

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

Add on Course

TERM – II (2022-2023)

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**Bharati Vidyapeeth's
Dr. Patangrao Kadam Mahavidyalaya Sangli.
Department of Zoology
Add on Course
TERM – II (2022-2023)**

Name of the Course- Silkworm Biology

Name of the Convener- Dr. Mrs. Varsha Sandip Kumbhar



Bharati Vidyapeeth's
Dr. Patangrao Kadam Mahavidyalaya Sangli.
Department of Zoology
Add on Course
In
Silkworm Biology
TERM – II (2022-2023)

Students List

Sr. No	Name of Student
1	Kale Lata Jalindar
2	Kamble Akshay Arun
3	Kamble Pallavi Dilip
4	Kamble Prathmesh Sagar
5	Kamble Shruti Avinash
6	Kataria Tavneet Ramandeep Singh
7	Kengar Anuradha Sanjay
8	Kevat Annu Ramkesh
9	Kevat Rutuja Dharamaraj
10	Kewat Sushil Ramnaresh
11	Kolekar Swapnil Ashok
12	Koli Sourabh Ankush
13	Ladi Prathamesh Prakash
14	Londhe Neha David
15	Londhe Shraddha Sukhadev
16	Madiwal Mahesh Bapu
17	Malame Vishal Suresh
18	Malape Shravani Mohan
19	Maledar ramu sadashiv



Department of Zoology
Add On course in Zoology
Silkworm Biology
Syllabus

Paper I- Silkworm Biology

- 1) History of Sericulture**
- 2) Scope and advantages of sericulture**
- 3) Systematic position and life cycle of mulberry and non mulberry silkworms.**
 - a) Mulberry silkworm
 - b) Non –Mulberry silkworm- Tasar silkworm ,Eri silkworm and Muga silkworm.
- 4) Types of silkworm and their morphology**
 - a) **Mulberry silkworm** –Egg, Larva, Pupa and Adult
 - b) **Tasar silkworm** –Egg, Larva, Pupa and Adult
 - c)**Eri silkworm** –Egg, Larva, Pupa and Adult
 - d)**Muga silkworm** –Egg, Larva, Pupa and Adult

Paper II- Silkworm Rearing

- 1) Study of rearing house**
- 2) Rearing appliances and their uses**-Rearing trays, rearing rack, feeding stand, chopping knife etc.
- 3) Maintenance of optimum condition for rearing** – Temperature, Humidity and Light.
- 4) Incubation and black boxing of eggs.**
- 5) Spacing and bed cleaning.**
- 6) Rearing methods**- Chowki rearing and late age rearing
- 7) Harvesting and marketing of cocoons.**



Practicals

- 1) Study and collection of different types of silkworms.
- 2) Morphological study of mulberry silkworm- Egg , Larva, Pupa and Adult.
- 3) Study life cycle of mulberry silkworm
- 4) Study of rearing equipments and their use
- 5) Study of chowki and late age rearing
- 6) Identification and characteristics of the mature worms
- 7) Visit to farmers rearing centers.



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Department of Zoology

Add on Course

In

Silkworm Biology

TERM – II (2022-2023)

Time-Table

THEORY AND PRACTICAL

Period	Monday	Tuesday	Wednesday
10.00 -	Theory	Theory	Practical
11.00			

V.S. Kumbhar
(Dr. V.S. Kumbhar)

Principal,
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Sangli.



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Department of Zoology
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Teaching Faculty— Dr. Varsha Sandip Kumbhar



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Department of Zoology
Add on Course
In
Silkworm Biology
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Workload Distribution

Name of Teacher	B. Sc. I	
	Theory	Practical
Dr. Varsha Sandip Kumbhar	20	10



30/11/81-
Principal,
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Sangli.



Bharati Vidyapeeth's
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TEACHING PROGRAMME 2022-2023

Term I/ II From - November 2022 To January 2023

- 1) Name of Teacher: Dr. Varsha Sandip Kumbhar 2) Class--- B. Sc. I
3) Title of the Paper : Study of Sericulture 4) Date of commencement of Lecture 04/11/2022
5) No. of lectures per week --- 03 6) Total Lectures required -30

Month	Topics to be covered (in detail)	No of Lectures required
November	<p>Paper I- Silkworm Biology</p> <p>1) History of Sericulture</p> <p>2) Scope and advantages of sericulture</p> <p>3) Systematic position and life cycle of mulberry and non mulberry silkworms.</p> <p>a) Mulberry silkworm</p> <p>b) Non -Mulberry silkworm- Tasar silkworm ,Eri silkworm and Muga silkworm.</p> <p>Practicals--- 1) Study and collection of different types of silkworms.</p>	08



November	2) Morphological study of mulberry silkworm- Egg , Larva, Pupa and Adult.	04
	3) Study life cycle of mulberry silkworm	
December	4) Types of silkworm and their morphology a) Mulberry silkworm –Egg, Larva, Pupa and Adult b) Tasar silkworm –Egg, Larva, Pupa and Adult c) Eri silkworm –Egg, Larva, Pupa and Adult d) Muga silkworm –Egg, Larva, Pupa and Adult	08
Paper II- Silkworm Rearing		
December	1) Study of rearing house 2) Raring appliances and their uses -Rearing trays, rearing rack, feeding stand, chopping knife etc.	
Practicals-		
January	1) Study of rearing equipments and their use 2) Study of chowki and late age rearing	04
January	1) Maintenance of optimum condition for rearing – Temperature, Humidity and Light. 2) Incubation and black boxing of eggs. 3) Spacing and bed cleaning.	08



January	<p>4) Rearing methods- Chowki rearing and late age rearing</p> <p>5) Harvesting and marketing of cocoons.</p> <p>Practical--1) Identification and characteristics of the mature worms</p>	04
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Subject Teacher


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TEACHING COMPLETION REPORT

Term I/II (2022 -2023)

I **Dr. Varsha Sandip Kumbhar**

Lecturer in **Zoology** hereby affirm that, I have full and comprehensively completed the teaching in the following papers during term I/II (2022 -2023)

Sr. No	Name of the Paper	Total Lectures Engaged	Date of Completion of the portion
1	Paper I- Silkworm Biology 1) History of Sericulture 2) Scope and advantages of sericulture 3) Systematic position and life cycle of mulberry and non mulberry silkworms. a) Mulberry silkworm b) Non –Mulberry silkworm- Tasar silkworm ,Eri silkworm and Muga silkworm. Practicals--- 1) Study and collection of different types of silkworms. 2) Morphological study of mulberry silkworm- Egg , Larva, Pupa and Adult.	13	28/11/2022



	3) Study life cycle of mulberry silkworm		
2	<p>4) Types of silkworm and their morphology</p> <p>a) Mulberry silkworm –Egg, Larva, Pupa and Adult</p> <p>b) Tasar silkworm –Egg, Larva, Pupa and Adult</p> <p>c) Eri silkworm –Egg, Larva, Pupa and Adult</p> <p>d) Muga silkworm –Egg, Larva, Pupa and Adult</p>	12	30/12/2022
	<p style="text-align: center;">Paper II- Silkworm Rearing</p> <p>1) Study of rearing house</p> <p>2) Raring appliances and their uses-Rearing trays, rearing rack, feeding stand, chopping knife etc.</p> <p>Practicals-</p> <p>1) Study of rearing equipments and their use</p> <p>2) Study of chowki and late age rearing</p>		
3	<p>1) Maintenance of optimum condition for rearing – Temperature, Humidity and Light.</p> <p>2) Incubation and black boxing of eggs.</p> <p>3) Spacing and bed cleaning.</p> <p>4) Rearing methods- Chowki rearing and late</p>	05	25/01/2023



	age rearing		
	<p>5) Harvesting and marketing of cocoons.</p> <p>Practical--1) Identification and characteristics of the mature worms</p>		

Date : 30 / 01 /2023


Name & Signature of Subject Teacher




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Department of Zoology
Add on Course
In
Silkworm Biology
TERM – II (2022-2023)**

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]

a) Muga silkworm is grown on

- i) Mulberry leaf ii) Som leaf iii) Khaire leaf iv) Castor leaf

b) Life span of adult *Bombyx mori* is

- i) 2days ii) 6days iii) 8days iv) 3-4days

c) Reeling of silk is

- i) A process of making silk reels ii) Spinning of silk fibres
iii) Wearing of silk cloths iv) The process of taking silk threads from cocoon

d) Silkworms belongs to order –

- i) Psocoptera ii) Lepidoptera iii) Orthoptera iv) Isoptera

e) In Sericulture Eri silkworm is feed on the leaves of

- i) Peepal ii) Caster iii) Mulberry iv) Mango

f) Which of the following is not a type of silk

- i) Mulberry silk ii) Tasar silk iii) Muga silk iv) Moth silk

g) The rearing of silkworm for obtaining silk is called

- i) Lac ii) Sericulture iii) Pisciculture iv) Apiculture

h) The silk fiber is composed of two proteins Sericin and -----

- i) Fibroin ii) Nylon iii) Cellulose iv) Fat



i) Silk is the product of -----gland of silkworms

- i) Mucous ii) Silk iii) Sebaceous iv) Sweat

j) Which of the following species produces silk of superior quality

- i) *A.mylitta* ii) *Bombyx mori* iii) *Philosoma ricini* iv) *Antheraea assama*

Q.2) Attempt any two from the following

[20]

- Describe the detailed life cycle of Muga silkworm
- Describe pathogenicity, symptoms and control of Pebrine disease of silkworm
- Give different uses of different rearing appliances of silkworms

Q.2) Attempt any four from the following

[20]

- Write note on Fungal diseases of silkworms.
- Write in short life cycle of Mulberry silkworms
- Write a note on Mounting and Harvesting of silkworms.
- .d) Give different Pests of silkworms.
- e) Give different uses of silk.
- f) Write to note on Preparation of Feed bed.



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Practical Question Paper

Total Marks -50
Time – 10.00 a.m.- 12.00pm

Q.1. Identify and describe the life cycle of (10)
Bombyx mori

Q.2. Describe the rearing equipment and write its uses. (10)
1) Chopping Boards
2) Rearing Tray
3) Chopsticks
4) Paraffin paper
5) Ant wells

Q.3. Identify and describe the characteristics of given specimen (10)
A) Mulberry silkmoth
B) Tasar silkworm

Q.4. Identification- (10)
I) Identify and classify give it's reason —Muga silkmoth
II) Identify and give it's uses.— Chopping Knife
III) Identify and give it's uses.— Hygrometer
IV) Identify and describe—Mountages (Chandrika), Thermometer
V) Identify and describe—Mulberry Egg Sheet

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



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Department of Zoology
Add on Course
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Silkworm Biology
TERM – II (2022-2023)

Mark List- (Theory and Practical)

Sr. No	Name of Student	Mark(100)		Total (100)
		Theory (50)	Practical (50)	
1	Kale Lata Jalindar	44	47	91
2	Kamble Akshay Arun	46	48	94
3	Kamble Pallavi Dilip	42	46	88
4	Kamble Prathmesh Sagar	42	46	86
5	Kamble ShrutiKA Avinash	43	45	88
6	Kataria Tavneet Ramandeep Singh	44	47	91
7	Kengar Anuradha Sanjay	48	43	91
8	Kevat Annu Ramkesh	47	44	91
9	Kevat Rutuja Dharamaraj	38	42	80
10	Kewat Sushil Ramnaresh	AB	AB	AB
11	Kolekar Swapnil Ashok	47	42	89



12	Koli Sourabh Ankush	46	43	89
13	Ladi Prathamesh Prakash	46	42	88
14	Londhe Neha David	47	43	90
15	Londhe Shraddha Sukhadev	47	44	91
16	Madiwal Mahesh Bapu	48	46	94
17	Malame Vishal Suresh	46	42	88
18	Malape Shravani Mohan	46	42	86
19	Maledar Ramu Sadashiv	AB	AB	AB

V. S. Kumbhar
 (Dr. V. S. Kumbhar)


 Principal,
 Dr. Patangrao Kadam Mahavidyalaya,
 Sangli.



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Department of Zoology
Add on Course
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Silkworm Biology
TERM – II (2022-2023)
Result Analysis

Class	No of Appearance	Absent	Pass	Fail	Distinctio n	I st Class	II nd Class	III rd Class	% of Passing
B. Sc. – I	17	02	17	-	17	-	-	-	100





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DR. PATANGRAO KADAM MAHAVIDYALAYA, SANGLI

Accredited with B** Grade by NAAC (3rd Cycle)

Term II 2022-23

STUDENTS' ATTENDANCE SHEET

Add on course

Syllabus Biology

Name of the Teacher Dr. M.M. V.S. Kumbhar Class B.Sc. I Subject Syllabus Biology

Sr. No.	Name of the Student	Date/Time → 4/11/22 8/11/22 9/11/22 10/11/22 11/11/22 15/11/22 16/11/22 21/11/22 22/11/22 23/11/22 28/11/22 29/11/22 30/11/22											
		Signature of the Student											
1	Kamble Late Jalinder	L.J.Kale	AB	L.J.Kale	L.J.Kale	L.J.Kale	AB	L.J.Kale	L.J.Kale	AB	L.J.Kale	L.J.Kale	L.J.Kale
2	Kamble Akshay Arvin	Akshay B	AB	Akshay B	Akshay B	Akshay B	AB	Akshay B	Akshay B	AB	Akshay B	Akshay B	AB
3	Kamble Pallavi Dilip	Pallavi	AB	Pallavi	Pallavi	Pallavi	AB	Pallavi	Pallavi	AB	Pallavi	Pallavi	AB
4	Kamble Prathmesh Sagar	Prathmesh	AB	Prathmesh	Prathmesh	Prathmesh	AB	Prathmesh	Prathmesh	AB	Prathmesh	Prathmesh	AB
5	Kamble Bhartiya Anvitha	Anvitha	AB	Anvitha	Anvitha	Anvitha	AB	Anvitha	Anvitha	AB	Anvitha	Anvitha	AB
6	Kataria Tonyneet Ramandeep Singh	Tonyneet	AB	Tonyneet	Tonyneet	Tonyneet	AB	Tonyneet	Tonyneet	AB	Tonyneet	Tonyneet	AB
7	Kenar Anuradha Sanjay	Anuradha	AB	Anuradha	Anuradha	Anuradha	AB	Anuradha	Anuradha	AB	Anuradha	Anuradha	AB
8	Kevat Anny Romkes	Anny	AB	Anny	Anny	Anny	AB	Anny	Anny	AB	Anny	Anny	AB
9	Kevat Rutuja D.	Rutuja	AB	Rutuja	Rutuja	Rutuja	AB	Rutuja	Rutuja	AB	Rutuja	Rutuja	AB
10	Kewat Sushil R.	Sushil	AB	Sushil	Sushil	Sushil	AB	Sushil	Sushil	AB	Sushil	Sushil	AB
11	Kolekar Swapnil A.	Swapnil	AB	Swapnil	Swapnil	Swapnil	AB	Swapnil	Swapnil	AB	Swapnil	Swapnil	AB
12	Sourabh Ankush Koli	?	AB	?	?	?	AB	?	?	AB	?	?	AB
13	Prathmesh Ladi	AB	Refi	AB	Refi	Refi	AB	Refi	Refi	AB	Refi	Refi	AB
14	Londhe Neha David.	Neha	AB	Neha	Neha	Neha	AB	Neha	Neha	AB	Neha	Neha	AB

Subject Teacher

Subject Teacher

Head of the Department

Sambhan

Sambhan

Principal
Dr. Patangrao Kadam Mahavidyalaya,
Sangli.

Sambhai

Subject Teacher

Smethan

Head of the Department

Scott H. A.

Principal,
Dr. Patangrao Kadamb
Sangli.



Bharati Vidyapeeth's
DR. PATANGRAO KADAM MAHAVIDYALAYA, SANGLI
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STUDENTS' ATTENDANCE SHEET

Name of the Teacher D.T. M.M. V.S. Kumbhare Class B.B.C. I Subject English

Date/Time → 6/1/2022 7/1/2022 8/1/2022 9/1/2022 10/1/2022 11/1/2022 12/1/2022 13/1/2022 14/1/2022 15/1/2022 16/1/2022 17/1/2022 18/1/2022 19/1/2022 20/1/2022

Signature of the Student

| Sr. No. | Name of the Student | L.J.kale | A.B. |
|---------|---------------------------------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| 1 | Kale Lata Jalindor | L.J.kale | A.B. |
| 2 | Kamble Akshay Arun | Kamble | A.B. |
| 3 | Rable Pallavi Dilip | Rable | Pallavi |
| 4 | Kamble Prathmesh sagar | Kamble | Prathmesh |
| 5 | Kamble shrutiKAvinash | Kamble | shruti |
| 6 | Katoria Tavneet Ramchandrapatil | Katoria | Tavneet |
| 7 | Kengre Anuradha Sanjay | Kengre | Anuradha |
| 8 | Kevat Anna Ramkesh | Kevat | Anna |
| 9 | Kevat Rutuja Pharamod | Kevat | Rutuja |
| 10 | Kevat Sushil Ramnare | Sushil | Sushil |
| 11 | Kolekar Swapnil Ashok | Kolekar | Swapnil |
| 12 | Koli Sourabh Ankush | Koli | Sourabh |
| 13 | Ladi Prathmesh Rakesh | Ladi | Prathmesh |
| 14 | Londhe Neha Devaid | Londhe | Neha |

Shambhu

Subject Teacher

Shambhu

Head of the Department

Term II 2022-23
S1 Kworm Biology
Add on course
Introduction of sericulture

Shambhu

Principal,

Dr. Patangrao Kadam
Mahavidyalaya,
Sangli.

✓ Smibhan

Subject Teacher

Sambhar

Head of the Department

Section 18

Principal,
Dr. Patangrao Kadam Mahavidyalay
Sangli. Principal



Bharati Vidyapeeth's
DR. PATANGRAO KADAM MAHAVIDYALAYA, SANGLI

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STUDENTS' ATTENDANCE SHEET

Name of the Teacher Dr. Mr. Y.J. Kumbhark Class B.Sc.I Subject English Add on course Biology

Sr. No.	Name of the Student	Date/Time →	Signature of the Student				
			25/11/23	24/11/23	25/11/23	30/11/23	31/11/23
1	Kale Late Jalindar	AD	L.J.Kale	AD	L.J.Kale	L.J.Kale	
2	Kamble Ashay Aman	AD	Kamble	Ashay	Kamble	Ashay	
3	Kamble Pallavi Dilip	Pallavi	Pallavi	Pallavi	Pallavi	Pallavi	
4	Kamble Prathmesh S.	K.P.Sath	K.P.Sath	K.P.Sath	K.P.Sath	K.P.Sath	
5	Kamble Shrutika A.	skumble	skumble	skumble	skumble	skumble	
6	Kataria Tarneet R.	Kataria	Kataria	Kataria	Kataria	Kataria	
7	Kengar Anuradha S.	Kengar	Kengar	Kengar	Kengar	Kengar	
8	Kevat Annu R.	Kevat	Kevat	Kevat	Kevat	Kevat	
9	Kevat Rutuja D.	Kevat	Kevat	Kevat	Kevat	Kevat	
10	Kewat Sushil R.	Sushil	Sushil	Sushil	Sushil	Sushil	
11	Kolekar Swapnil A.	Kolekar	Kolekar	Kolekar	Kolekar	Kolekar	
12	Koli Sourabh A.	Sourabh	Sourabh	Sourabh	Sourabh	Sourabh	
13	Prathmesh Ledi	Ledi	AB	Ledi	Ledi	Ledi	AB
14	Londhe Neha D.	Londhe	Londhe	Londhe	Londhe	Londhe	

Sambhark

Subject Teacher

Sambhark

Head of the Department

Dr. Patangrao Kadam Mahavidyalaya
Principal
Sangli

Term I 2022-23

Shimbhan

Subject Teacher

Sambha

Head of the Department

Santosh
Principal,
Sangrao Kadamp Mahavidyalya
Sangli.

Dr. Patangrao Kadamp Principal
Mahavidyalaya Sangli.