/22	08/09/22	09/09/22	10/09/22	11/09/22	17/09/22	22/09/22	28/09/22	30/09/22	07/10/22	08/10/22	14/10/22	
1.	Chavan Anuradha S.	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	<u>AChavan</u>	
2.	Tamadar s. Afrin	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	<u>ASTamdar</u>	
3.	Hanchandale Tanuja.	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	<u>Hanchandale</u>	
4.	Athawale R. Darpan	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	<u>RAthawale</u>	
5.	kamble s. karuna	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	<u>Kskamble</u>	
6.	Sumit s. mali	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	<u>Sumit</u>	
7.	Patil Ashvini Nivarni	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	<u>APatil</u>	
8.	Harale Priyanka S.	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	<u>PHarale</u>	
9.	Sushant s. Pandure	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	<u>SPandure</u>	
10.	saymote B. pawan	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	<u>BSaymote</u>	
11.	Chavan Shubham	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	<u>SChavan</u>	
12.	Mane Dipali sanjay	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	<u>DMane</u>	
13.	kamble sonali siddhu	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	<u>SKamble</u>	
14.	Harugade samrat	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	<u>SHarugade</u>	

N. G. Bahiram  
Subject Teacher

Shubham Chavan  
Head of the Department



Dr. Patangrao Kadam  
Principal

