B.Voc Commercial Aquaculture

2020-23 Batch

Syllabus

Module 1:- Principles of Aquaculture Practices: (4 hrs)

History, definition, scope and significance of aquaculture. Cultivable freshwater, brackish water and marine fishes. Aquaculture - Global and Indian Scenario. Physico-chemical conditions of soil and water optimum for culture. Management of water and soil quality parameters. Fertilizations and manuring.

Module 2:- **Types of Aquatic Ecosystems: (3 hrs)**

River, estuaries, backwaters, lagoons, reservoirs, ponds, lakes and wetlands.

Module 3:- Types of Aquaculture Systems: (5 hrs)

Fresh water, brackish water and marine aquaculture systems. Fish culture in ponds, cages and pens, raceways, indoor tanks, canals, silo culture, sewage-fed fish culture. Monoculture, polyculture, composite fish culture. Integrated fish farming with duck, pig, poultry, livestock, rice. Recirculatory Aquaculture Systems. Ornamental fish culture.

Module 4:- Food and Feeding Habits in Fishes (3 hrs)

Types of feeding habits in fishes: Herbivore, Carnivore, Omnivore, plankton feeder. Natural food in fishes: Plankton, Nekton, Benthos, Detritus. Classification based on the trophic niches: Surface feeder, column feeder, bottom feeder; Depending on food preference :).

Module 5:- Fisheries Governance and Management (3 hrs)

Fisheries Institutes: Different organizations and institutes involved in fisheries and aquaculture research and development – FAO, NACA, SEAFDEC, INFOFISH, ICLARM,

Institutes under ICAR, CSIR; NABARD, Ministry of Agriculture and Ministry of Commerce, Aquaculture Authority of India, NRSA, INCOIS etc. State organizations like Matsyafed, FFDA, BFFDA, ADAK, FIRMA and State Fisheries Department.

REFERENCES

1. BALACHANDRAN, K K Postharvest technology of fish and fish products
2. CHANDRASEKHAR, Y S (Dr.) Fish nutrition in aquaculture
3. GOVINDAN, T K Fish processing technology
4. HALVER, JOHN E & HARDY, RONALD W Ed. Fish nutrition
5. JHINGRAN, 1998, Fish and fisheries of India
6. JOHN E. HALVER, RONALD W. HARDY (2013), Fish in Nutrition, 3rd Edition by, Elsevier publication.
7. KHANNA, S S An introduction to fishes
8. KHANNA, S S& NEERJA KAPOOR (Dr.) An introduction to fishes
9. LOVELL, TOM ed. Nutrition and feeding of fish
10. PILLAI T V R., Principles of aquaculture
11. RAMA MOHANA RAO, K Export marketing of marine products
12. RONALD W. HARDY, Fish in Nutrition (2012), 4th Edition, Elsevier publication.
13. SANA S, DE SILVA, TREVOR A ANDERSON (2018), Fish Nutrition in Aquaculture.

Timetable

SEMESTER	Section 1	Section 2	Section 3	Section4

7/09/2020	Dr Dona P S	Dr Freda Sebastian	Dr Ambily V	Dr Sary P S
8/09/2020	Dr Freda Sebastian	Dr Dona P S	Dr Sary P S	Ms Haritha
9/09/2020	Dr Dona P S	Dr Sary P S	Dr Freda Sebastian	Ms Haritha V S
10/09/2020	Dr Freda Sebastian	Dr Dona P S	Dr Sary P S	Ms Haitha VS
14/09/2020	Dr Dona P S	Ms Haitha V S	Dr Freda Sebastian	Dr Sary P S

Students list

1	Class No.	Name of the Student
2	202201	ANANDHU PAI S
3	202202	ANJANA C A
4	202203	ANN MARY XAVIER
5	202204	MANU T M
6	202205	ATHUL SABU
7	202206	ANN MARY SIBI
8	202207	MARY DENIYA K G

9	202208	SUBIN K.S
10	202209	VISHAK JOSEPH
11	202210	SREELEKSHMI UNNIKRISHNAN NAIR
12	202211	ATHUL KRISHNA R
13	202212	NIKITTA PHILOMINA M P
14	202213	ANKITHA AJITH
15	202215	HARISHMA UNNIKRISHNAN
16	202216	AVANI S
17	202217	BLOSSOM BOSE
18	202219	SINDHYA ROY
19	202220	MERIN MARTIN
20	202221	JOSEPH SEBASTIAN

21	202222	CHRISTY LINDAN
22	202223	ALEN ANGELOSE
23	202224	ASHIK IMMANUVEL
24	202225	KRISHNA P N
25	202226	GEEMOL K S
26	202227	NOYEL M S
27	202228	ALEN GILSON
28	202229	ABHIJITH P U
29	202230	ASTRIN GEORGE
30	202231	TANIYA BONEY
31	202232	GOKULDAS C S
32	202233	REOSEMARY SEBASTIAN

33	202234	NIKITHA S NELSON
34	202235	SAVIO FRANCIS
35	202236	TIMIYA V N
36	202237	ABHIRAMI ULLAS
37	202238	NIKHIL S PILLAI
38	202239	BEN TOM MICHAEL
39	202240	RIZWANA BASHEER
40	202241	THOMASKUTTY JOSEPH
41	202242	MUZAMMIL N
42	202243	MERIL TREESA
43	202244	ABHIRAM S

2021-24 Batch

Syllabus

Module 1:- Principles of Aquaculture Practices: (4 hrs)

History, definition, scope and significance of aquaculture. Cultivable freshwater, brackish water and marine fishes. Aquaculture - Global and Indian Scenario. Physico-chemical conditions of soil and water optimum for culture. Management of water and soil quality parameters. Fertilizations and manuring.

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Aquaculture Authority of India, NRSA, INCOIS etc. State organizations like Matsyafed, FFDA, BFFDA, ADAK, FIRMA and State Fisheries Department.

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10. PILLAI T V R., Principles of aquaculture
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12. RONALD W. HARDY, Fish in Nutrition (2012), 4th Edition, Elsevier publication.
13. SANA S, DE SILVA, TREVOR A ANDERSON (2018), Fish Nutrition in Aquaculture.

Time Table

SEMESTER	Section 1	Section 2	Section 3	Section4

11/09/2020	Ms Sangamithra E R	Ms Cicily Mable P J	Dr Ambily V	Dr Sary P S
12/09/2020	Ms Cicily Mable P J	Ms Sangamithra E R	Dr Sary P S	Dr Ambily V
13/09/2020	Ms Sangamithra E R	Dr Sary P S	Ms Cicily Mable P J	Dr Ambily V
14/09/2020	Ms Cicily Mable P J	Ms Sangamithra E R	Dr Sary P S	Ms Haitha VS
15/09/2020	Ms Sangamithra E R	Dr Ambily V	Ms Cicily Mable P J	Dr Sary P S

Student List

Sl NO	Roll number	Students name
1	212620	Amritha Anu
2	212621	Amal K V
3	212622	Aathira
4	212623	Jiss Mary
5	212627	Robin Tomy
6	212628	Adarsh Sebastin
7	212629	Akash Sebastian

B.Voc Fish Post Harvest Technology and Management

2020-23 Batch

Syllabus

Module 1:-

Introduction to nutritional quality of fish (3hrs)

Fish in human nutrition and its quality requirements- Nutritional quality of fish- Proximate composition of fish- Spoilage of fish and control measures.

Module 2:-

Fish preservation techniques (4 hrs)

Onboard handling and preservation of fish- methods of icing- Freezing Technology: Basic principles and type of freezing- Cold storage of frozen fish

Module 3:-

Curing and thermal processing technique (5hrs)

Drying: Basic principles, Commercial fish drying methods, Spoilage of dried fish. Principle and

types of salting-Smoking: Principles and types of smoking- Thermal processing- Canning: steps

involved

Module 4:

- Value added and by-products (4hrs)

Value added and by-products- fish /clam/prawn pickle- fish /clam/ prawn cutlet, fish wafers,

fish sausage, fish ball, fish finger, fish soup powder. Ffishery by-products: Fish Meal, FPC, fish oil, fish maws and isinglass, fish silage, shark fin rays, Chitin and Chitosan, Squalene, Ambergris, etc.

Module 5:

- Packaging and transportation (2hrs)

Packing of fresh and frozen fish for consumers- Packaging materials- Labelling and printing of

packaging materials- Transportation of raw fish to local markets and processing centres

Time Table

SEMESTER	Section 1	Section 2	Section 3	Section4
7/09/2020	Dr Dona P S	Dr Freda Sebastian	Dr Ambily V	Dr Sary P S
8/09/2020	Dr Freda Sebastian	Dr Dona P S	Dr Sary P S	Ms Haritha
9/09/2020	Dr Dona P S	Dr Sary P S	Dr Freda Sebastian	Ms Haritha V S
10/09/2020	Dr Freda Sebastian	Dr Dona P S	Dr Sary P S	Ms Haitha VS
14/09/2020	Dr Dona P S	Ms Haritha V S	Dr Freda Sebastian	Dr Sary P S

Student List

Sl No:	Class No.	Name of the Student
1	202601	Edwin Peter
2	202605	Sarath Sabu
3	202606	Celin Christeena
4	202607	Athul C M
5	202608	Megha C B
6	202609	Stefeena K T
7	202611	Ann Aleena Lopez
8	202612	Akash K B
9	202614	Akshaya S
10	202616	Sachin Ramachandran
11	202618	Binil Bosco M B
12	202619	Augustine Melin M X

13	202620	Gowri Nandana S
14	202621	D Anitha
15	202622	Sandra Sabu
16	202624	Lal C Y
17	202628	Vyshnavi T A
18	202629	Umer Afreed K S
19	202630	Joyal Johnson
20	202631	Alan Antony
21	202632	Aneeta Philomina
22	202633	Alen Moncy George
23	202634	Kevin Antony
24	202636	Gladwin Xavier
25	202638	Sindhura T R

2021-24 Batch

Syllabus

Module 1:-

Introduction to nutritional quality of fish (3hrs)

Fish in human nutrition and its quality requirements- Nutritional quality of fish- Proximate composition of fish- Spoilage of fish and control measures.

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Drying: Basic principles, Commercial fish drying methods, Spoilage of dried fish. Principle and

types of salting-Smoking: Principles and types of smoking- Thermal processing- Canning: steps

involved

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fish sausage, fish ball, fish finger, fish soup powder. Fishery by-products: Fish Meal, FPC, fish oil, fish maws and isinglass, fish silage, shark fin rays, Chitin and Chitosan, Squalene, Ambergris, etc.

Module 5:

- Packaging and transportation (2hrs)

Packing of fresh and frozen fish for consumers- Packaging materials- Labelling and printing of packaging materials- Transportation of raw fish to local markets and processing centres

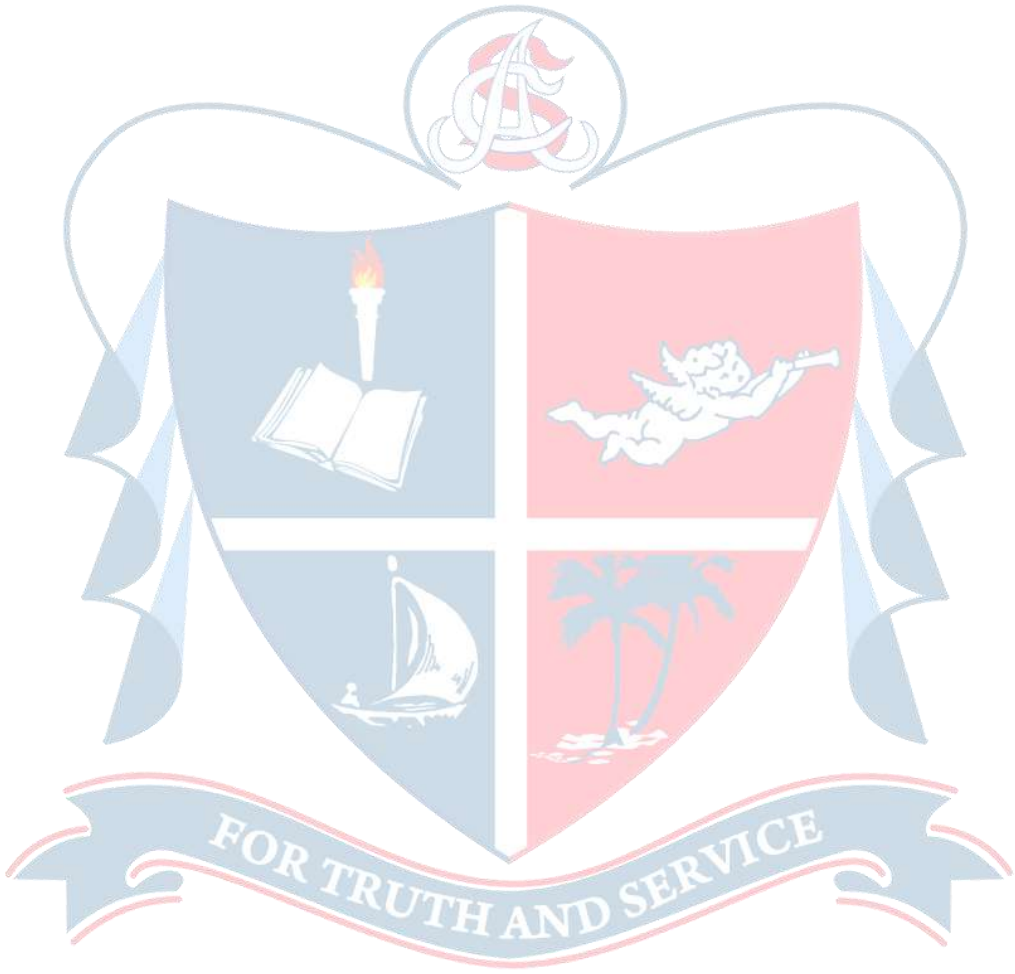
Time Table

SEMESTER	9:00 – 9:45	10:00 – 10:45	10:50 – 11:35	11.45 - 12. 30
27th Sep 2021	Ms Sangamithra E R	Dr Sary P S	Dr Ambily V	Ms Cicily Mable
28th Sep	Dr Sary P S	Ms Sangamithra E R	Ms Cicily Mable	Dr Ambily V
30th Sep	Dr Ambily V	Dr Sary P S	Ms Sangamithra E R	Ms Cicily Mable
2nd Sep	Ms Cicily Mable	Dr Ambily V	Dr Sary P S	Ms Sangamithra E R

3rdSep	Dr Ambily V	Ms Cicily Mable	Ms Sangamithra E R	Dr Sary P S
4th Sep	Ms Cicily Mable	Ms Sangamithra E R	Dr Ambily V	Dr Sary P S
5th Sep	Ms Sangamithra E R	Ms Cicily Mable	Dr Sary P S	Dr Ambily V
6th Sep	Dr Ambily V	Ms Sangamithra E R	Dr Sary P S	Ms Cicily Mable

Students list

Sl NO	Class No	Name
1	212601	Arya R
2	212602	Nived M.S
3	212603	Kareena Sojan
4	212604	Jyothi Lakshmi PM
5	212606	Shabana V S
6	212007	Arathy A


FOR TRUTH AND SERVICE

ST.ALBERT'S COLLEGE ERNAKULAM

(AUTONOMOUS)

Affiliated to Mahatma Gandhi University, Kottayam, Kerala

BRIDGE COURSE SYLLABUS FOR UNDERGRADUATE PROGRAMME

BACHELOR OF SCIENCE

IN

AQUACULTURE

(B.Sc. Aquaculture)

(WITH EFFECT FROM 2020 ADMISSION)

RESEARCH DEPARTMENT OF FISHERIES AND AQUACULTURE

LIST OF FACULTY

Sl.No:	Name	Designation	Qualification
a)Chairman: *(Head of the Department concerned)*			
1	Dr.Ajith Thomas John	Associate Professor in Aquaculture	M.Sc.,Ph.D.
b)Teachers: *(Theentirefacultyofeachspecialization)*			
2	Dr.Bijoy V.M.	Assistant Professor in Aquaculture(Gr.III)	M.F.Sc.,Ph.D.,NET
3	Dr.Ginson Joseph	Assistant Professor in Aquaculture(Gr.II)	M.Sc.,Ph.D.,NET
4	Dr.Vibin M.	AssistantProfessorin Biochemistry(Gr.II)	M.Sc.,Ph.D.
5	Sri.Jose Emmanuel L.A.	Assistant Professor	M.Sc.,M.Phil.
6	Sri.Sayeed Mohamed P.K.	Assistant Professor	M.Sc.,NET
7	Sri.Sivakumar G.	Assistant Professor	M.Sc.
8	Smt.Preethi Francis	Assistant Professor	M.Sc.
9	Dr.Jithu Paul Jacob	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
10	Smt.Nilanjana Mariya Verghese	Assistant Professor	M.Sc.
11	Dr.Sary P.S.	Assistant Professor	M.Sc.,Ph.D.,NET
12	Dr. Ambily V.	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
13	Smt.Freeda Rebecca Bastian	Assistant Professor	M.Sc.,M.Phil.,NET
14	Dr.Viji C.S.	Assistant Professor	M.Sc.,Ph.D.,NET
15	Smt.Dona P.	Assistant Professor	M.F.Sc.,NET
16	Smt.Anu Thottapilly	Assistant Professor	M.Sc.,M.Phil.,NET
17	Smt. HarithaHaridas	Assistant Professor	M.F.Sc.,NET

TABLE OF CONTENTS

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PREFACE

The pandemic Covid-19 has jeopardised the academic calendars. Though online classes have become the cornerstone of modern education, the majority of the class 12 students were deprived of the same due to various reasons. To bridge the learning gaps that arose due to this pandemic situation, a bridge course would strengthen the fundamentals of the course for which they have chosen to pursue their degree. Bridge courses are aimed at prepping up students mentally, emotionally and academically for a new beginning. Bridge courses are recommended to bridge the learning gaps of students who come from various systems of education.

St. Albert's College (Autonomous)Ernakulam, design the bridge course every year for the new entrants to familiarize them with the fundamentals of the basic subjects and boost their level of confidence which they would endure. It has proved to be one of the best ways of minimizing the difficulties of academics as well as non-academics. It's a comfortable platform for the students to interact with their faculty members and with each other. Towards the end of the course, on the basis of examination/other evaluation strategies, students would be categorized into three groups. (1) Advanced Learners and (2) Average Students and (3) Below average students. Based on this categorisation the students will be given further coaching.

PRINCIPAL

❖ PROGRAMME OBJECTIVES

- Identify and fill the learning gaps in their respective subjects.
- Provide strong foundation in their respective courses
- Active learning with the help of other students.
- To provide adequate time for the transition to hard-core degree courses.
- To help slow learners who have fallen behind to learn to the best of their ability and to bring them back into the mainstream classes as far as possible.

❖ PROGRAMME OUTCOMES

- Helps in bridging the gap between the plus two syllabus (school syllabus and the level needed to understand the applications and concepts in degree course.
- Helps in easy transition from school curriculum to college curriculum.
- Aid in achieving expected competencies in their courses
- Helps to impart basic knowledge to students about the advanced subjects that will be taught to them in the upcoming future.
- After the completion of the bridge course all the students will have a thorough understanding of the basic concepts.

❖ REGULATIONS

The duration of the course is 18 hours with 1 credit.

SYLLABUS

Sl. No.	Title of the Module	Hrs	Credits
1	Introduction to diversity of fishes and features	4	
2	Food and feeding habits of fishes	3	1 credit
3	Commercial important aquaculture species and culture techniques.	4	
4	Introduction to fish Processing	4	
5	Fisheries Management and Economics	3	

COURSE OBJECTIVE

- Introduces students to an integrated approach to fish biology, including morphology of fin fishes and shell fishes
- Students will study how fishes interact with their environment and the wide range of biological adaptations they have evolved to live in a remarkably diverse range of habitats.
- To learn basic concepts of food and feeding habits in fishes
- To learn the commercially important cultivable fishes and culture methods.
- To impart skill-based training to the students on different aspects of fish processing technologies related to production of value added quality fish products and their preservation.
- To deliver a well-developed understanding of the economic science, to acquaint the learner with introductory fisheries Economics, development of fisheries in India

COURSE OUTCOME

- At the end of the course students should:
- Have enhanced knowledge on morphological features of a finfish and shell fishes
- Students get an insight into the culture of different commercially important aquaculture species in freshwater, marine and estuarine.
- The student will be able to know various food and feeding habits in fishes and feedstuff used.
- Students learn how to preserve and process of fishery products and their value additions
- Students should be able to communicate effectively, economic concepts, decision-making, and fisheries, and trade concepts.

COURSE OUTLINE

Module 1:- Introduction to diversity of fishes and features. (4 hrs)

Basic Structural Features of fishes-- external morphology of finishes. General character of shell fishes and molluscs.

Module 2:- Food and feeding habits of fishes.(3 hrs)

Categories of food (Plankton, Nekton, Benthos, Detritus), Depending on trophic niches: Surface feeder, column feeder, bottom feeder; Depending on food preference: Herbivore, Carnivore, Omnivore, plankton feeder).

Module 3:- Commercial important aquaculture species and culture techniques.(4hrs)

Definition of aquaculture, commercially important cultivable fishes in freshwater, marine (mariculture), estuarine. Types of culture systems, Culture methods- mono culture, poly culture, integrated system.

Module 4:- Introduction to fish Processing.(4hrs)

Perishability of seafood- quality factor and freshness of seafood, processing methods- chilling, freezing, canning, drying, curing.

Module 5:- Fisheries Management and Economics.(3hrs)

Introduction to Fisheries management.Role of EIA, MPEDA and CIFT, CMFRI, Kerala state fisheries department and other institutes..Exports of fish and fishery producs, status of seafood export from India.

PEDAGOGICAL TOOLS

1. Lecture
2. Use of model
3. Videos

INTERNAL EVALUATION METHODS (*COMPUISORY)

1. Attendance
2. Assignment- A student shall submit an assignment after completion of course.
3. Internal Exam- The evaluation scheme for bridge course shall contain a Continuous Evaluation (CE) (Internal Evaluation) for 40 marks.One test papers are to be conducted at the end of the course.

REFERENCES

1. John E. Halver, Ronald W. Hardy (2013), Fish in Nutrition, 3rd Edition by, Elsevier publication.
2. Ronald W. Hardy, Fish in Nutrition (2012), 4th Edition, Elsevier publication.
3. Sana S, De Silva, Trevor A Anderson (2018), Fish Nutrition in Aquaculture.
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9. BALACHANDRAN, K K Post_harvest technology of fish and fish products
10. GOVINDAN, T K Fish processing technology
11. RAMA MOHANA RAO, K Export marketing of marine products

TIME TABLE

Date	Time	Faculty Assingned	Module
27. 10. 2020	8. 30am – 9. 30am	Ms. Dona P	Module 1
27. 10. 2020	10.00 am – 11 .00 am	Mr. Sayeed Mohamed P K	Module 3
27. 10. 2020	11.30 am – 12.30 pm	Dr. Bijoy V M	Module 2
28. 10. 2020	9.00 am – 10.00 am	Dr. Ginson Joseph	Module 4
28. 10. 2020	11.30 am – 12.30 pm	Mr. Jose Emmanuel L A	Module3
28. 10. 2020	12.30 pm – 1.30 pm	Dr. Vibin M	Biochemistry
29. 10. 2020	9.30 am – 10.30 am	Mr. Jose Emmanuel L A	Module 3
29. 10. 2020	12.30 pm – 1.30 pm	Ms. Preethi Francis	Module 5
30. 10. 2020	8.00 am – 9.00 am	Ms. Nilanjana Maria Verghese	Module 1
30. 10. 2020	11.30 am – 12.30 pm	Ms. Preethi Francis	Module 5
30. 10. 2020	12.30 pm – 1.30 pm	Ms. Anu Thottappilly	Module 2
03. 11. 2020	9.00 am – 10.00 am	Dr. Jithu Paul Jacob	Module 4
03. 11. 2020	11.30 am – 12.30 pm	Ms. Nilanjana Maria Verghese	Module 1
03. 11. 2020	12.30 pm – 1.30 pm	Dr. Ginson Joseph	Module 4
04. 09. 2020	9.00 am – 10.00 am	Mr. Sayeed Mohamed P K	Module 3
04. 09. 2020	11.30 am – 12.30 pm	Mr. Sivakumar G	Module 1
05. 09. 2020	8.00 am – 9.00 am	Ms. Anu Thottappilly	Module 2
05. 09. 2020	11.30 am – 12.30 pm	Dr. Jithu Paul Jacob	Module 4
06. 09. 2020	9.00 am – 10.00 am	Mr. Sivakumar G	Module 5

LIST OF STUDENTS

B.Sc. Aquaculture 2020 – 23 batch

CLASS NO	STUDENT NAME
201401	ALEENA MARY JOHN
201402	SANDRA JOSEPH
201403	GOURI S MYDHILI
201404	AMAAN SHERIEF
201405	MARY ALINTA T L
201406	EBIN FRANCIS TJ
201407	ARYA MAHESH
201408	ASHWIN CASPER AVAREV
201409	ANN MARIA FRANCIS
201410	SREEMOL T S
201411	PAUL SHARON SIMENTHY
201412	ANCY JOSEPH
201413	CINSTA K T
201414	RIJO SIMON
201415	SIDHARTH T.S
201416	SNEHA VARGHESE
201417	NAISHANA V.Z
201418	SONU P P
201419	OBIL CANESHIOUS V M
201420	SANDHRA K B
201421	HUDHA NAURIN. N
201422	LAKSHMI KANNAN
201423	ALAN BIJU
201424	MASROOR AHMED S N
201425	MIGHEYA RIVYRA

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BRIDGE COURSE SYLLABUS FOR UNDERGRADUATE PROGRAMME

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(WITH EFFECT FROM 2021 ADMISSION)

RESEARCH DEPARTMENT OF FISHERIES AND AQUACULTURE

LIST OF FACULTY

Sl.No:	Name	Designation	Qualification
***a)*Chairman:** *(Head of the Department concerned)*			
1	**Dr.BijoyV.M.**	Assistant Professor in Aquaculture (Gr.III)	M.F.Sc.,Ph.D.,NET
b)Teachers: *(The entire faculty of each specialization)*			
2.	**Dr. Vibin M.**	Assistant Professor in Biochemistry (Gr.II)	M.Sc.,Ph.D.
3.	**Sri. Sayeed Mohamed P. K.**	Assistant Professor	M.Sc.,NET
4.	**Sri. Sivakumar G.**	Assistant Professor	M.Sc.
5.	**Smt. Preethi Francis**	Assistant Professor	M.Sc.
6.	**Dr. Jithu Paul Jacob**	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
7.	**Smt. Nilanjana Mariya Verghese**	Assistant Professor	M.Sc.
8.	**Dr. Sary P. S.**	Assistant Professor	M.Sc.,Ph.D.,NET
9.	**Dr. Ambily V.**	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
10.	**Smt. Sislave K. S**	Assistant Professor	M.Sc.
11.	**Dr.Viji C. S.**	Assistant Professor	M.F.Sc..,Ph.D.,NET
12.	**Smt. Dona P.**	Assistant Professor	M.F.Sc.,NET
13.	**Dr. Saritha S**	Assistant Professor	M.F.Sc..,Ph.D.,NET
14.	**Smt. Cicily Mable**	Assistant Professor	M.Sc.
15.	**Smt. Sangamithra E.R**	Assistant Professor	M.F.Sc.,NET

ACKNOWLEDGEMENT

Sincere gratitude to the Management of St. Albert's College (Autonomous) for establishing a structured Bridge course inFisheries and Aquaculture under autonomy which has been beneficial for first year UG students

Deeply indebted to Dr. Bijoy V.M, Head of the department, for the strong guidance and timely actions that enabled the members to work as a team.

The invaluable services of the following members of the department is also gratefully acknowledged for serving as members in the sub committees to exercise the development of bridge course.

1. Dr. Bijoy V.M., Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam.
2. Sri. Sivakumar G., Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulum.
3. Sri. Sayeed Mohamed P.K., Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulum.
4. Smt. Preethi Francis, Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulum.
5. Smt. Sislave K.S., Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam.
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7. Smt. Nilanjana Mariya Verghese, Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam
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10. Dr. Saritha S, Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam

11. Smt. Cicily Mable, Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam
12. Smt. Sangamithra E.R, Asst. Prof., Research Department of Fisheries and Aquaculture, St. Albert's College,Ernakulam.
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9	Pedagogical tools	12
10	Internal Evaluation Methods	12
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PREFACE

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PRINCIPAL

❖ PROGRAMME OBJECTIVES

- Identify and fill the learning gaps in their respective subjects.
- Provide strong foundation in their respective courses
- Active learning with the help of other students.
- To provide adequate time for the transition to hard-core degree courses.
- To help slow learners who have fallen behind to learn to the best of their ability and to bring them back into the mainstream classes as far as possible.

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- Helps in bridging the gap between the plus two syllabus (school syllabus and the level needed to understand the applications and concepts in degree course.
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- After the completion of bridge course all the students will have a thorough understanding of the basic concepts.

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The duration of the course is 18 hours with 1 credit.

SYLLABUS

Sl. No.	Title of the Module	Hrs	Credits
1	Introduction to diversity of fishes and features	4	
2	Food and feeding habits of fishes	3	1 credit
3	Commercial important aquaculture species and culture techniques.	4	
4	Introduction to fish Processing	4	
5	Fisheries Management and Economics	3	

COURSE OBJECTIVE

- Introduces students to an integrated approach to fish biology, including morphology of fin fishes and shell fishes
- Students will study how fishes interact with their environment and the wide range of biological adaptations they have evolved to live in a remarkably diverse range of habitats.
- To learn basic concepts of food and feeding habits in fishes
- To learn the commercially important cultivable fishes and culture methods.
- To impart skill-based training to the students on different aspects of fish processing technologies related to production of value added quality fish products and their preservation.
- To deliver a well-developed understanding of the economic science, to acquaint the learner with introductory fisheries Economics, development of fisheries in India

COURSE OUTCOME

- At the end of the course students should:
- Have enhanced knowledge on morphological features of a finfish and shell fishes

- Students get an insight into the culture of different commercially important aquaculture species in fresh water, marine and estuarine.
- The student will be able to know various food and feeding habits in fishes and feedstuff used.
- Students learn how to preserve and process of fishery products and their value additions
- Students should be able to communicate effectively, economic concepts, decision-making, and fisheries, and trade concepts.

COURSE OUTLINE

Module 1:- Introduction to diversity of fishes and features. (4 hrs)

Basic Structural Features of fishes-- external morphology of finishes. General character of shell fishes and mollusc.

Module 2:- Food and feeding habits of fishes.(3 hrs)

Categories of food (Plankton, Nekton, Benthos, Detritus), Depending on trophic niches: Surface feeder, column feeder, bottom feeder; Depending on food preference: Herbivore, Carnivore, Omnivore, plankton feeder).

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Definition of aquaculture, commercially important cultivable fishes in freshwater, marine (mariculture), estuarine. Types of culture systems, Culture methods- mono culture, poly culture, integrated system.

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22. 09. 2021	9.00 am – 10.00 am	Ms. Haritha Haridas	Module 4
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22. 09. 2021	12.30 pm – 1.30 pm	Dr. Vibin M	Biochemistry
23. 09. 2021	9.30 am – 10.30 am	Dr. Viji C S	Module 3
23. 09. 2021	12.30 pm – 1.30 pm	Dr. Saritha S	Module 5
24. 09. 2021	8.00 am – 9.00 am	Ms. Nilanjana Maria Verghese	Module 1
24. 09. 2021	11.30 am – 12.30 pm	Dr. Saritha S	Module 5
24. 09. 2021	12.30 pm – 1.30 pm	Ms. Sislave K S	Module 2
28. 09. 2021	9.00 am – 10.00 am	Dr. Jithu Paul Jacob	Module 4
28. 09. 2021	11.30 am – 12.30 pm	Ms. Nilanjana Maria Verghese	Module 1
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29. 09. 2021	9.00 am – 10.00 am	Mr. Sayeed Mohamed P K	Module 3
29. 09. 2021	11.30 am – 12.30 pm	Mr. Sivakumar G	Module 1
29. 09. 2021	12.30 pm – 1.30 pm	Ms. Sislave K S	Module 2
30. 09. 2021	8.00 am – 9.00 am	Dr. Jithu Paul Jacob	Module 4
30. 09. 2021	9.00 am – 10.00 am	Mr. Sivakumar G	Module 5

FOR TRUTH AND SERVICE

LIST OF STUDENTS

B.Sc. Aquaculture 2021 – 24 batch

CLASS NO	STUDENT NAME
211401	ANN VICTORIA
211402	ATHIRA V S
211403	LIYA ROSE JENSON
211404	ARYA RAJESH
211405	CHRISTIN JOHN C S
211406	SRAVAN J
211407	DOYEL BIJU
211408	MUHAMMED JASSIM.M.N
211409	VIVEK CHANDRASEKHARAN
211410	VIGNESH PRADEEP
211411	ANOKH SAJEEV MARATHARA
211413	NAVANEETH FRANCIS
211414	ALEEMA CLEMENT
211415	NILCY MARIYA
211417	AMAL JOHN S
211418	SERIN TERESA JAISON
211419	EMILY K D
211420	MURALI KRISHNA P M
211422	NEHA SHERYL
211423	SREENESH S KAMMATH
211424	SOFIYA CORIYA
211426	IRFAD KHAN P

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IN

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(B.Sc. Industrial Fisheries)

(WITH EFFECT FROM 2020 ADMISSION)

RESEARCH DEPARTMENT OF FISHERIES AND AQUACULTURE

LIST OF FACULTY

Sl.No:	Name	Designation	Qualification
a)Chairman:*(Head of the Department concerned)*			
1	Dr.Ajith Thomas John	Associate Professor in Aquaculture	M.Sc.,Ph.D.
b)Teachers:*(Theentirefacultyofeachspecialization)*			
2	Dr.Bijoy V.M.	Assistant Professor in Aquaculture(Gr.III)	M.F.Sc.,Ph.D.,NET
3	Dr.Ginson Joseph	Assistant Professor in Aquaculture(Gr.II)	M.Sc.,Ph.D.,NET
4	Dr.Vibin M.	AssistantProfessorin Biochemistry(Gr.II)	M.Sc.,Ph.D.
5	Sri.Jose Emmanuel L.A.	Assistant Professor	M.Sc.,M.Phil.
6	Sri.Sayeed Mohamed P.K.	Assistant Professor	M.Sc.,NET
7	Sri.Sivakumar G.	Assistant Professor	M.Sc.
8	Smt.Preethi Francis	Assistant Professor	M.Sc.
9	Dr.Jithu Paul Jacob	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
10	Smt.Nilanjana Mariya Verghese	Assistant Professor	M.Sc.
11	Dr.Sary P.S.	Assistant Professor	M.Sc.,Ph.D.,NET
12	Dr.Ambily V.	Assistant Professor	M.Sc.,M.Phil.,Ph.D.
13	Smt.Freeda Rebecca Bastian	Assistant Professor	M.Sc.,M.Phil.,NET
14	Dr.Viji C.S.	Assistant Professor	M.Sc.,Ph.D.,NET
15	Smt.Dona P.	Assistant Professor	M.F.Sc.,NET
16	Smt.Anu Thottapilly	Assistant Professor	M.Sc.,M.Phil.,NET
17	Smt. HarithaHaridas	Assistant Professor	M.F.Sc.,NET

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06. 09. 2020	9.00 am – 10.00 am	Mr. Sivakumar G	Module 5

LIST OF STUDENTS

B.Sc. Industrial Fisheries 2020 – 23 batch

201501	AMRITHA K M
201502	JOSHNA C S
201503	NAYANA YESUDAS
201504	GOWRI MANIKANDAN
201505	HARIKRISHNAN.K
201506	AJONA J A
201507	RITHU KUMAR K D
201508	ABIYA MARIYAM UMESH
201509	NEHRIN AJLAL
201510	C S DEVIKA
201511	SNEHA MATHEW
201512	ABHIN K
201513	ANN SAVYA
201514	ABHIJITH S
201515	SNEHA MILTON FERNANDEZ
201516	B UNNIKRISHNAN
201517	ALWIN V JOHNSON
201518	PRAVEEN K TOM
201519	ABIL UDAYAN
201520	ANNA ROSE P
201521	ALAN SHAJ S R
201522	ANTONY NIRMAL
201524	ALWIN FRANCIS
201525	MARIA PRINCE
201527	SUBIN S B
201529	DHANYA NETTO S
201530	ASHAMS KUMAR V B PILLAI

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ACKNOWLEDGEMENT

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- Helps in easy transition from school curriculum to college curriculum.
- Aid in achieving expected competencies in their courses
- Helps to impart basic knowledge in students about the advanced subjects that will betaught to them in the upcoming future.
- After the completion of bridge course all the students will have a thorough understanding of the basic concepts.

❖ REGULATIONS

The duration of the course is 18 hours with 1 credit.

SYLLABUS

Sl. No.	Title of the Module	Hrs	Credits
1	Introduction to diversity of fishes and features	4	
2	Food and feeding habits of fishes	3	1 credit
3	Commercial important aquaculture species and culture techniques.	4	
4	Introduction to fish Processing	4	
5	Fisheries Management and Economics	3	

COURSE OBJECTIVE

- Introduces students to an integrated approach to fish biology, including morphology of fin fishes and shell fishes
- Students will study how fishes interact with their environment and the wide range of biological adaptations they have evolved to live in a remarkably diverse range of habitats.
- To learn basic concepts of food and feeding habits in fishes
- To learn the commercially important cultivable fishes and culture methods.
- To impart skill-based training to the students on different aspects of fish processing technologies related to production of value added quality fish products and their preservation.
- To deliver a well-developed understanding of the economic science, to acquaint the learner with introductory fisheries Economics, development of fisheries in India

COURSE OUTCOME

- At the end of the course students should:
- Have enhanced knowledge on morphological features of a finfish and shell fishes
- Students get an insight into the culture of different commercially important aquaculture species in fresh water, marine and estuarine.
- The student will be able to know various food and feeding habits in fishes and feedstuff used.
- Students learn how to preserve and process of fishery products and their value additions
- Students should be able to communicate effectively, economic concepts, decision-making, and fisheries, and trade concepts.

COURSE OUTLINE

Module 1:- Introduction to diversity of fishes and features. (4 hrs)

Basic Structural Features of fishes-- external morphology of finishes. General character of shell fishes and mollusc.

Module 2:- Food and feeding habits of fishes.(3 hrs)

Categories of food (Plankton, Nekton, Benthos, Detritus), Depending on trophic niches: Surface feeder, column feeder, bottom feeder; Depending on food preference: Herbivore, Carnivore, Omnivore, plankton feeder).

Module 3:- Commercial important aquaculture species and culture techniques.(4hrs)

Definition of aquaculture, commercially important cultivable fishes in freshwater, marine (mariculture), estuarine. Types of culture systems, Culture methods- mono culture, poly culture, integrated system.

Module 4:- Introduction to fish Processing.(4hrs)

Perishability of seafood- quality factor and freshness of seafood, processing methods- chilling, freezing, canning, drying, curing.

Module 5:- Fisheries Management and Economics.(3hrs)

Introduction to Fisheries management.Role of EIA, MPEDA and CIFT, CMFRI, Kerala state fisheries department and other institutes..Exports of fish and fishery producs, status of seafood export from India.

PEDAGOGICAL TOOLS

1. Lecture
2. Use of model
3. Videos

INTERNAL EVALUATION METHODS (*COMPULSORY)

1. Attendance
2. Assignment- A student shall submit an assignment after completion of course.
3. Internal Exam- The evaluation scheme for bridge course shall contain a Continuous Evaluation (CE) (Internal Evaluation) for 40 marks.One test papers are to be conducted at the end of the course.

REFERENCES

1. John E. Halver, Ronald W. Hardy (2013), Fish in Nutrition, 3rd Edition by, Elsevier publication.
2. Ronald W. Hardy, Fish in Nutrition (2012), 4th Edition, Elsevier publication.
3. Sana S, De Silva, Trevor A Anderson (2018), Fish Nutrition in Aquaculture.
4. KHANNA, S S An introduction to fishes
5. KHANNA, S S& NEERJA KAPOOR (Dr.) An introduction to fishes
6. LOVELL, TOM ed. Nutrition and feeding of fish
7. CHANDRASEKHAR, Y S (Dr.) Fish nutrition in aquaculture
8. HALVER, JOHN E & HARDY, RONALD W Ed. Fish nutrition
9. BALACHANDRAN, K K Post_harvest technology of fish and fish products
10. GOVINDAN, T K Fish processing technology
11. RAMA MOHANA RAO, K Export marketing of marine products

TIME TABLE

Date	Time	Faculty Assigned	Module
21. 09. 2021	8. 30am – 9. 30am	Ms. Nilanjana Maria Verghese	Module 1
21. 09. 2021	10.00 am – 11 .00 am	Mr. Sayeed Mohamed P K	Module 3
21. 09. 2021	11.30 am – 12.30 pm	Ms. Sislave K S	Module 2
22. 09. 2021	9.00 am – 10.00 am	Ms. Haritha Haridas	Module 4
22. 09. 2021	11.30 am – 12.30 pm	Dr. Viji C S	Module3
22. 09. 2021	12.30 pm – 1.30 pm	Dr. Vibin M	Biochemistry
23. 09. 2021	9.30 am – 10.30 am	Dr. Viji C S	Module 3
23. 09. 2021	12.30 pm – 1.30 pm	Dr. Saritha S	Module 5
24. 09. 2021	8.00 am – 9.00 am	Ms. Nilanjana Maria Verghese	Module 1
24. 09. 2021	11.30 am – 12.30 pm	Dr. Saritha S	Module 5
24. 09. 2021	12.30 pm – 1.30 pm	Ms. Sislave K S	Module 2
28. 09. 2021	9.00 am – 10.00 am	Dr. Jithu Paul Jacob	Module 4
28. 09. 2021	11.30 am – 12.30 pm	Ms. Nilanjana Maria Verghese	Module 1
28. 09. 2021	12.30 pm – 1.30 pm	Ms. Haritha Haridas	Module 4
29. 09. 2021	9.00 am – 10.00 am	Mr. Sayeed Mohamed P K	Module 3
29. 09. 2021	11.30 am – 12.30 pm	Mr. Sivakumar G	Module 1
29. 09. 2021	12.30 pm – 1.30 pm	Ms. Sislave K S	Module 2
30. 09. 2021	8.00 am – 9.00 am	Dr. Jithu Paul Jacob	Module 4
30. 09. 2021	9.00 am – 10.00 am	Mr. Sivakumar G	Module 5

LIST OF STUDENTS
B.Sc. Industrial Fisheries 2021 – 24 batch

CLASS NO	STUDENT NAME
211501	ANANDAKRISHNAN K P
211502	PRANAV K P
211503	ESTHER ANTONY
211504	LAKSHMI NANDHANA M A
211505	ABHISHEK V
211506	PRANAV PRADEEP
211507	MARY JENNIFER
211508	JISHNU R B
211509	ADITHYA VIPIN
211510	NAMITHA R
211511	NAMITHA PRAMOD
211512	P.S.RAMSUNDAR SHENOY
211513	NANDANA M.S
211514	DEVIKA P S
211516	NEVILLE M D
211517	THOMSON RODRIGUES
211518	HALAN SURESH A
211519	ASWIN PRASANTH
211520	BIVIN K BABU
211521	AKSHAY A
211522	ADIL SIVAN
211523	VYSAKH S
211524	NIDHIN D
211525	SWAPNA RAJEEV P R
211526	ADITHYA B
211527	VARUN MOHAN
211528	ALAN RAJ P
211529	ANAMIKA P
211530	ALBIN JOHNSON
211531	ANDRIYA GEORGE FRANCIS
211532	GEETHU A
211533	JINCY SHAJI
211535	AKASH THOMSON
211537	PRANAV S
211538	ROHITH R
211539	JITHESH KRISHNA V.S
211541	LEKSHMI CHANDRAN
211542	ANAND.S
211543	AMALKRISHNA S
211544	DEVADETHAN. S
211545	KRISHNA PRIYA RAJESH
211546	JITHIN ANTONY

211547	DEVIKA S DEV
211548	AHALYA S