

Date: 18/9/2018

To,  
The Principal  
Karnatak Arts, Science and Commerce College, Bidar

Sub: Request to grant permission to start add-on course on  
VERMICOMPOSTING for the academic year:-2018-2019: Reg.

Respected Sir,

As per the guidelines issued by IQAC, we would like to start the add-on course on "VERMICOMPOSTING" from the academic year: 2018-2019, with intake of 20 students. Please permit us to start the add-on course and do the needful.

Thanking You.

Head  
Department of Zoology  
**HEAD**  
Department of Zoology  
Karnatak Arts Sci. & Commerce Colle  
BIDAR-585401

Permitted

PRINCIPAL  
Karnatak Arts Sci. & Commerce College  
BIDAR-585401



**Karnatak Arts, Science & Commerce College, Bidar**  
(Affiliated to Gulbarga University)  
College With Potential for Excellence  
Department of ZOOLOGY



**Date: 28/11/2018**

**BOARD OF STUDIES MEETING**

Board of Studies meeting of the Department of Zoology was conducted on 28-11-2018 at 10.00 am in the Department of Zoology Karnataka College, Bidar.

**AGENDA:**

**Innovations in the course:**




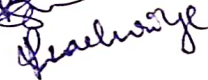
Certificate courses can be started, appreciations courses to enhance student participation.

1. Interested students should be select.
2. Discussion about Title of certificate course.
3. Syllabus setting about theory and practical of add on course.
4. Credits/Evaluation.

**External Member Board of Studies Zoology:**

**Dr. V.M.Channashetty, H.O.D. Dept.Of Zoology, B.V.Bhoomaraddy College, Bidar.**

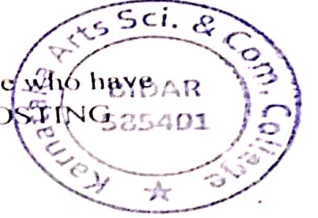
**Members Present:**

1. Dr. M.S.Reddy 
2. Miss.Renuka Swamy 
3. Mrs. Pooja Shrigiri 
4. Miss.Pooja Lachuriya. 



**RESOLUTIONS:**

The common Board consisting of the above members have met in the Department of Zoology, Karnataka College Bidar, and considered the enclosed agenda. After deliberations and discussions, the Board members have resolved the following:



1. For.B.Sc. Graduate Zoology students have one of the add on course, those who have interested this course they should apply for admission in VERMICOMPOSTING Certificate course.
2. The members formulated the syllabus for Certificate Course "VERMICOMPOSTING", this is about 2- Months program.
3. The syllabus for practicals of the above certificate course was formulated on par with syllabus model of vermicompost.
4. There should be 2 hours per week for theory paper and 2 hrs. for each practical.
5. Marks and credits are allotted to theory and practical papers in each semester.

**HOD  
HEAD**

Department of Zoology  
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BIDAR-585401

**Principal**

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Academic Year - 2018 - 19



## Karnatak Arts, Science & Commerce College, Bidar

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### Department of Zoology:

#### CERTIFICATE COURSE IN VERMICOMPOST TECHNOLOGY:

### PREAMBLE

Vermicomposting truly is nature's great disappearing act! 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.

Vermicomposting technology is known throughout the world, albeit in limited areas. It may be considered a widely spread, though not necessarily popular technology. As a process for handling organic residuals, it represents an alternative approach in waste management, in as much as the material is neither land filled nor burned but is considered a resource that may be recycled. In this sense, vermicomposting is compatible with sound environmental principles that value conservation of resources and sustainable practices.

Vermicomposting is akin to composting in that similar feedstock-organic residuals -are used. Both systems utilize microbial activity to break down organic matter in the moist, aerobic environment. Vermicomposting is however faster, produces fewer odors and produces a superior product. But vermicomposting requires greater surface area, more moisture, and is susceptible to heat, high salt levels, high ammonia levels, and substances that may be toxic to earthworms. Of the 4400 identified earthworm species, specific species of litter dwelling earthworms are required for this purpose.

Vermicomposting in developing countries could prove to be useful in many instances. Where accumulation of food wastes, paper, cardboard, agriculture waste, manures and biosolids is problematic, composting and vermicomposting offer potential to turn waste material into a valuable soil amendment. In the past ten years an organization in India has promoted over 3,000 farmers and institutions to switch from conventional chemicals to the organic fertilizer, vermicompost. Vermiculture enables any scale or size of operation.

Vermicompost is being used in over 1, 00,000 hectare cultivated area in almost all agro-climatic zones in India. Noted for its ability to increase organic matter and trace minerals in soil, vermiculture has been the primary focus at Maharashtra Agricultural Bioteks in India, an organization that has initiated both commercial and educational ventures to promote



vermiculture. In 1985, Maharashtra Agricultural Bioteks was formed and established a small plant to manufacture vermicompost from agricultural waste. Those involved believed that a successful commercial venture based on regenerative principles might convince others to V 2 adapt sustainable practices. The organization currently produces 5,000 tons of vermicompost annually. Its real achievement, however, has been in raising awareness among farmers, researchers and policy makers in India about regenerative food production methods. The group is directly responsible for 2,000 farmers and horticulturalists adopting vermicomposting. These converts have begun secondary dissemination of the principles they were taught. In 1991-1992, Maharashtra Bioteks and the India Department of Science And Technology promoted the adoption of vermicompost technology in 13 states in India.

The duration of courses ranges from 10 days to 03 months. The Department of Zoology running this course.

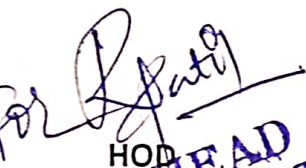
**OUTCOME**

**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.
- ❖ The detail of the course is as follows: Focus: To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.

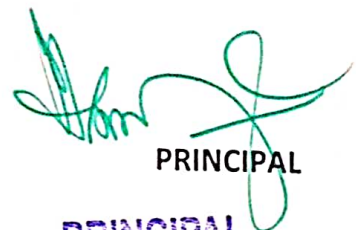
## Advantage of the Course & Future Prospects:

- ❖ Students can construct their own compost farm & thereby can get monthly income of Rs. 7000-8000.
- ❖ Students/ farmers by using vermicompost in their field can increase the crop yield.
- ❖ Students residing in cities can produce vermicompost in small scale for garden/household plants.
- ❖ They can get the jobs in educational institutes as vermicompost/vermiculture technician.
- ❖ The candidate can generate income by supplying verms & vermicompost.
- ❖ .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.
- ❖ . It will lead towards organic farming & healthy food.
- ❖ . 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.**

For   
HOD

**HEAD**  
Department of Zoology  
Karnataka Arts Sci. & Commerce Collge  
Bidar



  
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K.R.E. Society's  
KARNATAK ARTS, SCIENCE & COMMERCE COLLEGE, BIDAR  
Department of Zoology

**Certificate course: Vermicompost Technology**  
(Scheme of teaching)  
(Effective from the Academic year: 2018-19 & onwards)

**Theory course VT-1**

**THEORY:**

**30h**

**UNIT-I**

**06h**

1. General: Introduction to vermiculture, definition, meaning, economic importance, and their values in maintenance of soil structure role as four's of recycling, redeem, recycled & restore.
2. Choosing the right worm, Useful species of earthworms. Local species of earthworms. Exotic species of earthworms.

**UNIT-II**

**10h**

3. Small scale earthworm farming for home gardens.
  - a) Earthworm compost for home gardens.
4. Conventional commercial composting.
  - a) earthworm composting in larger scale.
5. Earthworm farming (vermiculture), extraction(harvest), vermicomposting harvest & processing
6. Nutritional composition of vermicompost for plants, comparison with other fertilizers.
7. Vermiwash collection, composition & use.

**UNIT-III**

**10h**

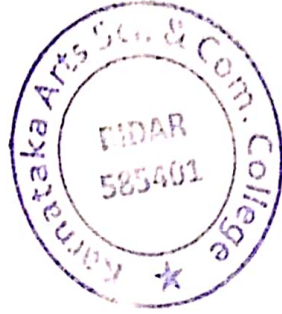
8. Key to identify the species of earthworms.
9. Biology of *Endrilus engeniae*.
10. Biology of *Eisenia fetida*.
  - a) Taxonomy anatomy, physiology and reproduction of *Endrilidae*
  - a) Taxonomy, Anatomy, Physiology & Reproduction of *Lumbricidae*.

b) Vital cycle of *Eisenia fetida*: alimentation, fecundity, annual reproducuer potential & limit factors (gases, diet, humidity, temperature, pH, light & climatic factors).

04h

#### UNIT-IV

11. Considerations about economical aspects of this activity: Research & ratability according to different exploitation orientations. Complementary activities of anti evaluation.





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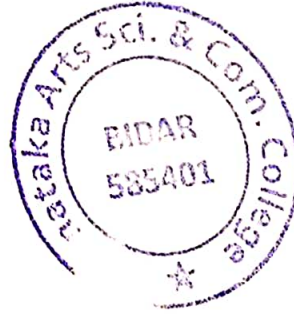


# PRACTICAL COURSE- VT-02

## UNIT-V PRACTICALS

18h

1. Key to identify different types of earthworms
2. Field trip collection of native earthworm & their identification.
3. Study of systematic position, habits, habitat & external character of Eisenia fetida
4. Study of life stages & development of Eisenia fetida
5. Study of life stages & development of Eudrilus eugeniae
6. Study of vermiculture, vermiwash & vermicompost equipments, devices.
7. Preparation Vermibeds, maintenance of vermicompost & climatic conditions
8. Harvesting, packaging, transport & storage of vermicomposting & separation of life stages.
9. Study of verms diseases & enemies.
10. Study the effects of vermicompost & vermiwash on any two short duration crop plants.
11. Study the effect of sewage water on development of worms.



*P. J. J.*  
**HEAD**  
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**Department of ZOOLOGY**



**Date: : 1/03/2019**

### **NOTICE**

All the students are hereby informed that, the Department of **ZOOLOGY** is starting the add-on course on "Vermicomposting" from the Date: **1/03/2019**, interested students can enrol their names on or before **06/03/2019**, in the Department of Zoology.

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KRE Society's

# Karnatak Arts, Science and Commerce College, Bidar



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## ADMISSION FORM

Certificate/Value added/Skill Development/Diploma/Advance Diploma Courses  
&  
IAS/IPS/NET/SET Coaching Classes

Name of the Department Zoology Year 2018-2019

Name of the Student Akash

Father's/Guardian's Name Shivakumar

Date of Birth  
Date: 

0	9
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 Month: 

0	6
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 Year: 

1	9	9	8
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Address for Correspondence :

Basalapur  
T.G Humanbad  
Dist Bidar

Semester/Class : B.Sc VII<sup>th</sup> Semester

Register No : \_\_\_\_\_

Percentage of previous semester : 61%

Contact No : 7483786181

E-Mail ID : Maheshvadyadav@gmail.com

Course to be Joined: Training Course in Viticulture

Akash  
Signature of the Student

[Signature]  
HOD/Coordinator  
**HEAD**  
Department of Zoology  
Karnatak Arts Sci. & Commerce Collg

Kalyana  
**PRINCIPAL**  
Principal  
Karnatak Arts Science &  
Commerce College, BIDAR



# Karnatak Arts, Science & Commerce College, Bidar

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## Department of Zoology Certificate Course

2018-2019

### Student Enrollment list

Sl.no.	Student Name	Sign
1	Shashikiran	
2	Amit kumar	
3	Amargonda	
4	Kaleshwar	
5	Suresh	
6	Rashmi	
7	Mariyam	
8	Kaveri	
9	Akshata	
10	Pallavi V	
11	Suhasini	
12	B Shruti	
13	Shilpa	
14	Akash	
15	Deepika	
16	Pooja A	
17	Sushma	
18	NagaveniP	
19	Renuka	
20	Bhavani	

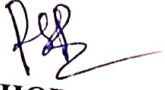
HOD

Department of Zoology  
Karnatak College, Bidar



**K.R.E. Society's**  
**KARNATAK ARTS, SCIENCE & COMMERCE COLLEGE, BIDAR**  
**Certificate course Time Table for the academic year: 2018- 2019**  
**Department: Zoology (UG)**  
**(With effect from 08/12/2018)**

<b>Period/ Days</b>	<b>08am to 9am</b>	<b>09am to 10am</b>	<b>11am to 02pm</b>
<b>Sunday</b>	<b>Theory (Renuka Swamy)</b>	<b>Theory (Dr. Ranibai Patil)</b>	<b>Practical ( Renuka Swamy/ Dr. Ranibai Patil)</b>



**HOD**

**HEAD**

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**Karnatak Arts, Sci. & Commerce College**  
**BIDAR-585401**



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K.R.E.

**Karnatak Arts, Science And Students Attendance Register**

Academic year - 2018-19  
Practical - Memocamp  
2 hrs per class

Admission No.	Roll Number	Names	Date													
			No.	04/12/18	08/12/18	12/12/18	16/12/18	20/12/18	24/12/18	28/12/18						
	1.	Sheshobisan	1	2	3	4	5	6	7							
	2.	Amitt Kumar	1	2	3	4	5	6	7							
	3.	Anagande	1	2	3	4	5	6	7							
	4.	Kalashwar	1	2	3	4	5	6	7							
	5.	Sarvesh	1	2	3	4	5	6	7							
	6.	Rashmi	1	2	3	4	5	6	7							
	7.	Manjyam	1	2	3	4	5	6	7							
	8.	Kaveri	1	2	3	4	5	6	7							
	9.	Akshata	1	2	3	4	5	6	7							
	10.	Pallavi	1	2	3	4	5	6	7							
	11.	Sularini	1	2	3	4	5	6	7							
	12.	B. Shankh	1	2	3	4	5	6	7							
	13.	Shilpa	1	2	3	4	5	6	7							
	14.	Akash	1	2	3	4	5	6	7							
	15.	Deepika	1	2	3	4	5	6	7							
	16.	Pooja A.	1	2	3	4	5	6	7							
	17.	Sushma	1	2	3	4	5	6	7							
	18.	Nagaveni	1	2	3	4	5	6	7							
	19.	Bhuvan	1	2	3	4	5	6	7							
	20.	Rambe	1	2	3	4	5	6	7							
			Key to identity of ions													
			Effect of temperature													
			Speed of reaction													
			Separation of mixture													
			Identification of elements													
			Effect of concentration													
			Development of centre													

Signature of Lecturer with Date

*[Signature]*  
 Signature of H.O.D.



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College With Potential for Excellence

Department of Zoology



Date: 17/05/2019

NOTICE

All the students enrolled in add-on course on **Vermicomposting** are hereby informed that, the course examination is scheduled on **06/06/19** from **2.00 to 3.00pm, without fail.**

**HEAD**

Department of Zoology  
Karnatak Arts Sci. & Commerce Colle  
BIDAR-585401

Principal

**PRINCIPAL**

Karnatak Arts Sci & Com. College

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**Question Paper**

I. Answer the following questions briefly?

1. What is Vermicomposting?
2. What are the steps of Vermicomposting?
3. What are the types of Vermicomposting?
4. What are the advantages of Vermicomposting?
5. How can we make Vermicompost at home?

\* Practical Question Paper

Marks - 25

I. Answer the following questions.

1. What type of shed we use for Vermicomposting?
2. How do we maintain the worms in the winter?
3. What type of container should we use for Vermicomposting?
4. How do we set up a Vermicomposting container?
5. What should we feed the worms? What should we avoid adding to the Vermicomposting?

*P. S. Patil*  
**HEAD**

Department of Zoology  
Karnatak Arts Sci. & Commerce College  
BIDAR-585401

Name: → Kallishwar  
Sub → Vermicompost.

17  
25

14/3/2019

## 1) Introduction of Vermiculture:

→ Vermicompost is the decomposition process using various species of worms, usually red wigglers, white worm & other earthworm, to create a mixture of decomposing vegetable or food waste.

→ Bedding materials & vermicast, the process is called vermicomposting, while the rearing of worms for this purpose is called vermiculture.

→ Vermicast is the end-product of the breakdown of organic matter by earthworm.

→ These castings have been shown to contain reduced level of contaminants & higher saturation of nutrients than the organic material before vermicomposting.

→ Vermicompost contains water-soluble nutrient & is an excellent nutrient rich, organic fertilizer.



## Local species of earthworm

- An earthworm is a terrestrial invertebrate that belongs to the phylum annelida.
- They exhibit a tube-within-a-tube body plan, are externally segmented with corresponding internal segmentation.
- They occur world wide where soil, water & temperature.
- Earthworms are hermaphrodites; each carries male & female sex organs, as invertebrates, they lack a true skeleton but maintain their structure with fluid filled coelom chamber that function as a hydrostatic skeleton.
- Earthworm is common name for the largest members of oligochaeta, in classical system, they were in the order, opisthoptera,

Since male & female poses, although the internal male segment are anterior to the female theoretical cladistic studies have placed them in the suborder Lemniscina of the order Haplataxida

→ largest terrestrial earthworms are called megachiles,

→ Vermicomposting harvest & processing

Vermicomposting is the product of the decomposition process using various species of worms, usually red, big wigglers, white worms - S & other earthworms to create mixture

→ Vermicompost is ready for harvest when it contains few to no scraps of unrecycled food or bedding.

there are several method of harvesting from small scale systems, dump & hand sort



Let the worm do the sorting alternate containers & divide & dump.  
→ These differ in the amount of time & labor involved & whether the micropaste is used the same as many worms.

#### 4] Biological of *Eisenia fetida*

→ *Eisenia fetida* known under various common names such as redworm, branding worm, pinkish worm, trout worm, tiger worm, red wigglers etc.

They have group of bristles on each segment that moves in & out to grip nearby surface as the worm stretch & contract their muscles to push themselves forward.

→ *E. fetida* worms are used for vermicomposting of both domestic & industrial organic waste.

5) taxonomy, anatomy & reproduction  
of Lumbricidae :->

-> The Lumbricidae are family of  
earthworm which includes most  
of the earthworm SPS well known  
to Europeans.

-> about 33 lumbricid SPS, have  
become naturalized around the  
world but the SPS are in the  
Holarctic region.

-> from Canada bimastus law  
verreux in Vancouver, Island  
& the United State.

*(Signature)*

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Department of ZOOLOGY (UG)

Add-on Course on:-VERMICOMPOSTING

Attendance WPH Marks List  
(2018-2019)

SL.No	NAME OF THE STUDENT	Assignment	Examination	Total	SIGNATURE
1	Shashikumar	14	09	23	Shashikumar
2	Annetkumar	19	12	31	Annetkumar
3	Amangonda	20	12	32	Amangonda
4	Kalleshwar	17	08	25	Kalleshwar
5	Sarvesh	23	13	36	Sarvesh
6	Raghu	20	10	30	Raghu
7	Mariyam	19	10	29	Mariyam
8	Kaveri	17	08	25	Kaveri
9	Akshata	14	08	22	Akshata
10	Rallavi.V	20	12	32	Rallavi.V
11	Subasini	23	13	36	Subasini
12	B.Shruti	20	13	33	B.Shruti
13	Shilpa	12	08	20	Shilpa
14	Akash	19	12	31	Akash
15	Deepika	24	10	34	Deepika
16	Pooja.A	19	11	30	Pooja.A
17	Sushma	22	12	34	Sushma
18	Nagavani	19	10	29	Nagavani
19	Bhavani	14	09	23	Bhavani
20	Remaka	17	09	26	Remaka
21					
22					
23					
24					
25					

  
Course Co-ordinator

AD  
Zoology  
College



Principal

PRINCIPAL

Karnatak Arts Sci. &


B I D A R




K.R.E. SOCIETY'S  
**KARNATAK ARTS, SCIENCE & COMMERCE COLLEGE**  
BIDAR - 585 401. (Karnatak)  
DEPARTMENT OF ZOOLOGY  
**TRAINING COURSE IN VERMICULTURE**  
2018 - 2019

**CERTIFICATE**

This is to certify that Mr / Miss Monica.C. B.Sc. III<sup>rd</sup> Sem.  
has completed the course of training in Laboratory  
Vermiculture conducted by the Dept. of Zoology for the year 20 - 20  
from Dec 2018 to Dec 2019

  
HOD Zoology  
HEAD

  
Principal, College  
BIDAR-585401

Department of Zoology  
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Department of Zoology 2018 - 2019



Vermicompost Practical activity  
Conducted by the students.



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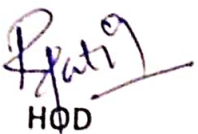
Department of Zoology

Date: 15/06/2019

## REPORT

Name of the course : "Vermicompost Technology".  
Name of the Department: Zoology  
Name of the BOS : Dr.V.M.Channashetty  
Associate Professor and HOD of Zoology  
B.V.Bhoomaraddi College Bidar.  
Number of students : 20  
BOS meeting Date : 28/11/2018  
Start date of the course : 1/03/2019  
End date of the Course : 6/06/2019

Department of Zoology conducted Add-on course on Vermicompost Technology. Vermicompost Technology helps students for self employment. It is helpful in raising seedlings and crop production. Vermicompost is becoming major component of organic farming and this technology is also helpful in culturing of the earthworms, one can get benefits from selling them.

  
HOD

**HOD**

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