

SRI VENKATESWARA UNIVERSITY
Programme: B.Sc. Honours in Zoology (Major)
w.e.f. AY 2023-24

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
III	V	12	Poultry Management-I (Poultry Farming)	3	3
			Poultry Management-I (Poultry Farming) Practical Course	2	1
		13	Poultry Management-II (Poultry Production and Management)	3	3
			Poultry Management-II (Poultry Production and Management) Practical Course	2	1
		14 A	Sustainable Aquaculture Management	3	3
			Sustainable Aquaculture Management Practical Course	2	1
		15 A	Post-Harvest Technology of Fish and Fisheries	3	3
			Post-Harvest Technology of Fish and Fisheries Practical Course	2	1

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 12: POULTRY MANAGEMENT-I (POULTRY FARMING)

Theory

Credits: 3

3 hrs/week

SYLLABUS:

Unit 1 Indian poultry Industry

- 1.1 Importance of poultry farming and poultry development in India.
- 1.2 Present status and future prospectus of poultry Industry

Unit -2 Scientific Poultry Keeping

- 2.1 Modern breeds of Chicken
- 2.2 Present day egg production lines- meat production lines

Unit-3 Diversified Poultry

- 3.1 Ducks and Geese-classification- rearing system-classification-advantages
- 3.2 Guinea fowls - guinea fowl farming in India-Production-varieties
- 3.3 Emu-rearing - Economical aspects -commercial products

Unit-4 Desi Chickens:

- 4.1 Indigenous breeds and economical aspects of desi chicken
- 4.2 Indigenous breeds-Aseel-Chittagong-Kadakhnath-Bursa
- 4.3 Improved varieties in India – Giriraja-Vanaraja-Girirani-Kalinga brown, Gramapriya,Swarnandhra

Unit -5 Breeds from Central Avian Research Institute – Izatnagar

- 5.1 CARI Nirbheek - CARI- Shyama-HITCARI (Naked Neck Cross)
- 5.2 CARI- Priya Layer, CARI- Sonali Layer,
- 5.3 CARIBRO-VISHAL, CARI-RAINBRO,

REFERENCES:

1. Text Book of Poultry Science, P V Sreenivasaiah, Write and Print Publications, ISBN No. 9788192970592, 8192970590
2. Poultry Science Practices, Nilothpal Ghosh, CBS Publication & Distributions, 2015
3. Principles of Poultry Science, 1996, CAB Publishers, ISBN 9780851991221
4. A Text Book of Animal Husbandry, C. C. Banerjee, Oxford and IBH, Publish Co, ISBN: 9788120412606

Web sources:

5. <https://www.drvt.in/p/e-books.html>
6. <https://byjus.com/biology/animal-husbandry-poultry-farming/>
7. https://www.helpforag.app/2018/02/livestock-production-and-management-lpm_14.html?m=1

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
V SEMESTER - W.E.F. 2023-24

Course 12 : Poultry Management-I (Poultry Farming)

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A.

Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any Five of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer **All** The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 12: POULTRY MANAGEMENT-I (POULTRY FARMING)

Practical

Credits: 1

2 hrs/week

SYLLABUS:

1. Different types of Poultry rearing (Students has to observe and draw the different types of poultry rearing systems)
2. Different types of poultry Housing - Models / Images/charts
3. Different layer breeds images/charts/ Models (Observation of characters)
4. Types of broilers images/charts/ Models (Identification of important Characters)
5. CARI breeds characters –images/charts
6. Nandanam breeds- images/charts (Identification of characters)
*** (This practical is 70 % (Web based /virtual) 30% physical: student and teachers must browse the web for the specimens models – write down the important characters based on theweb resources)

REFERENCES:

1. A Text Book of Animal Husbandry, C. C. Banerjee, Oxford and IBH, Publish Co, ISBN: 9788120412606
2. http://www.agritech.tnau.ac.in/expert_system/poultry/Poultry%20House%20Construction.html
3. <https://petkeen.com/best-chicken-breeds-for-eggs/>
4. <https://garden.decorexpro.com/en/hozajstvo/ptitsevodstvo/porody-brojlernyh-kur-s-foto-i-opisaniem.html>

Co-Curricular Activities:

a) Mandatory:

1. For Teacher: Training of students by the teacher in laboratory and field on the techniques of identification of layers, broilers and management practices in poultry.
2. For Student: Students shall Individually visit a Poultry farm, make observations and report on the Rearing, Housing, Brooding, Feeding and water management activities. The student shall submit a handwritten Fieldwork/Project work Report on the observations along with pictures in the given format not exceeding 10 pages to teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, detailsof place visited, observations made, findings and acknowledgements.*
5. Unit tests. (IE)

b) Suggested Co-Curricular Activities

1. Web resources – visiting the web sites of CARI-IZATNAGA
<https://cari.icar.gov.in> procuring additional information on the poultry breeds
2. Web resources- visiting the web site of NANADANAM
http://www.tanuvass.ac.in/ippmmadhavaram_tech.html
3. Collection of additional data on different types of Poultry breeds
4. Seminar, Assignment, Group discussion. Quiz, Collection of Material, Invited Lecture, Video preparation etc.

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 12: POULTRY MANAGEMENT-I (POULTRY FARMING)

Practical

Credits: 1

2 hrs/week

PRACTICAL MODEL QUESTION PAPER

Time:2 hrs

Max.Marks:50

1. Observe and draw the given poultry rearing system 10M
2. Identify the following Images / charts. Write identification characters and
Draw the labeled diagram 6x5=30M
A to F
Any poultry houses/
layer breeds/
broiler breeds/
CARI breeds
3. Certified record 10M
4. Total 50M

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 13: POULTRY MANAGEMENT-II
(POULTRY PRODUCTION AND MANAGEMENT)

Theory

Credits: 3

3 hrs/week

SYLLABUS:

Unit-1 HEALTH CARE

- 1.1 Common poultry diseases: bacterial, viral, fungal, parasitic and nutritional deficiencies.
- 1.2 Vaccination schedule for commercial layers and broilers: factors that govern vaccination schedule; vaccination principles type, methods, pre and post vaccination care.
- 1.3 Disinfection: Types of disinfectants; mode of action; recommended procedure; precaution and handling.

Unit-2 ECONOMICS

- 2.1 Economics of layer and broiler production
- 2.2 Feasibility studies on poultry rearing- in context of small units and their profitability.
- 2.3 Export/import of poultry and poultry products.

Unit-3 BREEDER FLOCK MANAGEMENT

- 3.1 Layer and broiler breeder flock management housing & space requirements
- 3.2 Different stage of management during life cycle; Light management during growing and laying period, Artificial insemination.
- 3.3 Feeding: Feed restriction, separate male feeding. Nutrient requirement of layer and broiler breeders of different age groups.

Unit-4 BREEDER HEALTHCARE

- 4.1 Vaccination of breeder flock;
- 4.2 Common diseases of breeders (Infectious and metabolic disorders)-prevention.
- 4.3 Management principles of incubation.

Unit-5 HATCHERY PRACTICES

- 5.1 Factors affecting fertility and hatchability. Selection, care and incubation of hatching eggs. Fumigation; sanitation and hatchery hygiene.
- 5.2 Importance of hatchery records, break even analysis of unhatched eggs.

REFERENCES:

- 1. HVS Chauhan, S. Roy, Poultry Diseases, Diagnosis and Treatment, New Age International Publishers-2018

Web resources:

- 2. <https://www.drvt.in/p/e-books.html>
- 3. <https://byjus.com/biology/animal-husbandry-poultry-farming/>
- 4. https://www.helpforag.app/2018/02/livestock-production-and-management-lpm_14.html?m=1

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
V SEMESTER - W.E.F. 2023-24

COURSE 13: POULTRY MANAGEMENT-II
(POULTRY PRODUCTION AND MANAGEMENT)

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A.

Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any Five of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer **All** The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 13: POULTRY MANAGEMENT-II
(POULTRY PRODUCTION AND MANAGEMENT)

Practical

Credits: 1

2 hrs/week

SYLLABUS:

1. Poultry Viral diseases – Observation of histopathological slides
2. Poultry Fungal Diseases- Observation of histopathological slides
3. Poultry Bacterial Diseases-Observation of histopathological slides
4. Feasibility study of Poultry establishment: (Preparation of feasibility study report with given parameters)
5. Rearing of Layers – (Preparation of Flow chart
6. Rearing of broiler- Flow chart
7. Hatchery records- Model study/analysis- Report with modified data

REFERENCES:

1. HVS Chauhan, S. Roy, Poultry Diseases, Diagnosis and Treatment, New Age International Publishers-2018
2. Flow chart hatchery : <http://lms.tanuv.ac.in/mod/resource/view.php?id=45106>
3. Feasibility report:
<https://www.manage.gov.in/stry&fcac/content/19.%20Project%20Report%20on%20Layer%20Poultry.pdf>

Co-Curricular Activities

a) Mandatory:

1. For Teacher: Training of students by the teacher laboratory and field on skills in different practices employed in poultry with regard to the disease management – analysis of poultry project-preparation of flow chart – Observation of Poultry records – computerization activities
2. For Student: students shall (individually) visit a Layer/ Broiler Poultry farming places (small scale/corporate), make observations on practices- resources – management and marketing - analysis and submit a handwritten Fieldwork/Project work Report of 10 pages with necessary images.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, detailsof place visited, observations made, findings and acknowledgements.*
6. (IE): Unit tests.

b) Suggested Co-Curricular Activities

1. Preparation of Poultry diseases charts
2. Preparation of feasibility report poultry establishment with different variables
3. Seminar, Assignment, Group discussion. Quiz, Collection of Material, Invited Lecture, Video preparation etc.

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 13: POULTRY MANAGEMENT-II
(POULTRY PRODUCTION AND MANAGEMENT)

Practical

Credits: 1

2 hrs/week

PRACTICAL MODEL QUESTION PAPER

Time:2 hrs

Max.Marks:50

1. Prepare and draw the flow chart of rearing of Layers / Broilers	10M
2. Identify the following histopathological slides / charts of Poultry viral (2) / bacterial (2) / Fungal (2) diseases.	6 x 5=30M
3. Certified Practical record	10M
Total	50M

SRI VENKATESWARA UNIVERSITY

B.Sc. Honours in Zoology (Major)

SEMESTER-V

COURSE 14 A: SUSTAINABLE AQUACULTURE MANAGEMENT

Theory

Credits: 3

3 hrs/week

SYLLABUS:

Unit: 1

- 1.1 Present status of Aquaculture – Global and National scenario
- 1.2 Major cultivable species for aquaculture: freshwater, brackish water and marine.
- 1.3 Traditional, extensive, modified extensive, semi-intensive and intensive cultures of fish and shrimp.

Unit: 2

- 2.1 Functional classification of ponds – head pond, hatchery, nursery ponds
- 2.2 Functional classification of ponds -rearing, production, stocking and quarantine ponds
- 2.3 Need of fertilizer and manure application in culture ponds

Unit: 3

- 3.1. Induced breeding in fishes
- 3.2. Culture of Indian major carps: Pre-stocking management (Dewatering, drying, ploughing / desilting; Predators, weeds and algal blooms and their control, Liming and fertilization)
- 3.3. Culture of Indian major carps - Stocking management
- 3.4. Culture of Indian major carps - post-stocking management

Unit: 4

- 4.1 Commercial importance of shrimp & prawn
- 4.2 *Macrobrachium rosenbergii*- biology, seed production.
- 4.3 Culture of *L. vannamei* – hatchery technology and culture practices

Unit: 5

- 5.1 Viral diseases of Fin Fish & shell fish
- 5.2 Fungal diseases of Fin & Shell fish
- 5.3 Bacterial diseases of Finfish & Shell fish

REFERENCES:

- 1. Pillay TVR & M.A.Dill, 1979. Advances in Aquaculture. Fishing News Books Ltd., London
- 2. Stickney RR 1979. Principles of Warm Water Aquaculture. John Wiley & Sons Inc.1981
- 3. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsevier ScientificPublishing Company.
- 4. Bose AN et.al. 1991. Costal Aquaculture Engineering. Oxford & IBH Publishing CompanyPvt. Ltd.

Web resources:

- 5. http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm
- 6. http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf
- 7. <https://www.notesonzooology.com/india/fishery/fish-diseases-symptoms-and-control-fishery/871>

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 14 A: SUSTAINABLE AQUACULTURE MANAGEMENT
MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A.

Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any Five of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART – B

Answer **All** The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 14 A: SUSTAINABLE AQUACULTURE MANAGEMENT

Practical

Credits: 1

2 hrs/week

SYLLABUS:

- a. Fresh water Cultivable species any (Fin & Shell Fish Specimens – Observation of morphological characters by observation and drawings)-5
- b. Brackish water cultivable species (Fin & Shell fish- Specimens- Observation of Morphological Character by observing drawing) -5
- c. Hands on training on the use of kits for determination of water quality in aquaculture (DO, Salinity, pH, Turbidity- Testing kits to be used for the estimation of various parameters/ Standard procedure can be demonstrated for the same)
- d. Demonstration of Hypophysation (Procedure of hypophysation to be demonstrated in the practical lab with any edible fish as model)
- e. Viral diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of viral pathogens in fin/ shell fish – one edible specimen can be used for observation of same in the laboratory)
- f. Bacterial diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)
- g. Fungal diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)

REFERENCES:

- h. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsevier Scientific Publishing Company
- i. http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm
- j. http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf
- k. <https://www.notesonzoology.com/india/fishery/fish-diseases-symptoms-and-control-fishery/871>

Co-Curricular Activities

a. Mandatory:

1. For Teacher: Training of students by the teacher in laboratory/field on Breeding- Induced breeding in carps -hatchery technology of *L.Vennami*- Farming techniques- disease diagnostic techniques— concepts –Demonstration @ any aqua laboratory
2. For Student: Students shall (individually) visit a Hatchery/Farm/ Aqua diagnostic center and make careful observations of the process method and implements- protocols and report on the same in 10 pages hand written Fieldwork/Project work Report.
3. Max marks for Fieldwork/Project work Report: 05.

4. Suggested Format for Fieldwork/Project work: Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.
5. (IE). Unit tests.

b. Suggested Co-Curricular Activities

1. Preparation of Model/Charts of Cultivable species of fin fish shell fish
2. Preparation of Model/Chart of Ideal fish Pond- with the standards prescribed.
3. Observation of aquaculture activities in their area (Observation of any activity related to aquaculture in the vicinity of the college/village)
4. Preparation of Model – charts of Fin /Shell fish Diseases with eco-friendly material.
5. Assignments, Group discussion, Seminar, Quiz, Collection of Material, Video preparation etc., Invited lecture

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 14 A: SUSTAINABLE AQUACULTURE MANAGEMENT

PRACTICAL MODEL QUESTION PAPER

Time:2 hrs

Max.Marks:50

1. Determination of DO/ Salinity / pH / Turbidity using testing kits Procedure ,Observation and Result	5 marks
2. Identification, Characters and diagram a) Fresh water Cultivable species b) Fresh water Cultivable species c) Brackish water cultivable species d) Brackish water cultivable species e) Viral diseases of Fin & Shell Fish f) Bacterial diseases of Fin & Shell Fish g) Fungal diseases of Fin & Shell Fish	7 X 5 = 35 marks
3. Certified Practical Record	10marks
TOTAL	50 MARKS

SRI VENKATESWARA UNIVERSITY

B.Sc. Honours in Zoology (Major)

SEMESTER-V

COURSE 15 A: POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES

Theory

Credits: 3

3 hrs/week

SYLLABUS:

Unit – I Handling and Principles of fish Preservation

1.1 Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor mortis and spoilage), spoilage in marine fish and freshwater fish.

1.2 Principles of preservation – cleaning, lowering of temperature, rising of temperature, denudation, Use of salt, use of fish preservatives, exposure to low radiation of gamma rays.

Unit – II Methods of fish Preservation

2.1 Traditional methods - sun drying, salt curing, pickling and smoking.

2.2. Advanced methods – chilling or icing, refrigerated sea water, freezing, canning, irradiation and Accelerated Freeze drying (AFD).

Unit – III Processing and preservation of fish and fish by-products

1.1 Fish products – fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, pet food from trash fish, fish manure.

1.2 Fish by-products – fish glue, Using glass, chitosan, pearl essence, shark fins, fish Leather and fish maws.

Unit – IV Sanitation and Quality control

4.1 Sanitation in processing plants - Environmental hygiene and Personal hygiene in processing plants.

4.2 Quality Control of fish and fishery products – pre-processing control, control during processing and control after processing.

Unit – V Quality Assurance, Management and Certification

1.1. Seafood Quality Assurance and Systems: Good Manufacturing Practices (GMPs); Good Laboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept of Hazard Analysis and Critical Control Points (HACCP) in seafood safety.

5.2 National and International standards – ISO 9000: 2000 Series of Quality Assurance System, *Codex Alimentarius*.

REFERENCES:

1. Santharam R, N Sukumaran and P Natarajan 1987. A manual of aquaculture, Oxford-IBH, New Delhi
2. Lakshmi Prasad's, Fish Processing Technology 2012, Arjun Publishing House
3. Dr Sunitha Rai, Fish Processing Technology, 2015, Random Publications
4. Safety and Quality Issues in Fish Processing (Woodhead Publishing Series in Food Science, Technology and Nutrition) by H A Bremner K.A Mahanthy, Innovations in Fishing and Fish Processing Technologies, January 2021

Web resources:

5. <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=145743>
6. https://ecourses.icar.gov.in/e-Learningdownload3_new.aspx?Degree_Id=03

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER-V
COURSE 15 A: POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES

Theory

Credits: 3

3 hrs/week

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A.

Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any Five of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer All The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

SRI VENKATESWARA UNIVERSITY

B.Sc. Honours in Zoology (Major)

SEMESTER-V

COURSE 15 A: POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES

Practical

Credits: 1

2 hrs/week

SYLLABUS:

1. Evaluation of fish/ fishery products for organoleptic, chemical and microbial quality.
2. Preparation of dried, cured and fermented fish products
3. Examination of salt, protein, moisture in dried / cured products
4. Examination of spoilage of dried / cured fish products, marinades, pickles, sauce.
5. Preparation of isinglass, collagen and chitosan from shrimp and crab shell.
6. Developing flow charts and exercises in identification of hazards – preparation of hazard analysis worksheet
7. Corrective action procedures in processing of fish- flow chart- work sheet preparation
(*Refer the following web sites for complete procedure method and estimations of above listed practical's)

REFERENCES:

1. Dr Sunitha Rai, Fish Processing Technology, 2015, Random Publications
2. https://ecourses.icar.gov.in/e-Learningdownload3_new.aspx?Degree_Id=03
3. <https://vikaspedia.in/agriculture/fisheries/post-harvest-and-marketing/processing-in-fisheries/fermented-products>
4. <https://krishi.icar.gov.in/jspui/bitstream/123456789/20500/1/Fermentation%20technology%20for%20fish.pdf>
5. <http://jebas.org/00200620122014/Abujam%20et%20al%20JEBAS.pdf>
6. https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual_Hygienic%20drying%20and%20packing%20of%20fish.pdf
7. https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual_Hygienic%20drying%20and%20packing%20of%20fish.pdf
8. https://agritech.tnau.ac.in/fishery/fish_byproducts.html
9. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5352841/>
10. <http://www.fao.org/3/i1136e/i1136e.pdf>
11. <http://www.fao.org/3/x5989e/X5989e01.htm#What%20is%20sensory%20assessment>

Co-Curricular Activities

a. Mandatory:

1. For Teacher: Training of students by the teacher in laboratory/field in various steps of post-harvest techniques of fishes, on the advanced techniques in post-harvest technology – Training of students on other employability skills in the Post-harvest sector of Aquaculture Industry- like Processing, Packing, marketing of processed aqua products.
2. For Student: Students shall (individually) visit - Any fish/shrimp Processing Plant/Packing industry and make observations on post harvesting techniques and submit a brief handwritten Fieldwork/Project work Report with pictures and data /survey in 10 pages.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements*

5. (IE): Unit tests,

b. Suggested Co-Curricular Activities

1. Observation of fish/shrimp processing plants – visit web sites of processing companies and record the details of that Unit
2. Interaction with local fishermen to know the method of preservation and details with the available traditional technology
3. Collection of web resources on the Quality assurance, quality control measures in Aqua Industries- cross checking the standards during the visit to any processing units.
4. Assignments, Seminar, Group discussion. Quiz, Collection of Material, invited lectures, Video preparation etc.,

SRI VENKATESWARA UNIVERSITY

B.Sc. Honours in Zoology (Major)

SEMESTER-V

COURSE 15 A: POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES

Practical

Credits: 1

2 hrs/week

PRACTICAL MODEL QUESTION PAPER

Time:2 hrs

Max.Marks:50

- | | |
|---|-----------------|
| 1. Evaluation of fish/ fishery products for organoleptic / chemical / microbial quality | 10 Marks |
| 2. Preparation of dried / cured / fermented fish products | 10 Marks |
| 3. Preparation of isinglass, collagen and chitosan from shrimp and crab shell | 10 Marks |
| 4. Developing flow charts and exercises in identification of hazards | 10 Marks |
| 5. Certified Practical Record | 10 Marks |
| TOTAL | 50 Marks |