



Rayat Shikshan Sanstha's
D. P. Bhosale College, Koregaon

Department of Zoology

INDEX

Skill based Certificate Course on Aquarium construction

Year 2022-23

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Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Department of Zoology

NOTICE

2022-23

Date:- 13/12/2022

All the students of B. Sc. II are here by informed that Department has organized “**Skill based Certificate Course on Aquarium Construction**” from Monday **15th December 2023**. All students are informed that they should remain present for course on time. It may clearly noted that fine will be collected from absent students.

Incharge

Head,

Department of Zoology

Skill based Certificate Course

on

Aquarium Construction





Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Skill based Certificate Course

on

Aquarium Construction

Organized by

Department of Zoology

Course Incharge

Mr. Jawale C. B.

Course Duration: 15 Dec. 2022 – 18 Jan. 2023

Rayat Shikshan Sanstha's
D.P. Bhosale College, Koregaon
Syllabus

Title – Skill based Certificate Course on Aquarium Construction	Total Hrs- 30
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B. Sc. II (Zoology)

Theory

Unit 1: Introduction to Aquarium Fish Keeping

- 1.1 Scope of Aquarium Fish industry as a Cottage Industry.
- 1.2 Construction of home aquariums, materials and other equipment used.
- 1.3 Water quality requirements.
- 1.4 Exotic and Endemic species of aquarium fishes.

Unit 2: Biology of Aquarium Fishes

- 2.1 Common characters and sexual dimorphism of Fresh water and Marine Aquarium fishes such as Molly, Sword tail, Gold fish, Angel fish, blue morph, Anemone fish and Butterfly fish.
- 2.2 Diseases of aquarium fishes.
- 2.3 Breeding habits.
- 2.4 Hatching and production of monosex fishes.

Unit 3: Food and Feeding of Aquarium Fishes

- 3.1 Nutritional requirements of aquarium fishes.
- 3.2 Different kinds of feeds.
- 3.3 Preparation of dry feeds.
- 3.4 Other ornamental organisms such as anemones, starfishes, lobsters and shrimps.

Unit 4: Fish Transportation and Maintenance

- 4.1 Live fish transport.
- 4.2 Packaging and forwarding techniques.
- 4.3 General Aquarium maintenance.
- 4.4 Budget for setting up an Aquarium Fish Farm as a Cottage Industry.

Suggested Reading:

- 1) David Alderton- “Freshwater Aquariums”.
- 2) Mary Bailey –“The Complete Guide to Aquarium Fish Keeping”.
- 3) Andrew Cleave- “Aquarium Fish”.
- 4) Archana Sinha- Breeding And Culture Of Freshwater Ornamental Fish.
- 5) K.V. Jayashree, C. S. Tharadevi & N. Arumugum- Home Aquarium and Ornamental Fish Culture

Qualawadi

Head
Department of Zoology
D. P. Bhosale College Koregaon



Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Department of Zoology

Year : 2022 - 23

Skill based Certificate Course

On

Aquarium Construction

Objectives

- Student will be able to know the fundamentals of aquarium fish industry.
- Student will understand the biological features of aquarium fishes.
- Student will get to know the food and feeding habits of aquarium fishes.
- Student will get aware about transportation of fishes.

Learning Outcomes

After completing the course the student should be able to:

- Construct an aquarium.
- Manage the fish diseases.
- Prepare the proper dosage of different kinds of natural and synthetic fish feed.
- Properly handle and maintain the aquarium fish.

In charge
Certificate Course

Head,
Department of Zoology



Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Department of Zoology

Skill based Certificate Course on Aquarium Construction

Time Table- 2022-23

Theory & Practical

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.30-10.15 Theory	CBJ	SPN	KJK	NAS	CBJ/SPN	KJK/NAS
08.30-10.30 Practical	CBJ	SPN	KJK	NAS	CBJ	NAS

CBJ – Mr. C. B. Jawale

SPN – Dr. S. P. Nalawade

KJK – Dr. K. J. Kamble

NAS – Ms. N. A. Shaikh

Handwritten signatures of C. B. Jawale, S. P. Nalawade, K. J. Kamble, and N. A. Shaikh.

Handwritten signature of the Head.

Head
Department of Zoology
D. P. Bhosale College Koregaon



Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Department of Zoology

Skill based Certificate Course on Aquarium Construction

Time Table- 2022-23

Theory & Practical

Date	Time	Theory / Practical	Name of the teacher
15/12/2022	10.15-11.15	Theory	Ms. N. A. Shaikh
16/12/2022	10.15-11.15	Theory	Mr. C.B. Jawale
17/12/2022	10-15-11.15	Guest Lecture	
19/12/2022	10.15-11.15	Theory	Mr. C.B. Jawale
20/12/2022	10.15-11.15	Theory	Dr. S.P. Nalawade
21/12/2022	10.15-11.15	Theory	Dr. K.J. Kamble
22/12/2022	10.15-11.15	Theory	Ms. N. A. Shaikh
23/12/2022	10.15-11.15	Theory	Mr. C.B. Jawale
24/12/2022	08.30-10.30	Practical	Ms. N. A. Shaikh
26/12/2022	10.15-11.15	Theory	Mr. C.B. Jawale
27/12/2022	10.15-11.15	Theory	Dr. S.P. Nalawade
28/12/2022	10.15-11.15	Theory	Dr. K.J. Kamble
29/12/2022	10.15-11.15	Theory	Ms. N. A. Shaikh
30/12/2022	10.15-11.15	Theory	Mr. C.B. Jawale
31/12/2022	08.30-10.30	Practical	Ms. N. A. Shaikh
2/01/2023	10.15-11.15	Theory	Mr. C.B. Jawale
3/01/2023	08.30-10.30	Practical	Dr. S.P. Nalawade
4/01/2023	10.15-11.15	Theory	Dr. K.J. Kamble
5/01/2023	10.15-11.15	Theory	Ms. N. A. Shaikh

6/01/2023	10.15-11.15	Theory	Mr. C.B. Jawale
7/01/2023	10.15-11.15	Theory	Ms. N. A. Shaikh
9/01/2023	10.15-11.15	Theory	Mr. C.B. Jawale
10/01/2023	08.30-10.30	Practical	Dr. S.P. Nalawade
11/01/2023	10.15-11.15	Theory	Dr. K.J. Kamble
12/01/2023	10.15-11.15	Theory	Ms. N. A. Shaikh
13/01/2023	08.30-10.30	Practical	Mr. C.B. Jawale
14/01/2023	08.30-10.30	Practical	Ms. N. A. Shaikh
16/01/2023	08.30-10.30	Practical	Mr. C.B. Jawale
17/01/2023	08.30-10.30	Practical	Dr. S.P. Nalawade
18/01/2023	08.30-10.30	Practical	Dr. K.J. Kamble

Nalawade

Head
Department of Zoology
D. P. Bhosale College Koregaon



Rayat Shikshan Sanstha's
D.P. Bhosale College, Koregaon
Student list 2022-23

Skill based Certificate Course on Aquarium Construction

Sr. No.	Roll No	Name of the Students
1	222338	Salunkhe Avishkar Arjun
2	222339	Sawant Shubham Dattatray
3	222351	Ghaytade Alankar Santosh
4	222362	Waydande Anjali Dhanaji
5	222363	waydande Anushka Ram
6	222364	Mane Avantika Anil
7	222365	Pawar Pooja Dagadu
8	222367	Anbhule Rohan Adinath
9	222369	Bhaldar Taslim Bakshuddin
10	222370	Devadiga Neha Ravi
11	222373	Singh Rutik Pramod
12	222374	Pujari Basavaraj Vitthal
13	222380	Gaikwad Ashish Shankar
14	222381	Ghorpade Amruta Kiran
15	222382	Godase Rutuja Dilip
16	222383	Bansode Sanika Dhananjay
17	222384	Godase Aishwarya Deepak
18	222385	Bhosale Amruta Suresh
19	222386	Makeri Nandukrishna Anil
20	222387	Matkar Rushikesh Chandrakant
21	222388	Sutar Harshada dyaneshwar
22	222389	Madane Nikhil Dilip
23	222390	Kamble Vrushali Chandrakant
24	222391	Yadav Vaishnavi Kiran
25	222392	Disale Vaishnavi Bhupesh
26	222393	Ghadge Kiran Babu

Qualawad

Head
Department of Zoology
D. P. Bhosale College Koregaon

Roll No.	Name of the Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
222338	Salunkhe A. A.															Solla	A	que		Solla	Solla	A	que	A	Solla		que	A	Solla	que	Solla	A
222339	Sawant S. D.															SDD	SDD	SDD		SDD	SDD	SDD	A	SDD	SDD		SDD	SDD	SDD	A	SDD	A
222351	Ghaytade A. S.															ASG	ASG	ASG		ASG	ASG	ASG	ASG	ASG	ASG		ASG	ASG	A	ASG	ASG	ASG
222362	Waydande A. D.															AD	AD	AD		AD	AD	AD	AD	AD	AD		AD	AD	A	AD	AD	A
222363	Waydande A. R.															AD	AD	AD		AD	AD	AD	AD	AD	A		AD	AD	A	AD	AD	A
222364	Mane A. A.															RAM	A	RAM		RAM	A	RAM	RAM	RAM	A		RAM	RAM	A	RAM	RAM	RAM
222365	Pawar P. D.															POP	POP	POP		POP	POP	POP	POP	POP	POP		POP	POP	A	POP	POP	POP
222367	Anbhule R. A.															RA	RA	RA		RA	RA	RA	RA	RA	RA		RA	RA	A	RA	RA	RA
222369	Bhaldar T. B.															TA	A	TA		TA	TA	TA	TA	TA	TA		TA	TA	A	TA	TA	TA
222370	Devadiga N. R.															DNR	DNR	DNR		DNR	DNR	DNR	DNR	DNR	DNR		DNR	DNR	A	DNR	DNR	DNR
222373	Singh R. P.															SRP	SRP	SRP		SRP	SRP	A	SRP	SRP	A		SRP	SRP	A	SRP	SRP	A
222374	Pujari B. V.															BP	BP	BP		BP	BP	BP	BP	BP	BP		BP	BP	A	BP	BP	BP
222380	Gaikwad A. S.															ASG	ASG	ASG		ASG	ASG	ASG	ASG	ASG	ASG		ASG	ASG	A	ASG	ASG	ASG
222381	Ghorpade A. K.															ASG	ASG	ASG		ASG	ASG	ASG	ASG	ASG	ASG		ASG	ASG	A	ASG	ASG	ASG
222382	Godase R. D.															RDS	RDS	RDS		RDS	RDS	RDS	RDS	RDS	RDS		RDS	RDS	A	RDS	RDS	RDS
222383	Bansode S. D.															SP	SP	SP		SP	SP	SP	SP	SP	SP		SP	SP	A	SP	SP	SP
222384	Godase A. D.															RDS	RDS	RDS		RDS	RDS	RDS	RDS	RDS	RDS		RDS	RDS	A	RDS	RDS	RDS
222385	Bhosale A. S.															AB	AB	AB		AB	AB	AB	AB	AB	AB		AB	AB	A	AB	AB	AB
222386	Makeri N. A.															AS	AS	AS		AS	AS	AS	AS	AS	AS		AS	AS	A	AS	AS	AS
222387	Matkar R. C.															RA	RA	RA		RA	RA	RA	RA	RA	RA		RA	RA	A	RA	RA	RA
222388	Sutar H. D.															MA	MA	MA		MA	MA	MA	MA	MA	MA		MA	MA	A	MA	MA	MA
222389	Madane N. D.															MA	MA	MA		MA	MA	MA	MA	MA	MA		MA	MA	A	MA	MA	MA
222390	Kamble V. C.															VS	VS	VS		VS	VS	VS	VS	VS	VS		VS	VS	A	VS	VS	VS
222391	Yadav V. K.															Yada	Yada	Yada		Yada	Yada	Yada	Yada	Yada	Yada		Yada	Yada	A	Yada	Yada	Yada
222392	Disale V. B.															DIS	DIS	DIS		DIS	DIS	DIS	DIS	DIS	DIS		DIS	DIS	A	DIS	DIS	DIS
222393	Ghadge K. B.															GA	A	GA		GA	GA	GA	GA	GA	GA		GA	GA	A	GA	GA	GA

Pranav
Head
 Department of Zoology
 D. P. Bhosale College Koregaon

Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Month : January 2023

Skill based Certificate Course on Aquarium Construction

STUDENT ROLL CALL

Roll No.	Name of the Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
222338	Salunkhe A. A.	A	SM	Salk	SM	Salk	Salk	Salk	A	A	Salk	Salk	SM	Salk	A	SM	Salk	Salk	Salk															
222339	Sawant S. D.	SD	SM	SD	SD	SD	SD	SD	SM	SM	SD	SD	SM	SD	SM	SD	SM	SD	SD															
222351	Ghaytade A. S.	ASC	A	ASC	ASC	ASC	ASC	A	ASC	ASC	ASC	ASC	ASC	ASC	ASC	ASC	ASC	ASC	ASC															
222362	Waydande A. D.	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD															
222363	Waydande A. R.	AR	AR	AR	AR	AR	AR	AR	A	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR															
222364	Mane A. A.	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM															
222365	Pawar P. D.	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP	PDP															
222367	Anbhule R. A.	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA															
222369	Bhaldar T. B.	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB	TB															
222370	Devadiga N. R.	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR															
222373	Singh R. P.	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP	SRP															
222374	Pujari B. V.	A	BVP	BVP	BVP	BVP	BVP	A	BVP	BVP	BVP	BVP	BVP	BVP	BVP	BVP	BVP	BVP	BVP															
222380	Gaikwad A. S.	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG	ASG															
222381	Ghorpade A. K.	AKG	AKG	AKG	A	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG	AKG															
222382	Godase R. D.	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG	RDG															
222383	Bansode S. D.	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD															
222384	Godase A. D.	AD	AD	AD	AD	A	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD															
222385	Bhosale A. S.	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB	ASB															
222386	Makeri N. A.	MA	MA	MA	MA	A	MA	MA	MA	A	MA	MA	MA	MA	MA	MA	MA	MA	MA															
222387	Matkar R. C.	RC	RC	RC	RC	RC	RC	RC	RC	A	RC	RC	RC	RC	RC	RC	RC	RC	RC															
222388	Sutar H. D.	HD	A	A	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD															
222389	Madane N. D.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND															
222390	Kamble V. C.	VCS	VCS	A	VCS	A	VCS	VCS	VCS	A	VCS	VCS	VCS	VCS	VCS	VCS	VCS	VCS	VCS															
222391	Yadav V. K.	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav	Yadav															
222392	Disale V. B.	VB	VB	VB	VB	A	VB	VB	VB	VB	VB	VB	VB	VB	VB	VB	VB	VB	VB															
222393	Ghadge K. B.	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B															

(Signature)
Head
 Department of Zoology
 D. P. Bhosale College Koregaon

Rayat Shikshan Sanstha's

D. P. Bhosale College, Koregaon

Department of Zoology

Question Paper

Skill based Certificate Course on Aquarium Construction

Marks : 30

Instructions

1. All the questions are compulsory
 2. Questions to the right Indicate full Marks
 3. Draw neat and Labelled diagrams wherever necessary
-

Que. 1: Long questions (Any 2)

20

- a. Describe in details setting of an aquarium.
- b. Explain in brief diseases of aquarium fishes.
- c. Describe in nutritional requirement of aquarium fishes.

Que. 2: Write short notes on following (Any 2)

10

- a. Gold fish.
- b. Water quality requirement.
- c. Hatching of monosex fishes.



Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

Student List 2022-23

Skill based Certificate Course on Aquarium Construction

Mark list

Sr. No.	Roll No.	Name of the Students	Que. 1 20	Que. 2 10	Total Marks 30
1	222338	Salunkhe Avishkar Arjun	18	08	26
2	222339	Sawant Shubham Dattatray	19	07	26
3	222351	Ghaytade Alankar Santosh	15	09	24
4	222362	Waydande Anjali Dhanaji	19	09	28
5	222363	Waydande Anushka Ram	17	08	25
6	222364	Mane Avantika Anil	18	08	26
7	222365	Pawar Pooja Dagadu	17	09	26
8	222367	Anbhule Rohan Adinath	12	08	20
9	222369	Bhaldar Taslim Bakshuddin	14	07	21
10	222370	Devadiga Neha Ravi	15	08	23
11	222373	Singh Rutik Pramod	13	05	18
12	222374	Pujari Basavaraj Vitthal	15	06	21
13	222380	Gaikwad Ashish Shankar	16	06	22
14	222381	Ghorpade Amruta Kiran	17	07	24
15	222382	Godase Rutuja Dilip	15	07	22
16	222383	Bansode Sanika Dhananjay	18	08	26
17	222384	Godase Aishwarya Deepak	17	05	22
18	222385	Bhosale Amruta Suresh	15	08	23
19	222386	Makeri Nandukrishna Anil	18	09	27
20	222387	Matkar Rushikesh Chandrakant	16	08	24
21	222388	Sutar Harshada dyaneshwar	17	07	24
22	222389	Madane Nikhil Dilip	16	08	24
23	222390	Kamble Vrushali Chandrakant	18	09	27
24	222391	Yadav Vaishnavi Kiran	19	09	28
25	222392	Disale Vaishnavi Bhupesh	15	07	22
26	222393	Ghadge Kiran Babu	16	06	22

Qualawadi

Head

Department of Zoology
D. P. Bhosale College Koregaon



**Rayat Shikshan Sanstha's
D. P. Bhosale College, Koregaon**

Department of Zoology

Report

Skill based Certificate Course on Aquarium Construction

Aquarium construction has been an interesting activity for many, which provide not only aesthetic pleasure but also financial openings. About 600 ornamental fish species have been reported worldwide from various aquatic environments. Indian waters possess a rich diversity of ornamental fish.

The course curriculum covers topics like Introduction to Aquarium and construction, Introduction to Ornamental fishes, Engineering Aspect and construction of aquarium, Fish Breeding and rearing in Live Bearers, Fish Breeding and rearing in Egg layers, Ornamental fish farming-Management Aspects, Introduction to Aquarium plants and its propagation techniques, etc.

The course takes a theoretical and practical based approach.



Felicitation of Guest Mr. Vinod Gurav by Mr. C.B. Jawale

Department of Zoology has offered this course for B.Sc. II students.
This course was conducted during the 15th December 2022 to 18th January 2023.



Lecture delivered by Mr. Gurav

For this course 26 students have been enrolled. During this period the lectures and practicals were conducted by resource faculties. For this course department has organised one guest lecture of Mr. Vinod Gurav on Demonstration of aquarium construction. Mr. C. B. Jawale, Dr. S.P. Nalawade, Dr. K. J. Kamble and Miss. N. A. Shaikh conducted the practicals and theory period.

Students learn about fabrication of aquarium and mass culture of different live food organisms and aquatic plants. Further we will be able to produce ornamental fishes in mass scale. Basic knowledge on aquarium construction will promote the students for research activities and encourage them for entrepreneurship.

Head
Department of Zoology
D. P. Bhosale College Koregaon



"Education through Self-help is our Motto"- KARMAVEER
Rayat Shikshan Sanstha's

D.P. Bhosale College, Koregaon

District – Satara. (M.S.)

NAAC Reaccredited 'A' (with CGPA 3.12)

Skill based Course

CERTIFICATE



This is to certify that **Mr. / Miss.** ----- **Class :** -----

has successfully completed “**Skill based Certificate Course**” on -----

----- From ----- to ----- Organized by Department of Zoology, D. P. Bhosale College,

Koregaon, District- Satara, (M.S.).

Incharge

Head

Department of Zoology