



Semester – V

Branch	Subject Title	Subject Code
B.Sc. (Zoology-Major)	Aquaculture	ZOM1-151

Course Objectives - To understand the techniques involved in aquaculture practices. Objectives of aquaculture: production of protein-rich human food; improvement of natural stocks through artificial recruitment and transplantation; production of sport fish; production of bait for commercial and sport fishing; production of ornamental fishes; recycling of organic wastes. To get a detailed information about aquaculture. To provide a basic idea about the importance of live feed in culture systems.

Course Learning outcomes (CLO) -

After the completion of the course the student will be able to:

1. Identify Aquaculture and its scope in India.
2. Recognize the different economically important fishes and other culture able fauna.
3. Identify the details of different steps involved in Aquaculture.
4. Identify the profitability of the culture and identify the fields of Aquaculture which generate self-employment

Content

Unit - I

1. Aquaculture

- 1.1 Definition, History and Indian Traditional knowledge of Aquaculture.
- 1.2 Planning for higher Aquaculture productivity.
- 1.3 Present strategies and future policies.
- 1.4 Problems of Aquaculture.
- 1.5 Significance of Aquaculture - as food and as non-food products.
- 1.6 Aquaculture resources in India.

2. Common Aquatic Weeds and its control.

Unit - II

1. Prawn Culture

- 1.1 History of Prawn Culture.
- 1.2 Prawns of commercial value.
- 1.3 Biology of fastest growing species of freshwater Prawn.
- 1.4 Different stages of lifecycle.
- 1.5 Culture technology.
- 1.6 Methods of Prawn Fishing.
- 1.7 Preservation and processing of Prawns.
- 1.8 Parasite and diseases of Prawns and its control.

2. Aquatic insects

- 2.1 Introduction of Aquatic Insects.
- 2.2 Control of Predatory Insects.



Unit - III

1. Edible Oyster Culture

- 1.1 Culturable species of Oysters and their distribution.
- 1.2 Biology of Oyster.
- 1.3 Oyster culture technique.
- 1.4 Rearing and harvesting of Oyster.
- 1.5 Preservation of Oysters.
- 1.6 Use of Oysters and its shell.

2. Pearl Culture

- 2.1 History of Pearl culture and Pearl producing sites.
- 2.2 Pearl producing animals.
- 2.3 Biology of Pearl oysters.
- 2.4 Process of Pearl formation.
- 2.5 Pearl culture techniques.
- 2.6 Composition, types of Pearls and its enemies.
- 2.7 Economic value and Pearl industry in India.

Unit - IV

1. Fresh water edible fishes of India

- 1.1 Biology of major carp fishes, minor carp fishes, cat fishes, live fishes and miscellaneous fishes.

2. Marine water edible fishes of India

- 2.1 Hilsa, Eel, Sardines, Pomfrets, Mackerel, Bombay duck.

3. Carp culture

- 3.1 Introduction and History of carp culture.
- 3.2 Qualities of culturable fishes.
- 3.3 Reason and achievements of carp culture in India.
- 3.4 Resources of carp culture in India.
- 3.5 Carp culture techniques - Indian, Chinese and European system.
- 3.6 Types of ponds and its management.
- 3.7 Procedure of carp culture.
- 3.8 Methods of catching of carps.
- 3.9 Transport of fishes - open type and type.
- 3.10 Diseases, control and carp fishes health management.
- 3.11 Fish preservation, processing and marketing.

Unit - V

1. Aquarium

- 1.1 Introduction and History of Aquarium
- 1.2 Types of Aquarium-free and fixed.
- 1.3 Requisites for fabrication of aquarium.
- 1.4 Types and significance of aquatic plants.
- 1.5 Types of aquarium fishes.
- 1.6 Maintenance of aquarium.



2. Plankton

2.1 Definition and History of Plankton.

2.2 Classification of plankton - based on their origin, size, lifecycle and their habitat.

2.3 Groups of phytoplankton and zooplankton.

2.4 Role of plankton in fisheries.

3. Polyculture

3.1 Definition and History of Polyculture.

3.2 General idea about procedure of composite fish farming.



Practicals

- Identification & Study of fresh water/marine water culturable, economically important fauna - Prawns, Pearl oyster, Edible oyster, Carp fishes, Crab, Lobsters and Squilla.
- Identification & study of fresh water edible fishes - Labeo, Catla, Mystus, Wallego, Channa, Anabas and Cirrhinus.
- Identification & Study of marine water edible fishes - Hilsa, Pomfret, Mackerel, Eel and Bombay duck.
- Collection, Identification, Study and Preservation /slide preparation of phytoplankton and zooplankton from a pond.
- Study of Water analysis:
 - a. Estimation of dissolved oxygen in water.
 - b. Detection of chloride in water.
 - c. Determination of pH/Recording of temperature of water.
 - d. Hardness of water.
 - e. Transparency of water.
- Study/Establishment and maintenance of aquarium in laboratory.
- Identification and study of aquarium fishes – Gold fish, Tiger fish, Kissing Gourami, Guppy, Black molly, X-ray fish, Zebra fish.
- Identification and study of aquatic insects/weeds – Ranatra, Balostoma, Nepa, Waterboat men, Back swimmer.
- Visit/Virtual tour and study an aquatic site/any culture site and submit a report to supervisor.



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