

## SEMESTER V. OPEN COURSES (FOR OTHER STREAMS)

ZY5OPT01

### 1. VOCATIONAL ZOOLOGY

72 Hrs

4 Hrs/Week, Credits 3

#### Objectives of the Course

- To develop critical thinking skill and research aptitude among students, by introducing the frontier areas of the biological science.
- To emphasize the central role that biological sciences plays in the life of all organisms.
- To introduce the student to some of the present and future applications of bio-sciences
- To acquire basic knowledge and skills in aquarium management, Quail farming, vermicomposting and apiculture for self-employment
- To learn the different resources available and to develop an attitude towards sustainability
- Give awareness to society about need for waste management and organic farming

#### Module 1 Aquarium management

12 Hrs

General introduction to Aquarium, Aims and types of aquarium (material, size and shape), Requirements of an aquarium - filtration of waste, physical, chemical and biological; Setting an aquarium (self-sustainable with biological filters), Major indigenous aquarium fishes of Kerala.

**Activity:** Setting up of a freshwater aquarium and rearing of aquarium fishes

#### Module 2 Ornamental Fish Culture

20 Hrs

Introduction to ornamental fishes: Present status of ornamental fish culture in India with special reference to Kerala, Breeding of Gold fish, Fighter, Gourami (*Osphroneus*), and Guppy (live bearer). Nutrition and types feed for aquarium fishes, Use of live fish feed organisms in Ornamental fish culture. Methods and techniques involved in the formulation of fish feed. Fish Transportation: Live fish packing and transport, Common diseases of

aquarium fishes and their management. Establishment of commercial ornamental fish culture unit,

**Activity:** field visit to an ornamental fish breeding Centre to understand breeding practices of various aquarium fishes.

**Module 3 Quail farming ( *Coturnix coturnix* )** **10 Hrs**

Introduction, care of quail chicks, care of adult quails, care of breeding quails ,ration for quail, care of hatching eggs, health care, use of quail egg and meat, Sources of quality chicks.

**Activity:** Visit to a quail farm or viewing a quail documentary to familiarize the quail farming practices

**Module 5 Vermiculture and composting** **12 Hrs**

Introduction, ecological classification of earth worms, Life history, Species of earth worms used for vermiculture, Preparation of vermibed; Preparation of vermicompost, Preparation of vermish, Maintenance and management of vermicomposting unit, Role of vermiculture in solid waste management.

**Activity:** - Preparation of a vermiculture unit or visit to a vermicomposting unit.

**Module 6 Apiculture** **18 Hrs**

Definition, Uses of bees, species of bees cultured, organization of honey bee colony, bee keeping methods (modern method only) and equipments, management and maintenance of an apiary-growth period, dividing the colony, uniting two colonies, replacing old queen with new queen, honey flow period, Bee pasturage, Death period, Enemies of bees, Bee diseases, uses of honey and wax, Apitherapy, Propolis, Royal jelly, Agencies supporting apiculture.

**Activity:** Identify different types of honey bees and rearing equipments

**Field visit and report Submission**

Field visit and report writing on any two items are taken for internal evaluation, instead of assignment and seminar. Conduct a workshop on various cultural practices and the preparation of byproducts.

**References**

1. Applied Zoology, Study Material Zoological Society of Kerala, CMS College Campus, Kottayam.
2. Addison Webb (1947), Bee Keeping- for profit and pleasure, Museum Press, agro bios India Ltd.
3. Alka Prakash (2011), Laboratory Manual of Entomology, New age International, New Delhi.