



MAHISHADAL RAJ COLLEGE

(Govt. Sponsored)

NAAC Accredited 'A' Grade College

DST (FIST) Govt. Of India approved College, NSDC Training Partner

Estd. : 1946

Mahishadal : Purba Medinipur

Phone STD 03224 No. 240220

Ref. No.....

Date:

Online ADD ON COURSE 2020-21

Organised by Department Zoology

Topic: Ornamental-Fish Breeding

Add on course summary:

REPORT:

Name of the course- Ornamental-Fish Breeding

Course coordinator: *Dr. Shubhamoy Das*, (Associate Professor, HOD, Department of Zoology , Mahishadal Raj College)

Date of commencement: 02.01.2021

Date of completion: - 16.01.2021

Number of participant enrolled: 30

Total duration day: 15

Total duration hour: 30

Evaluation method:- Paper pen MCQ and practical work

RESULT DETAILS:-

Number of student participate in this program: 30

Number of student completes this program: 25

Number of student got certificate in this program: 25

Name of the course: Ornamental-Fish Breeding

Course coordinator: *Dr. Shubhamoy Das*, (Associate Professor, HOD, Department of Zoology , Mahishadal Raj College)



Ornamental-Fish Breeding

✚ About the course:

The certificate course in Ornamental Fish breeding and aquarium keeping is intended to create interest in the breeding and rearing of aquatic organisms and plants in controlled conditions. Aqua Farming/ Ornamental Fish Farming provides alternative livelihood opportunities for the socio-economic upliftment of society. The entrepreneurship possibilities through ornamental fish farming are getting popular in the present scenario. Hence, Ornamental Fish breeding and aquarium keeping Courses will create awareness and promote green aquaculture involving environmental-friendly practices.

✚ Learning outcomes:

Participating in an ornamental fish breeding and aquarium keeping course can open doors to a range of opportunities, whether for personal enjoyment, professional development, or business endeavors. Some potential opportunities that such a course can provide:

- Student enables to set up aquarium.
- Students are enabled to manage the home as well as commercial aquariums.
- Students will learn to handle different aquarium equipment.
- Students will learn Decorations of aquarium
- Students will learn Breeding of Aquarium Fishes.
- Students' knowledge about various techniques of ornamental fish breeding, rearing, and marketing to make them self-sustainable after completing the certificate course.

✚ Target audience:

Any branch of life sciences students (UG and PG), research scholars, and faculties.

✚ Course content overview:

To impart hands-on training on feed and feeding technology

To impart hands-on training on setting up of aquaria and maintenance

To generate export-oriented employment in rural and urban households through ornamental fish production.

To impart hands-on training on the culture, and breeding of commercially important ornamental fishes

To mass-produce a large number of varieties of ornamental fish species to create a large supply of ornamental fish and increase the overall exports.

To promote employment and entrepreneurship in the ornamental fish sector by graduates in fisheries, aquaculture, and biological sciences

✚ Schedule: Total 30 hours



DAY	SCHEDULE
Day 1	Basics of aquaculture and scope. History of aquaculture: Present global and national scenario. (2 hours)
Day 2	Ornamental fisheries-e new dimensions in aquaculture entrepreneurship. (T + P) (2 hours)
Day 3	Introduction to aquarium and aquarium accessories. Basic knowledge on profile of ornamental fishes in world. (T + P) (2 hours)
Day 4	Identify, classify and describe an aquarium fishes (T + P) (2 hours)
Day 5	Brood fish collection and rearing. (T + P) (2 hours)
Day 6	Introduction to Aquarium plants and their export potential. (T + P) (2 hours)
Day 7	Management of ornamental aquatic plants and its trading (T + P) (2 hours)
Day 8	Breeding of ornamental fish with reference to live bearer species. (T + P) (2 hours)
Day 9	Breeding of Guppies and Mollies. (T + P) (2 hours)
Day 10	Introduction hatchery management system for live bearers. (T + P) (2 hours)
Day 11	Breeding of ornamental fish with reference to selected egg layer species. (T + P) (2 hours)
Day 12	Introduction to Breeding of Angel fish and Zebra fish. (T + P) (2 hours)
Day 13	Introduction hatchery management system for egg layers. (T) (2 hours)
Day 14	Ornamental Fish-diseases and their management. (2 hours)
Day 15	Health management in Ornamental Fish Farming. Overall discussion. Doubts clear and revision (2 hours)



✚ Detail Work Schedule

Date	Day	Contents	Time	Duration	Experts	Designation
02.01.21	1	Basics of aquaculture and scope. History of aquaculture: Present global and national scenario.	12 to 2pm	2	Dr.Subhamoy Das	HOD, Zoology, MRC
03.01.21	2	Ornamental fisheries-e new dimensions in aquaculture entrepreneurship. (T + P)	1 to 3 pm	2	Dr.Subhamoy Das	HOD, Zoology, MRC
04.01.21	3	Introduction to aquarium and aquarium accessories. Basic knowledge on profile of ornamental fishes in world. (T + P)	3 to 5pm	2	Dr.Subhamoy Das	HOD, Zoology, MRC
05.01.21	4	Identify, classify and describe an aquarium fishes (T + P)	03 to 05pm	2	Prof.Manik Das	SACT Mahishadal Raj College
06.01.21	5	Brood fish collection and rearing. (T + P)	02 to 04pm	2	Prof.Manik Das	SACT Mahishadal Raj College
07.01.21	6	Introduction to Aquarium plants and their export potential. (T + P)	01 to 03pm	2	Prof. Moumita Jana	SACT Mahishadal Raj College
08.01.21	7	Management of ornamental aquatic plants and its trading (T + P)	03 to 05pm	2	Prof. Moumita Jana	SACT Mahishadal Raj College
09.01.21	8	Breeding of ornamental fish with reference to live bearer species. (T + P)	02 to 04pm	2	Prof. Saheli Maiti	SACT Mahishadal Raj College
10.01.21	9	Breeding of Guppies and Mollies. (T + P)	02 to 04pm	2	Prof. Saheli Maiti	SACT Mahishadal Raj College
11.01.21	10	Introduction hatchery management system for	01 to 03pm	2	Prof. Saheli Maiti	SACT Mahishadal



		live bearers. (T + P)				Raj College
12.01.21	11	Breeding of ornamental fish with reference to selected egg layer species. (T + P)	02 to 04pm	2	Prof. Sagnik Mandal	SACT Mahishadal Raj College
13.01.21	12	Introduction to Breeding of Angel fish and Zebra fish. (T + P)	01 to 03pm	2	Prof. Sagnik Mandal	SACT Mahishadal Raj College
14.01.21	13	Introduction hatchery management system for egg layers. (T+P)	01 to 03pm	2	Prof. Sagnik Mandal	SACT Mahishadal Raj College
15.01.21	14	Ornamental Fish-diseases and their management.	01 to 03pm	2	Prof. Sagnik Mandal	HOD, Zoology, MRC,
16.01.21	15	Health management in Ornamental Fish Farming. Overall discussion. Doubts clear and revision	12 to 2 pm	2	Dr. Subhamoy Day, Dr. Rajkumar Guchhait, Prof. Sagnik Mandal, Prof. Manik Das and Prof. Moumita Jana. DR.Asim Kr Bera	HOD & SACT., Zoology; Principal, MRC
				30 hours		

✚ Course structure and examination scheme:

Course name	Theory classes (hr.)	Practical classes (hr.)	Theory marks	Practical marks	Total marks
Ornamental-Fish Breeding	15	15	40	10	50



✚ Participant's Details and attendance:

✚ Enrolment Details of Students

Sl. No.	Student ID	Roll No.	Name
1.	B.Sc/19/0151	2190151	TRINA MAITY
2.	B.Sc/19/0192	2190192	AHINA YEASMIN
3.	B.Sc/19/0222	2190222	ANITA RANA
4.	B.Sc/19/0223	2190223	AJANTA SAMANTA
5.	B.Sc/19/0224	2190224	TANUSHREE SAHOO
6.	B.Sc/19/0225	2190225	JAYITA MANNA
7.	B.Sc/19/0226	2190226	MOUSONA JANA
8.	B.Sc/19/0319	2190319	MARIA FARHIN
9.	B.Sc/19/0347	2190347	PUJA RANI KAPAT
10.	B.Sc/19/0383	2190383	SUSMITA BERA
11.	B.Sc/19/0462	2190462	TRISHA GAYEN
12.	B.Sc/19/0489	2190489	ANANYA MAITY
13.	B.Sc/19/0500	2190500	ANANYA MAITY
14.	B.Sc/19/0501	2190501	SITOSHNA BHUNIYA
15.	B.Sc/19/0528	2190528	REBATI JANA HAZRA
16.	B.Sc/19/0533	2190533	SUDESHNA MONDAL
17.	B.Sc/19/0535	2190535	DIBYA KANDAR
18.	B.Sc/19/0539	2190539	JAYEETA PATTANAYAK
19.	B.Sc/19/0547	2190547	SHREYA GHANTI
20.	B.Sc/19/0557	2190557	RAHUL DAS
21.	B.Sc/19/0002	2190002	TANMOY DAS
22.	B.Sc/19/0003	2190003	SANTANU PRAMANIK
23.	B.Sc/19/0004	2190004	AVIJIT DAS
24.	B.Sc/19/0005	2190005	BIVAS HALDER
25.	B.Sc/19/0064	2190064	ARINDAM MAITY
26.	B.Sc/19/0066	2190066	AYAN MONDAL
27.	B.Sc/19/0227	2190227	ANWESHA DAS
28.	B.Sc/19/0230	2190230	SAIKAT SUNDAR PAL
29.	B.Sc/19/0231	2190231	SAMIRAN SAHOO
30.	B.Sc/19/0314	2190314	BIBHAS JANA



Sample Question of Examination

Multiple choice questions

2 x 20 = 40

1. Which one of the following ornamental fishes is exotic?
 - a) Zebrafish
 - b) Glassfish
 - c) Honey Gourami
 - d) Sail Fin Molly
2. Floating plants are required for breeding
 - a) Guppies Yes
 - b) Angel fish
 - c) Swordtail
 - d) Gourami
3. Which one of the following ornamental fishes is an egg-layer?
 - a) Neon Tetra
 - b) Marble Molly
 - c) laty
 - d) Swordtail
4. Ammonia concentration is toxic to fish beyond
 - a) 0.5 mg/lit
 - b) 0.75 mg/lit
 - c) 10 mg/lit
 - d) 0.05 mg/lit
5. Which one of the following fishes is reared in heated aquarium?
 - a) Gold Fish
 - b) Black Skirt Tetra
 - c) Kissing Gourami
 - d) Neon Tetra
6. Aquarium water should be aerated during
 - a) Early morning Yes
 - b) Noon
 - c) Evening
 - d) Night
7. The glass-plates of a home aquarium is sealed by –
 - a) Agar Glue
 - b) Polysulfide sealant
 - c) Silicon Rubber Sealant
 - d) Flour Glue
8. What is the common name of Poeciliaspheps?
 - a) Short-finned Molly
 - b) Sail-fin Molly
 - c) Mexican Sail-fin Molly



d) Gold Molly

9. The Gestation period of molly

- a) 24 days
- b) 12 days
- c) 28 days
- d) 60 days

10. The sex ratio for gold fish breeding (Male: Female)

- a) 2:1
- b) 1:2
- c) 1:3
- d) 1:1

11. The best live food for gold fish brooders

- a) Moina
- b) Earthworm
- c) Algae
- d) Larvae

12. Breeding traps are generally used for

- a) Livebearers
- b) Anabantids
- c) Danio
- d) Goldfish

13. The ornamental fish which is banned in India is

- a) Discus
- b) Oscar
- c) Piranah
- d) Peacock cichlid

14. ----- being first among ornamental fish producing country

- a) Singapore
- b) India
- c) Malaysia
- d) Japan

15. The coloration in the ornamental fish can be enhanced using

- a) MS 222
- b) Probiotics
- c) 17 & MT
- d) Carotenoids

16. The appearance of tubercle is the identification character of male

- a) Gold fish
- b) Oscar
- c) Discus
- d) None

17. In Intensive Aquariculture the design of the tank should be

- a) Circular



- b) Square
 - c) Rectangular
 - d) Cylindrical
18. Which of the following is having highest ornamental fish export value in India
- a) Mumbai
 - b) Kolkata
 - c) Chennai
 - d) Coimbatore
19. Which state in India has highest ornamental fish production
- a) West Bengal
 - b) Tamil Nadu
 - c) Maharashtra
 - d) Manipur
20. Feeding habit of Gold fish is
- a) Herbivore
 - b) Carnivore
 - c) Omnivore Yes
 - d) None



CERTIFICATE OF COURSE COMPLETION

THIS IS TO CERTIFY THAT

TRINA MAITY

has successfully completed the **Add-on Course** on **Ornamental-Fish Breeding**
held during **2020-21** academic year at Mahishadal Raj College.

Subhamoy Das.

Course Co-ordinator

S Mookherjee

IQAC Co-ordinator

[Signature]

Principal



CERTIFICATE OF COURSE COMPLETION

THIS IS TO CERTIFY THAT

SAMIRAN SAHOO

has successfully completed the **Add-on Course** on **Ornamental-Fish Breeding**
held during **2020-21** academic year at Mahishadal Raj College.

Subhamoy Das.

Course Co-ordinator

S Mookherjee

IQAC Co-ordinator

[Signature]

Principal