



SRI Y.N.COLLEGE (AUTONOMOUS) NARSAPUR, W.G.DIST.

Affiliated to AdikaviNannaya University) Trice accredited by NAAC with 'A' Grade

Recognized by UGC as College with Potential for Excellence

NARASAPUR – 534 275

AQUACULTURE TECHNOLOGY COURSE

(2017 – 2018 Batch)

I B.Sc AZC

SEMESTER-I

PAPER-1

BASIC PRINCIPLES OF AQUACULTURE

SYLLABUS

UNIT-I: INTRODUCTION

- 1-1 Concept of Blue Revolution – History and definition of Aquaculture
- 1-2 Scope of Aquaculture at global Level, India and Andhra Pradesh
- 1-3 Fresh water aquaculture, brackish water aquaculture and mariculture
- 1-4 Different Aquaculture systems – Pond, Cage, Pen, Running water, Extensive, Intensive and Semi-Intensive Systems and their significance. Monoculture, Polyculture and Monosex culture systems.

UNIT-II: POND ECOSYSTEM

- 2-1 General Concepts of Ecology, Food Chains
- 2-2 Lotic and lentic systems, streams and springs
- 2-3 Importance of Plankton and Benthos in culture ponds.
- 2-4 Concepts of Productivity, estimation and improvement of productivity.

UNIT-III: TYPES OF FISH PONDS

- 3-1 Classification of ponds based on water resources – spring, rain water, flood water, well water and water course ponds.
- 3-2 Functional classification of ponds – nursery, rearing, production, stocking and quarantine ponds.
- 3-3 Hatchery design – Fish hatchery.

UNIT-IV: POND PREPARATION

- 4-1 Important factors in the construction of an ideal fish pond – site selection, topography , nature of the soil, water resources
- 4-2 Lay out and arrangements of ponds in a fish farm

UNIT-V: POND MANAGEMENT FACTORS

- 5-1 Need of fertilizer and manure application in culture ponds; Role of nutrients; NPK contents of different fertilizers and manures used in aquaculture; and precautions in their application.
- 5-2 Physico-chemical conditions of soil and water, (PH, temperature, depth, turbidity, light) to increase oxygen and reduce ammonia & hydrogen sulphide in culture ponds; correction of PH.
- 5-3 Eradication of predators and weed control – advantages and disadvantages of weed, weed plants in culture ponds, aquatic weeds, weed fish, toxins used for weed control and control of predators.

PRACTICAL SYLLABUS:-

- 1. Estimation of Carbonates, Bicarbonates in water samples
- 2. Estimation of dissolved oxygen
- 3. Study of algal blooms and their control
- 4. Collection & identification of zooplankton and phytoplankton
- 5. Study of aeration devices.
- 6. Collection and study of aquatic weeds
- 7. Field survey of nearby habitat for dietary dependency on and requirement



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(2017 – 2018 Batch)

I B.Sc AZC

Semester – II

Paper - II

BIOLOGY OF FIN FISH & SHELL FISH

SYLLABUS

UNIT – I : GENERAL CHARACTERS AND CLASSIFICATION OF CULTIVABLE FIN AND SHELL FISH.

- 1-1 General characters and classification of fishes up to the classes.
- 1-2 Fish, crustaceans and molluscs of commercial importance.
- 1-3 Sense organs of Fishes.
- 1-4 Specialized organs in Fishes – electric Organ, Venom and Toxins.
- 1-5 Buoyancy in Fishes – Swim bladder or air bladder.

UNIT – II : FOOD, FEEDING AND GROWTH

- 2-1 Natural Fish Food, Feeding habits, Stimuli for Feeding, gut content analysis, structural modifications in relation to feeding habits.
- 2-2 Principles of age and growth determination, Growth rate measurement – scale method, otolith method.
- 2-3 Length – weight relationship, condition factor.

UNIT – III :REPRODUCTION BIOLOGY

3-1 Breeding in Fishes, breeding places, breeding habits, breeding in natural environment and in artificial ponds.

3-2 Induced breeding in fishes (Fresh water)

UNIT – IV : DEVELOPMENT

4-1 Parental care in Fishes, Ovo – Viviparity, Oviparity, viviparity, nest building and brooding.

4-2 Embryonic and larval development of Fish.

4-3 Embryonic and larval development of Shrimp.

4-4 Environmental factors affecting reproduction and development of cultivable fish fishes.

UNIT – V : HORMONES AND GROWTH

5-1 Endocrine system in fishes.

5-2 Neurosecretory cell, ovary and chromatophores.

5-3 Moulting in crustacean shell fish.

PRACTICAL SYLLABUS :-

1. Study of mouth parts in herbivorous and carnivorous fishes.
2. Comparative study of digestive system of herbivorous and Carnivorous fishes.
3. Length – Weight relationship of fishes.
4. Gut content analysis in fishes.
5. Mouth parts and appendages of cultivable prawns.
6. Study of eggs of fishes, shrimps, prawns.
7. Embryonic and larval development of fish.
8. Study of gonads maturity and fecundity in fishes.
9. Observation of Crustacean larvae.
10. Observation of Molluscan larvae.