First Semester

Details of course: - Skill Enhancement Course-1 (Applied Aquaculture) BT 103

Course Title	Course Structure			Pre-Requisite
Applied Aquaculture (BT 103)	L: 1	T: 0	P: 2	Nil

Course Objective:

- To give first-hand training on various aspects of Aquaculture.
- To enhance quality aqua crops production.
- Skilled manpower development.
- Employment generation.

Course Outcome:	
I.	Gain working knowledge of economically aquatic organisms.
II.	Acquire skills for setting up an aquarium and cultivating ornamental fishes.
III.	Understand the role of fishes in the environmental management.
IV.	Well versed in technology-based aquaculture systems like recirculating aquaculture systems, aquaponics systems, and advances in seed production and feed production processes.

S.NO	Detail Contents	Contact Hrs.
1	**Introduction to Aquaculture:** Designing (layout) and drawing of a self-sustainable Aquaculture farm, Identification of cultivable finfishes and shellfishes and drawing of their pictures, Collection, and identification of various freshwater aquatic plants, Understanding of the role of different aquatic plants in aquaculture, Identification of harmful aquatic insects and their remedial measures, Identification of various phytoplankton and zooplankton.	3
2	**Recirculating Aquaculture System (RAS) and water Quality management:** Designing of a Recirculating Aquaculture System (RAS) and understanding of functions of its various parts in the maintenance of water quality. Designing of an Aquaponics System and its role in the sustainable aquaculture development. Fish Breeding, Construction of a fish aquarium, Maintenance of one Aquarium with fish during the Course tenure, Value addition in aquacrops and their preservation. Study of major water quality parameters viz., temperature, pH, dissolved oxygen, free carbon dioxide, alkalinity, and ammonia in a fish culture pond.	3
3	**Live Feed Culture and Feed Formulation**: Culture of live food organisms, Culture of any fish larvae and their feeding, Selection of non-conventional ingredients for the formulation of fish feed, the study of biochemical composition (protein, lipid, carbohydrates, ash) contents of the ingredients, Formulation of fish feed using locally available ingredients, feeding techniques: hand feeding, bag feeding, demand feeding etc.,	3
4	**Aquaculture Site Visit:** Visits to the local Fish market to get exposure to the various fishes, visit to a fish farm, Exposure to advanced aquacultural systems, viz. Recirculating Aquaculture System, Aquaponics System, visit to Pearl culture facility, visit to a National Institute, Visit to a fish processing industry.	3

5	**Aquaculture in Practice:** First hand working experience with fish (minimum 15 days) in a fish farm/institute/laboratory, Preparation of a project proposal in any area of aquaculture for financial support.	2
Total		14

Books:

S. No.	Name of Books / Authors/ Publishers
1	AOAC, Association of Official Analytical Chemists. 2000. Official Methods of Analysis. Washington, DC: Association of Official Analytical Chemists Inc.
2	APHA, American Public Health Association. 2012. Standard Methods for the Examination of Water and Waste Water. 22 nd ed. Washington DC: American Public Health Association, American Water Works Association, Water Environment Federation.
3.	Pillay, T. V. R. 2005. Aquaculture. Principles and Practices. Blackwell Publishing, New Delhi, India.
4.	Chakrabarti, R. and Sharma, J. G. 2008. Aquahouse. New Dimension of Sustainable Aquaculture. DIPAS, Indian Council of Agricultural Research, New Delhi, India.
5	Holt, G. J. 2021. Larval Fish Nutrition. Willey-Blackwell, UK.