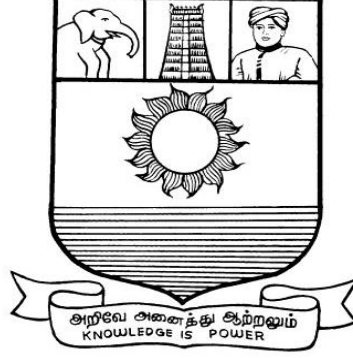


மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
திருநெல்வேலி – 627 012

Manonmaniam Sundaranar University
Thirunelveli – 627 012.



கல்விசார் நிலைக்குழுக் கூட்டம்

**MEETING OF THE STANDING COMMITTEE ON
ACADEMIC AFFAIRS HELD ON 09.02.2017**

**Syllabus for Diploma in Aquaculture Technology Course offered
through Directorate of Vocational Education
(Community Colleges and Extension Learning Programme)
from 2017 - 2018**

Course Code: 5211

DIPLOMA IN AQUACULTURE TECHNOLOGY

SCHEME OF EXAMINATION

Subject code	Title of the Paper	Credit	Hours	Passing Minimum
Semester I				
C17AQ11/E17AQ01	Introduction to Aquaculture Technology	6	90	40/100
C17AQ12/E17AQ02	Fresh water Aquaculture	6	90	40/100
C17AQ13/E17AQ03	Mariculture	6	90	40/100
C17CE10/E17CE10	Communicative English	6	90	40/100
C17AQP1/E17AQP1	Practical I - Covering first 3 papers	6	90	40/100
Semester II				
C17AQ21/E17AQ04	Hatchery Technology	6	90	40/100
C17AQ22/E17AQ05	Fish Pathology and Health Management	6	90	40/100
C17LS23/E17AQ05	Life skill	6	90	40/100
C17AQ24/E17AQ06	Live feed and Artificial feed Technology	6	90	40/100
C17AQP2/E17AQP2	Practical II - Covering first 3 papers	6	90	40/100

Eligibility for admission: Pass in 12th std examination conducted by the Govt. of Tamil Nadu Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination.

Examination: Passing Minimum for each paper is 40%. Classification will be done on the basis of percentage marks of the total marks obtained in all the papers and as given below:

- 40 % but less than 50 % - Third class
- 50 % but less than 60 % - Second class
- 60 % and above - First class

Syllabus

First Semester:-

- Paper I - Introduction to Aquaculture Technology
- Paper II - Fresh water Aquaculture
- Paper III - Mariculture
- Paper IV - Communicative English
- Paper V - Practical 1- Covering first 3 Papers

Second Semester:-

- Paper VI - Hatchery Technology
- Paper VII - Fish Pathology and Health Management
- Paper VIII - Life Skill
- Paper IX - Live feed and Artificial feed Technology
- Paper X - Practical II-Covering first 3 papers

***(Semester Pattern for Community College Only)**

Diploma in Aquaculture Technology

Semester I

(C17AQ11/E17AQ01)Paper I: Introduction to Aquaculture Technology

Unit1:What is Aquaculture? - Objectives of Aquaculture- History of Aquaculture, Scope, Present status & Characteristics Aquaculture.

Unit 2: Type of Culture system: Traditional, Extensive, Modified extensive, Semi intensive, Intensive & Super intensive & their management.

Unit 3: Different kinds of Aquaculture- Pond culture (Fresh water & Brackish water ponds) - Running water culture- Re circulation culture- Culture in rice fields- Culture in race ways, Cages, Pens & Enclosures.

Unit 4: Finfish culture- Mono Culture- Poly culture- Integrated culture system.

Unit5:Types of Ponds- Hatching, Nursery, Rearing, Stocking, Brood stock ponds and their Maintenance & Management.

References:

1. Pillary TVR & M.A Dill. Advance in Aquaculture. Fishing news (Books) Ltd. England 1979.
2. Stickney R. R. Principles of warm water Aquaculture. John wiley& Sons Inc.1979.
3. Helpher B & Y. Prugim. Commercial Fish Farming. Jhonwilley& Sons Inc. 1981.

(C17AQ12/E17AQ02)Paper II: Fresh water Aquaculture

Unit 1: Fresh water Aquaculture Resources- Ponds, Tanks, Lakes, reservoirs- Carrying capacity of ponds.

Unit 2: Nursery Rearing, Growout ponds preparation & Management- Control of Aquatic weeds, Algal blooms, Predatory fishes & Weed fishes.

Unit 3: Pond preparation, Liming fertilization/Manuring, use of Biofertilizers, Supplementary feeding- Selection, transportation and accumulation of seed & Water quality management.

Unit 4: Traits of important cultivable Finfish & Shell fish and their culture methods- Indian major Carps, Exotic carps, air breathing fishes, Cold water fishes, Fresh water prawn & Mussels.

Unit 5: Use of Agro industrial waste & Biofertilizers in Fresh water aquaculture- Composite fish culture system of major Carps. Economics of different culture practices.

References:

1. Rath. A. K. Fresh water aquaculture.
2. Sattavamet *al.*, Manual of Fresh water aquaculture.
3. Huet M, text book of Aquaculture.

(C17AQ13/E17AQ03)Paper III: Mariculture

Unit1: Resources for shore based Aquaculture & Sea farming in India – Traits of important cultivable Fish & Shellfish (Seabass, Mullet, Milk fish, Grouper, Snappers, Pearl Spot, Tiger Shrimp, White Shrimp, Mud Crab, Mussels, Clams, Oysters, and Seaweed etc).

Unit 2: Shore based Aquaculture system- Traditional type (Paddy cum fish culture), Semi intensive and Intensive Aquaculture practice of commercially important species of Finfish & shellfish.

Unit 3: Methods of Aquaculture- Rafts, Racks, Cages, Poles & Ropes- Seed resources and Seed collection methods.

Unit 4: Site selection & Construction of Marine ponds- Preparation of ponds, Pond productivity and Water & Soil quality management.

Unit 5: Estimation of growth & Survival of cultivable organisms-Seaweed culture, Pearl culture, Sea-ranching.

References

1. Pillary T V R – aquaculture Principle & Practice.
2. Cheg L C – Aquaculture in Taiwan.
3. Milne P H – Fin & Shellfish farming in coastal water.
4. Ivensan E S – Farming the edge of the sea.

(C17CE10/E17CE10)Communicative English

Unit I: Learning context

Concept of learning – Learning style –Grammatical framework – sentence framing – paragraph and texts

Unit II: Reading

Basic concept – Purposes of reading-Decoding-Reading materials – Barriers of reading

Unit III: Writing

Basic concept-Writing style-Terminology-stages-English spelling and punctuation – Written texts

Unit IV: Speaking

Language functions-Conversation- Features of spoken English – Types of English course: functional English, English literature, advance English – Phonetic

Unit V: Developing Communication Skills

Meaning –Classroom presence- Features of developing learning process- Practical skills and Listening- uses of communicative English

References

1. Raman,m.&S.Sharma (2011) communication skills,OUP,New Delhi: India
2. Lata,P.&S.Kumar(2011) communication skills,OUP,New Delhi: India,
- 3.Leech,G&J.Svartvik(2002) A communicative grammar of English,Pearson,India,
4. Sethi,J. and P.V. Dharmija (2007) A course in Phonetics and spoken English.Second edition, Prentice hall: New Delhi

(Covering the first three papers)

1. Identification of cultivable fresh water Finfish & Shell fish
2. Collection and identification of Aquatic weeds, Insects & Predatory Fish
3. Eggs & Larval forms of Fish and Shrimp
4. Estimation of Planktons
5. Identification of cultivable Brackish water/ Marine Finfish & Shell fish
6. Collection & Identification of commercially important Seeds of Finfish and Shell fish
7. Estimation of pH and Temperature of pond water
8. Estimation of salinity of pond water
9. Estimation of Dissolved oxygen in pond water

Semester II

(C17AQ21/E17AQ04)Paper VI: Hatchery Technology

Unit1: Hatchery management & Seed production of Carps – Hypophysation- Pituitary gland Collection & Preservation – brood stock management – Dosage & Injection of Pituitary gland – Nursery rearing of Carp seeds.

Unit 2: Transportation of Fish seeds – Methods of transportation, Use of Anaesthetics, Bund breeding techniques and its type.

Unit3:Seed production andNursery rearing of Trout, Air breathing Fishes, Mulletts, Tilapia, Sea bass etc.

Unit4: Seed production & Nursery rearing of Penaeid shrimp and Fresh water Prawn – Eye stalk ablation technique – Hatchery operation of Oysters, Clams, Crabs and Lobsters.

Unit 5: Culture of Fish food organism – Microalgal culture, Artemia culture, rotifer culture – Disease management in Hatcheries – Quality assessment of seeds.

Reference

1. Chodar S L – Hypophysation in Indian major Carps
2. Htchery operation of Penaeid Shrimps – CMFRI publication
3. Sea Fishes – MPEDA publication
4. Boney A. D. – Phytoplankton
5. Harvey B J & Hoar W S – Principle & Practices of induced Fish breedi

(C17AQ22/E17AQ05)Paper VII: Fish pathology and Health management

Unit 1: Introduction to fish diseases – Pathology & Parasitology, Categories of diseases – Protozoan diseases in Finfish and Shell fish.

Unit 2: Fungal diseases in Finfish and Shell fish – Viral diseases in Fin fish and shell fish.

Unit 3: Nutritional pathology – Deficiency diseases due to Vitamins and Minerals – Aflatoxins and Dinoflagellates – Genetically and Environmentally induced diseases.

Unit 4: General Preventive methods and Prophylaxis against the disease – Good pond management practices – Eco friendly & Sustainable aquaculture practices.

Unit 5: Methods of Pathological examination of Fish and Infectious diseases. Production of disease free seeds. Good feed management.

References

1. R. Ramachandran Nair – Encyclopedia of Fish disease.
2. K. P. Biswas – Prevention and Control of Fish and Prawn disease.
3. B. K. Mishra *et al.*, - Disease management in Fresh water Fish culture.
4. R. J. Roberts – Fish pathology.

**(C17LS 23/E17LS05)LIFE SKILL
(Common to All Courses)**

5. **UNIT- I ATTITUDE** : Positive thinking – Goal setting – Problem Solving and Decision making – Leadership and Team Work.
6. **UNIT- II COMMUNICATION SKILLS:** Oral communication: Concept of English language – Fluency – Verbal communication in official and public situations.
7. **UNIT-III COMMUNICATION SKILLS:** Written Communication: Comprehension – Writing a formal letter like application for Job, enquiry, reply, complaint and such others – preparation of Resume, Curriculum Vitae.
8. **UNIT- IV COMPUTING SKILLS – 1:** Introduction to Computers, its various components and their respective functions – Memory storage devices – Microsoft (MS) Office – MS Word.
9. **UNIT - V COMPUTING SKILLS – 2** Internet Basics – Origin of Internet – MODEM – ISP – Upload – Download – e-mail – Origin of worldwide web (www) Browsers – Search engines.
10. Reference books:
11. Life skill, Manonmaniam Sundaranar University Publications Division (2011)

(C17AQ24/E17AQ06)Paper IX: Live feed and Artificial feed Technology

Unit 1: Natural foods and its importance in Aquaculture, Nutritional quality of commonly used fish food organism.

Unit 2: Fish food organisms – Phytoplankton and Zooplakton and their role in larval nutrition.

Unit 3: Mass culture technique – Method of collection, Maintenance and Rearing fish food organisms – Culture of Micro algae, Rotifers, Artemia, Copepods, Nematodes etc.

Unit 4: Formulations and Preparations of artificial feeds for larval rearing and Micro particulate diets.

Unit 5: Formulation and Preparations of Artificial feeds for Growoutsystem, Feed ingredients – Supplementary feed, Feedingpractices & Feed storage.

References:

1. Borey A. D. – Phytoplankton
2. Live feed organisms – MPEDA publication.

(C17AQP2/E17AQP2)Paper X: Practical- II (Covering the first three papers)

1. Identification of Maturity stages of Shrimp / Fish
2. Collection of Pituitary gland
3. Identification of eggs and larval stages of Shrimp
4. Analysis of Artificial feed ingredients
5. Preparation of Artificial feed
6. Identification of Live feed organism
7. Hatching of Artemia
8. Identification of diseased Fish / Shrimp
9. Collection & Identification of Parasites