

DETAILED SYLLABUS OF 1ST SEMESTER

Course Code	:	SEC130
Title of the Course	:	Aquarium Fish Keeping
Nature of the Course	:	Skill Enhancement Course (SEC)
End Semester	:	80 Marks
In Semester	:	20 Marks
Total Credits	:	03

COURSE OBJECTIVE:

1. To impart hands on training on construction of aquariums and maintenance of commercially important ornamental fishes.
2. To provide entrepreneurship opportunities in the ornamental fish sector to graduates of biological sciences.

UNITS	CONTENTS	L	T	P	TOTAL HOURS
1 (15 marks)	Introduction: 1.1 History of Aquariums 1.2 Types of Aquariums and their significance 1.3 The potential scope of Aquarium Fish Industry as a Cottage Industry 1.4 Prospect of aquarium fish industry in NE India 1.5 Exotic and Endemic species of Aquarium Fishes	6	-	-	6
2 (15 marks)	Biology: 2.1 Common characters and sexual dimorphism of Fresh water and Marine Aquarium fishes such as Guppy, Molly, Sword tail, Gold fish, Angel fish, Blue morph, Anemone fish, Butterfly fish, Botia, Gourami, <i>Channa bleheri</i> , <i>Channa barca</i> . 2.2 Ornamental fishes endemic to NE India-their habitat and biology 2.3 Biology of important exotic ornamental fishes found in India	10	-	-	10

3 (15 marks)	Feeding and Transport: 3.1 Food and feeding- <ul style="list-style-type: none"> • Use of live organisms as fish feed. • Principle of fish feed formulation • Preparation and composition of formulated fish feeds 3.2 Live fish transport – <ul style="list-style-type: none"> • Transportation of seeds • Transportation of breeders • Fish handling, packing and forwarding techniques • Factors influencing fish transport • Fish mortality during transportation 	7	-	-	7
4 (15 marks)	Maintenance and Commercialization: 4.1 General Aquarium maintenance <ul style="list-style-type: none"> • Size and structure of different tanks • Accessories for different tank types • Water quality and treatment • Cleaning and monitoring • Natural Aquarium Cleaners • Selection of fish and acclimation; significance of acclimation. • Common diseases of ornamental fish and prophylaxis. 4.2 Budget for setting up an Aquarium Fish Farm as a Cottage Industry 4.3 Challenges of ornamental fish trade in India	7	-	-	7
5 (20 marks)	Practicals: 1. Introduction to Aquarium accessories and equipments. 2. Identification of ornamental fishes. 3. Acclimatization of fish. 4. Preparation of formulated fish feed. 5. Identification of ornamental fish diseases and prophylactic measures. 6. Identification of aquarium plants.	-	-	30	30
	TOTAL	30	-	30	60

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

20 Marks

- One Internal Examination -
- Others (Any one) -
 - Collection of Ornamental Fish
 - Project Report Submission
 - Presentation

10 Marks

10 Marks

LEARNER OUTCOMES:

Students completing this course will be able to:

1. Prepare and manage aquariums.
2. Identify and maintain different species of common ornamental fishes
3. Prepare ornamental fish feed
4. Take prophylactic measures to prevent fish diseases

SUGGESTED READINGS:

1. G. Helfman, Bruce B. Collette, D.E. Facey, B. W. Bowen: The Diversity of Fishes: Biology, Evolution, and Ecology, John Wiley & Sons
2. R. J. Wootton: Fish Ecology, Springer
3. W. Vishwanath, W.S. Lakra and U.K. Sarkar: Fishes of North East India, NBFGR Publication, Lucknow
4. Handbook of Fisheries and Aquaculture – ICAR
5. A. D. Dholakia: Ornamental Fish culture and Aquarium Maintenance , Daya pub. House, New Delhi
6. A. Saxena: Aquarium Management. Daya pub. House, New Delhi
7. C.B.L. Srivastava: Aquarium fish keeping. Kitab Mahal, Allahabad
8. K. Rataj, and R. Zikal: Aquarium Fishes and Plants. Spring Books, London,
9. K.L.Tekrival and A.A. Rao: Ornamental aquarium fishes of India. TFH United Kingdom