



ST. ALBERT'S COLLEGE (AUTONOMOUS)

ERNAKULAM

An initiative of the Archdiocese of Verapoly

(Affiliated to Mahatma Gandhi University, Kottayam)

DEPARTMENT OF FISHERIES AND

AQUACULTURE

PROGRAMME:

B.Voc. COMMERCIAL AQUACULTURE

Programme Outcomes

Programme Specific Outcomes

Course Outcomes

B.Voc. Commercial Aquaculture

RESEARCH DEPARTMENT OF FISHERIES AND AQUACULTURE Programme: B. Voc. COMMERCIAL AQUACULTURE 2020-2021	
PO No	Programme Outcomes <i>Upon completion of the B. Voc. Degree Programme, the graduate will be able to</i>
PO1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate as well as valid and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO2	Problem Solving: Solve problems from the Disciplines of concern using the Knowledge, skills and attitude acquired from humanities / science / mathematics / Social Sciences etc.
PO3	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO4	Design Mindset: Represent and develop tasks and work-process for the desired outcome

PSO No.	Programme Specific Outcomes <i>Upon completion of these courses the student would</i>
PSO1	Implement concepts and good management practices for culture and capture fisheries in a sustainable way either as an employee or at the level of an entrepreneur and install/establish different scientifically proven concepts of aquaculture practices in an environmentally friendly manner.
PSO 2	Basic knowledge in the biology of aquatic organisms including taxonomy, taxonomy, physiology, anatomy along with the application of biotechnology and microbiology in the processing of seafood products.
PSO3-	Identify and formulate technologically sound, economically feasible as well as socially relevant projects with the help of statistical tools and research methodologies.
PSO4	Recognize and apply socially relevant principles of economics to ensure profitability of own business / that of a business enterprise and creating awareness on corporate readiness programme, fisheries governance and policies.

B.Voc. Commercial Aquaculture

Course Title		GENERAL COMPONENT 1: INTRODUCTORY ENVIRONMENTAL STUDIES	
Code		VIECMT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Illustrate core concepts of ecological resources, their exploitation and explain how to solve environmental problems.	PO3/PSO1	U
CO-2	Summarise a coherent philosophy of the environment & consider ethical bases for responding to environmental questions.	PO1/PSO1	U
CO-3	Recognize the spheres that make up our ecosystem, examples of biodiversity and describe the conservation within these systems.	PO3/PSO1	R
CO-4	Explain the relationship between human activity (natural resource exploitation, waste production, etc.) and the natural environment (biotic and abiotic).	PO3/PSO1	U
CO-5	Discuss mitigation and remediation strategies to counteract these environmental impacts.	PO3/PSO1	U

SEMESTER 1

CO-PO-PSO MAPPING- COURSE NAME: INTRODUCTORY ENVIRONMENTAL STUDIES

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	3	-	1	-	-	-
CO2	2	-	-	-	1	-	-	-
CO3	-	-	2	-	1	-	-	-
CO4	-	-	2	-	1	-	-	-
CO5	-	-	2	-	1	-	-	-
AVG CO	2	0	2.25	0	1	0	0	0

B.Voc. Commercial Aquaculture

Course Title		Chemical Interactions in the Aquatic Environment	
Code		(VCA1CMT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Define the basic concepts of chemical kinetics, equilibria.	PO1/ PSO1	U
CO-2	Illustrate the soil structure, texture, surface chemical processes	PO1/PSO1	U
CO-3	Know the basics of pollutant dynamics	PO1/PSO1	U
CO-4	Relate the soil-nutrient interactions their transport in relation to the productivity of aquatic ecosystems	PO1/PSO1	U
CO-5	Explain the major processes controlling elemental cycling	PO1/PSO1	U

SEMESTER 1

CO-PO-PSO MAPPING- COURSE NAME: CHEMICAL INTERACTIONS IN THE AQUATIC ENVIRONMENT

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	1	-	-	-
CO2	2	-	-	-	1	-	-	-
CO3	1	-	-	-	1	-	-	-
CO4	1	-	-	-	1	-	-	-
CO5	-	-	-	-	-	-	-	-
AVG CO	1.25	-	-	-	1	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Principles of Aquaculture and Aquatic Ecology	
Code		VCA1CRT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the fundamental principles of aquaculture and ecological parameters	PO3/PSO 1,2,4	U
CO-2	Identifying the environmental issues pertaining to aquatic ecosystems	PO3/PSO1	U
CO-3	Develop an insight on the activities of different organizations as well as institutes involved in fisheries and aquaculture research & development.	PO3/PSO 4	R
CO-4	Recognize the importance of abiotic and biotic factors of aquatic ecosystems and their significance in sustainable aquaculture practices.	PO1/PSO 1, 2,4,	U
CO-5	Develop deep knowledge on freshwater, brackish water and marine ecosystem	PO3/PSO1	U

SEMESTER 1

CO-PO-PSO MAPPING- COURSE NAME: PRINCIPLES OF AQUACULTURE AND AQUATIC ECOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	2	-	2	2	-	1
CO2	-	-	2	-	1	-	-	-
CO3	-	-	1	-	-	-	-	1
CO4	2	-	-	-	-	1	-	1
CO5	-	-	2	-	1	-	-	-
AVG CO	2	-	-	-	1.33	1.5	-	1

B.Voc. Commercial Aquaculture

Course Title		Biology of Fishes	
Code		(VCA1CRT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Aareness on the reproduction, respiration, circulation, excretion and osmoregulation mechanisms in aquatic organisms	PO1/ PSO2	U
CO-2	Find out the different types of food and feeding strategies in fin fish and shellfish	PO1/PSO2	U
CO-3	Compare and discuss key physiological functions in fish and shellfish	PO1/ PSO2	U
CO-4	Explain the mechanisms involved in migration, biological clock and rhythms in fish and shellfish	PO1/PSO2	U
CO-5	Summarize the various foundational concepts of biology including cellular, ecological and evolutionary biology	PO1/ PSO2	U

SEMESTER 1

CO-PO-PSO MAPPING- COURSE NAME: BIOLOGY OF FISHES

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	2	-	-
CO2	1	-	-	-	-	2	-	-
CO3	1	-	-	-	-	1	-	-
CO4	1	-	-	-	-	1	-	-
CO5	1	-	-	-	-	1	-	-
AVG CO	1	-	-	-	-	1.4	-	-

B.Voc. Commercial Aquaculture

Course Title		Principles of Aquaculture, Ecology and Biology of Fishes	
Code		(VCA1CRP0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify the commercially important fin fish and shell fish	PO1/ PSO2	U
CO-2	Explain the anatomical features of various fish taxonomic groups.	PO1/ PSO2	U
CO-3	Communicate relevant biological problems to the scientific community, aquaculture industry and general public.	PO1,4/ PSO2	U
CO-4	Knowledge to estimate / demonstrate important parameters like fecundity, relative gut length, gonado-somatic index, length-weight analysis etc	PO1/PSO2	U
CO-5	Estimate the productivity and lime requirements of a fish culture system.	PO1/ PSO1, 2	U

SEMESTER 1

CO-PO-PSO MAPPING- COURSE NAME: PRINCIPLES OF AQUACULTURE, ECOLOGY AND BIOLOGY OF FISHES

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	1	-	-
CO2	1	-	-	-	-	2	-	-
CO3	1	-	-	-	-	1	-	-
CO4	2	-	-	-	-	2	-	-
CO5	1	-	-	-	-	1	-	-
AVG CO	1.2	-	-	-	-	1.4	-	-

B.Voc. Commercial Aquaculture

Course Title	ON JOB TRAINING (OJT) 1		
Code	(VCA1OJT0120)		
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Recognize the different pond preparation methods in aquaculture systems	PO1/PSO1	U
CO-2	Gain knowledge on the farm equipments and farm management practices	PO1/PSO1	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: INTERNSHIP 3 / PROJECT 1

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	-	-	-
CO2	2	-	-	-	2	-	-	-
AVG CO	1.5	-	-	1	2	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Inland and Marine Fisheries	
Code		(VCA2CMT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Recall the fish and fishery resources of India	PO1/ PSO2	U
CO-2	Recognize the different types of capture fishery resources in various inland resources (cold water and riverine systems, reservoirs, estuaries).	PO1/ PSO1	U
CO-3	Find out the problems encountered by the major water bodies including deep sea resources and disseminate different schemes practiced for the development.	PO1/ PSO1,4	U
CO-4	Give an outline about the various regulations as well as policies for assessment and conservation of fishery resources	PO1,3/ PSO1,3	U
CO-5	Identify the different types of commercially important marine fishery resources of India	PO1/ PSO1	U

SEMESTER 2

CO-PO-PSO MAPPING- COURSE NAME: INLAND AND MARINE FISHERIES

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	2	-	-
CO2	1	-	-	-	2	-	-	-
CO3	1	-	-	-	1	-	-	1
CO4	1	-	-	-	-	1	-	-
CO5	1	-	-	-	2	-	-	-
AVG CO	1	-	-	-	1.66	1.5	-	1

B.Voc. Commercial Aquaculture

Course Title		Freshwater Aquaculture and Hatchery Technology	
Code		(VCA2CRT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Expertise on the different types of rearing processes, different steps and procedures involved in the preparation and management of nursery and rearing systems of fish culture.	PO1/ PSO1, 2	U
CO-2	Proficiency in pre-stocking pond preparation steps such as drying, ploughing, liming, manuring, fertilization and proper procedures for grow out.	PO2/ PSO1,4	U
CO-3	Demonstrate the biology and feeding habits of cultivable carps, types of carp farming systems, culture of freshwater prawns, mollusks and frogs.	PO2/ PSO1	U
CO-4	Knowledge on the different systems of aquaculture including recent techniques like aquaponics and recirculatory aquaculture systems.	PO1,4/ PSO1	U
CO-5	Insight of natural breeding of finfishes and sexual maturity of breeding of food fishes	PO4/ PSO1,2	U

SEMESTER 2

CO-PO-PSO MAPPING- COURSE NAME: FRESHWATER AQUACULTURE AND HATCHERY TECHNOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	1	-	-
CO2	-	2	-	-	2	-	-	1
CO3	-	2	-	-	2	-	-	-
CO4	1	1	-	-	-	1	-	-
CO5	1	-	-	2	-	-	-	-
AVG CO	1	1.66	-	2	2	1	-	1

B.Voc. Commercial Aquaculture

Course Title		Fishing Methods	
Code		VCA2CMT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	In depth knowledge of the types of fish crafts in India (traditional, motorized and mechanized fishing vessels)	PO1/PSO1	U
CO-2	Ability to explain the traditional and modern fishing gears operated in India	PO1/ PSO1	U
CO-3	Thorough knowledge on the importance of fish aggregating devices, artificial reefs, by-catch reduction devices and their contribution to stock replenishment.	PO1/ PSO 1	U
CO-4	Awareness on the significance of implementing responsible fishing and supporting legislations	PO1,4/ PSO 1	U
CO-5	Able to discuss the different types of synthetic materials used in the construction of fishing gears.	PO1,4/ PSO 1	U

SEMESTER 2

CO-PO-PSO MAPPING- COURSE NAME: FRESHWATER AQUACULTURE AND HATCHERY TECHNOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	-	-	-
CO2	1	-	-	-	2	-	-	-
CO3	1	-	-	-	1	-	-	-
CO4	1	-	-	1	2	-	-	-
CO5	1	-	-	1	1	-	-	-
AVG CO	1	-	-	1	1.6	1	-	1

B.Voc. Commercial Aquaculture

Course Title		Fishing Methods and Hatchery Technology	
Code		VCA2CRP0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	List out the traditional and modern fishing gears and Identification of synthetic and natural fibres, fishing accessories (Floats/sinkers/Shackles/swivels/otterboards/hooks/ Artificial and live baits	PO1/PSO1	AP
CO-2	Create an awareness about fish finding devices	PO1/ PSO 1,	AP
CO-3	Identify the larvae of cultivable fishes, larval stages of shrimps and prawns,	PO1,4/ PSO 1, PSO 2	U
CO-4	Induced breeding in Fish and shrimps (demonstration)	PO1,4/ PSO 1, PSO 2	U
CO-5	Demonstrate the major live feed preparation – Daphnia, Moina , Artemia (Artemia cyst hatching Decapsulation of Artemia.), Copepods	PO1/ PSO 1, PSO 2	AP

SEMESTER 2

CO-PO-PSO MAPPING- COURSE NAME: FISHING METHODS AND HATCHERY TECHNOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	-	-	-
CO2	1	-	-	-	1	-	-	-
CO3	1	-	-	1	1	1	-	-
CO4	1	-	-	1	1	1	-	-
CO5	1	-	-	-	1	1	-	-
AVG CO	1	-	-	1	1.2	1	-	1

B.Voc. Commercial Aquaculture

Course Title	INTERNSHIP 1		
Code	(VCA2CPR0120)		
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Know the fundamentals of hatchery techniques of fishes	PO1/PSO1	U
CO-2	Awareness on fish seed management and hatchery equipment handling	PO1/PSO1	U
CO-3	Basic knowledge on the larval rearing techniques of fishes	PO1/PSO1	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: INTERNSHIP 3 / PROJECT 1

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	-	-	-
CO2	2	-	-	-	2	-	-	-
CO3	1	-	-	-	2	-	-	-
AVG CO	1.33	-	-	-	2	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Research Methodology	
Code		VCA3CMT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Discuss the role and importance of research.	PO1, 2/ PSO 3	AP
CO-2	Recognise the issues and concepts salient to research process	PO 1, 4/ PSO 3	R
CO-3	Acquire knowledge on methods of sample collection, data collection and report writing	PO 2, 4/ PSO 3	U
CO-4	Able to identify the complex issues inherent in selecting a research problem, selecting an appropriate research design	PO2, 4/ PSO 3	AP
CO-5	Design and implementing a research project	PO2,4/PSO 3	AP

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: RESEARCH METHODOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	1	-	-	-	-	1	-
CO2	1	-	-	1	-	-	1	-
CO3	-	1	-	1	-	-	1	-
CO4	-	-	-	1	-	-	1	-
CO5	-	1	-	1	-	-	1	-
AVG CO	1	1	-	1	-	1	1	-

B.Voc. Commercial Aquaculture

Course Title		Environmental Science & Human Rights	
Code		(VCA3CMT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Ability to explain how perceptions of environmental problems and the proposed solutions are shaped by their historical, geographical, social, political, economic, and cultural contexts.	PO3/ PSO1	U
CO-2	Explain various paradigms or world views and their implicit and explicit assumptions and values shape the viewer's perception of environmental problems and solutions	PO3/PSO1	U
CO-3	Identify and interpret basic rights of environment system variables to assess socio-environmental conditions.	PO3/PSO1	U
CO-4	Illustrate Human Rights in the context of the UN, India and environmental protection and conservation.	PO3/PSO1	U
CO-5	Assess necessary scientific concepts and data, consider likely social dynamics and establish integral cultural contexts to address environmental problems.	PO3/PSO1	U

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: ENVIRONMENTAL SCIENCE & HUMAN RIGHTS

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	2	-	1	-	-	-
CO2	-	-	1	-	1	-	-	-
CO3	-	-	1	-	2	-	-	-
CO4	-	-	1	-	2	-	-	-
CO5	-	-	1	-	2	-	-	-
AVG CO	-	-	1.2	-	1.6	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Sustainable Aquaculture	
Code		(VCA3CMT0320)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Summarise global understanding of the advances in farming systems and environmental concerns measures.	PO3/PSO1	U
CO-2	Knowledge of the aquatic resources and their relevance in nutrition.	PO3/PSO1	U
CO-3	Explain conflict management of Aquatic resources.	PO1/PSO4	R, U
CO-4	Interpret methods for region specific sustainable aquaculture practices applying the principles of responsible aquaculture.	PO1/PSO1	R, U
CO-5	Adept in environmental issues relating to aquaculture and the measures of mitigation.	PO3/PSO1	R, U

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: SUSTAINABLE AQUACULTURE

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	1	-	2	-	-	-
CO2	-	-	1	-	1	-	-	-
CO3	1	-	-	-	1	-	-	-
CO4	1	-	-	-	2	1	-	-
CO5	1	-	-	-	2	1	-	-
AVG CO	1	-	1	-	1.6	1	-	1

B.Voc. Commercial Aquaculture

Course Title		Bio- Statistics and Computer Application	
Code		VCA3CRT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Build to present the statistical data in order to comprehend the complicated practical field scenarios.	PO2/PSO3	AP
CO-2	Decision making ability with application of computer-based data presentation and analytical tools	PO2/PSO3	AP
CO-3	Summarise the established linear relationship among variables of given data set and deriving model regression for better predictability.	PO2/PSO3	AP
CO-4	Recognize the importance of measures that can be used to summarize a data set: mean, median, mode, percentiles, variance, standard deviation, and range.	PO2/PSO3	U
CO-5	Ability to perform various numerical data process on Microsoft office.	PO2/PSO3	

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: BIO- STATISTICS AND COMPUTER APPLICATION

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	1	-	-	-	-	1	-
CO2	-	1	-	-	-	-	1	-
CO3	-	1	-	-	-	-	1	-
CO4	-	1	-	-	-	-	2	-
CO5	-	1	-	-	-	-	2	-
AVG CO	-	1	-	-	-	-	1.4	-

B.Voc. Commercial Aquaculture

Course Title		AQUACULTURE NUTRITION AND SOIL AND WATER QUALITY MANAGEMENT	
Code		VCA1CRT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Knowledge on the different aspects of feed formulation, fish feed ingredients, various feeding mechanisms, gain sufficient knowledge in different types of fish feeds and their quality standards	PO1, 4/PSO 1,2	AP
CO-2	Information on physical and chemical properties of water and soil as well as gather knowledge in their nutrient quality and quantity	PO1,4 /PSO 1	U
CO-3	Awareness on biofertilizers in ponds as well their after effects in aquatic ecosystems and the bioactive compound utilization by microorganisms	PO1,4 /PSO 1	U
CO-4	Thorough knowledge about different types of fertilizers and manures, their methods of applications	PO1,4/PSO 1	U
CO-5	Expertise in the aspects of waste water discharge, treatments aiming better health and safety of cultivable species of fishes.	PO1,4/PSO 1	U

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: AQUACULTURE NUTRITION AND SOIL AND WATER QUALITY MANAGEMENT

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	1	2	-	-	-
CO2	1	-	-	1	2	-	-	-
CO3	1	-	-	1	2	-	-	-
CO4	1	-	-	1	2	-	-	-
CO5	1	-	-	1	2	-	-	-
AVG CO	1.2	-	-	1	2	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Biostatistics, Aquaculture Nutrition and Soil and Water Quality	
Code		VCA1CRP0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Know the descriptive statistical analysis, calculation of mean, median, mode, standard deviation, standard error using computer programmes/packages, t- test, Chi –square, F- test, one way ANOVA, Data analysis using computer and Correlation and regression analysis using computer programmes/packages.	PO 2/PSO 3	AP
CO-2	Preparation of formulated feeds using locally available feed ingredients and determination of its sinking rate and stability.	PO 4/PSO 3	R
CO-3	Determination of proximate composition of feed of formulated feeds (crude protein)	PO 2/PSO 1	U
CO-4	Determination of water quality parameters (Dissolved oxygen, carbon dioxide in water, pH by electrometric method, salinity in water)	PO2/PSO 1	AP
CO-5	Know the soil sampling, determination of soil moisture; bulk density; mud acidity and soil texture.	PO2/PSO 1	AP

SEMESTER 3

CO-PO-PSO MAPPING- COURSE NAME: BIOSTATISTICS, AQUACULTURE NUTRITION AND SOIL AND WATER QUALITY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	1	-	-	-	-	1	-
CO2	-	-	-	1	-	-	1	-
CO3	-	1	-	-	1	-	-	-
CO4	-	1	-	-	2	-	-	-
CO5	-	1	-	-	1	-	-	-
AVG CO	-	1	-	1	1.33	-	1	-

B.Voc. Commercial Aquaculture

Course Title	ON JOB TRAINING (OJT) 2		
Code	(VCA3OJT0120)		
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Skill to estimate water quality parameters	PO1/PSO1	U
CO-2	Acquire knowledge on fish feed ingredients, preparation techniques and feeding strategies	PO1/PSO1	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: INTERNSHIP 3 / PROJECT 1

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO3	PSO 4
CO1	1	-	-	-	2	-	-	-
CO2	2	-	-	-	2	-	-	-
AVG CO	1.5	-	-	1	2	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Limnology and Oceanography	
Code		(VCA4CMT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Clear knowledge of the topographical significance to the marine environment and the availability and distribution of non-living resources of significance.	PO1/ PSO1	U
CO-2	Adept in the thermodynamics relating to ocean currents and the significance of phenomena like El Nino	PO1/ PSO1	U
CO-3	Application level knowledge of biological oceanography and chemical oceanography	PO1/ PSO1	U
CO-4	Recognize the relevance of oceanography and the implications of thermocline and light penetration in the marine realm.	PO1/ PSO1	U
CO-5	In depth knowledge of the community interactions at the micro and macro level in specific aquatic ecosystems.	PO1/ PSO1	U

SEMESTER 4

CO-PO-PSO MAPPING- COURSE NAME: LIMNOLOGY AND OCEANOGRAPHY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	1	-	-	-
CO2	1	-	-	-	2	-	-	-
CO3	1	-	-	-	1	-	-	-
CO4	1	-	-	-	1	-	-	-
CO5	1	-	-	-	2	-	-	-
AVG CO	1	-	-	-	1.4	-	-	-

B.Voc. Commercial Aquaculture

Course Title		Aquaculture Biotechnology	
Code		VCA4CMT0220	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Summarise the knowledge related with recent biotechnological advances in the aquaculture sector and familiarization with biological databases.	PO1/PSO 1, 2	AP
CO-2	Skill to demonstrate the biotechnological tools in aquaculture.	PO1,3/ PSO 1, 2	U
CO-3	Compare the fundamental principles of DNA and RNA vaccines, molecular diagnosis of diseases, Ribotyping etc.	PO3/PSO 1, 2	U
CO-4	Identify the relevance of bioethical issues and social issues associated with biotechnological experiments.	PO3/PSO 1, 2	U
CO-5	Develop the skill to apply the knowledge from this course for their own research and extension projects	PO1,4/PSO3	U

SEMESTER 4

CO-PO-PSO MAPPING- COURSE NAME: AQUACULTURE BIOTECHNOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	1	-	1	1	-	-
CO2	1	-	1	-	1	2	-	-
CO3	-	-	1	-	1	1	-	-
CO4	-	-	1	-	1	2	-	-
CO5	1	-	-	1	-	-	1	-
AVG CO	1	-	0.8	1	1	1.2	1	-

B.Voc. Commercial Aquaculture

Course Title		Fish Preservation and Processing Technology	
Code		(VCA4CRT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Awareness on basic hygienic practices for handling seafood and understand spoilages.	PO1/PSO2	U
CO-2	Define National and International quality standards quality of water and ice in the fish processing sector.	PO1/ PSO2	R
CO-3	Identify the potential hazards in fish and fishery products maintains hygienic standards in the seafood processing industry.	PO4/PSO2	R
CO-4	Compare various thermal and non-thermal techniques for fish preservation and Packaging materials.	PO2/ PSO2	U
CO-5	Find the quality of processed products. cold chain system of processed fish and fishery products	PO2/ PSO2	U, Ap

SEMESTER 4

CO-PO-PSO MAPPING- COURSE NAME: FISH PRESERVATION AND PROCESSING TECHNOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	-	-	2	-	-
CO2	1	-	-	-	-	2	-	-
CO3	-	-	-	1	-	2	-	-
CO4	-	2	-	-	-	2	-	-
CO5	-	1	-	-	-	1	-	-
AVG CO	1.5	1.5	-	1	-	1.8	-	-

B.Voc. Commercial Aquaculture

Course Title		Brackish water Aquaculture and Ornamental Fish Culture	
Code		(VCA4CRT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Interpret the economically viable and environmentally sustainable culture technologies for finfish and shellfish in brackishwater systems in different agro-ecological regions	PO,1,3/ PSO2	U
CO-2	Select economically important brackish water biological resources for their commercial utilization	PO1/ PSO2,3	AP
CO-3	Interpret different policies and planning for the socio-economic development, through environmentally sustainable, brackish water aquaculture systems	PO1,3/ PSO4	U
CO-4	Give an outline about the commercial ornamental fish production, their hatchery techniques and management	PO1/ PSO1,2	U
CO-5	Demonstrate the design, construction, setting up and management of home and public aquarium in addition to water quality and disease management.	PO1,4/PSO1,2	U

SEMESTER 4

CO-PO-PSO MAPPING- COURSE NAME: BRACKISH WATER AQUACULTURE AND ORNAMENTAL FISH CULTURE

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	1	-	-	2	-	-
CO2	2	-	-	-	-	2	2	-
CO3	1	-	1	-	-	-	-	1
CO4	2	2	-	-	2	2	-	-
CO5	2	-	-	2	2	1	-	-
AVG CO	1.8	2	1	2	2	1.4	2	1

B.Voc. Commercial Aquaculture

Course Title		Fish Processing and Ornamental Fish Culture	
Code		(VCA4CRP0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify freshwater and marine ornamental species	PO2/PSO2	R
CO-2	Expertise in the breeding and seed production of ornamental fishes.	PO2/PSO1	R, U
CO-3	Proficiency in aquarium setting and maintenance.	PO2/ PSO1	R,U
CO-4	Knowledge in aquarium plant rearing and propagation and the role of aquarium plants in maintaining water quality in aquarium.	PO2/PSO1	U, Ap
CO-5	Recognise and monitor the health of species and recognition of disease by observing symptoms	PO2/PSO1	

SEMESTER 4

CO-PO-PSO MAPPING- COURSE NAME: FISH PROCESSING AND ORNAMENTAL FISH CULTURE

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	1	-	-	-	2	-	-
CO2	2	-	-	-	2	-	-	-
CO3	2	-	-	-	2	-	-	-
CO4	-	1	-	-	2	-	-	-
CO5	-	1	-	-	2	-	-	-
AVG CO	2	1	-	-	2	0.9	-	-

B.Voc. Commercial Aquaculture

Course Title		INTERNSHIP 2	
Code		(VCA4CPR0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Gain knowledge on different fish processing technologies	PO1,4/PSO1, 2 4	U
CO-2	Know the basic concepts of ornamental fish culture	PO1,4/PSO1	U
CO-3	To develop the practical knowledge on ornamental fish breeding	PO1,4/ PSO1	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: INTERNSHIP 3 / PROJECT 1

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	1	2	2	-	1
CO2	1	-	-	1	2	-	-	-
CO3	1	-	-	1	2	-	-	-
AVG CO	1	-	-	1	2	-	-	1

B.Voc. Commercial Aquaculture

Course Title		Business Entrepreneurship	
Code		(VCA5CMT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Find out the relevance, characteristics and competencies of entrepreneurs	PO1/ PSO4	U
CO-2	Illustrate opportunities and challenges of an entrepreneurial role of individuals	PO1/ PSO4	U
CO-3	Ability to define institutional support and governmental policies relating to entrepreneurship.	PO1/ PSO4	R
CO-4	Ability to develop and launching business plan	PO1/ PSO4	R
CO-5	Evaluate the resource, financial, technical, marketing and social aspects and lead the plan towards implementation and follow up	PO1/ PSO4	R

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: BUSINESS ENTREPRENEURSHIP

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	-	-	2
CO2	1	-	-	-	-	-	-	2
CO3	1	-	-	-	-	-	-	2
CO4	1	-	-	-	-	-	-	1
CO5	1	-	-	-	-	-	-	2
AVG CO	1	-	-	-	-	-	-	1.8

B.Voc. Commercial Aquaculture

Course Title		Aquaculture Development Planning and Management	
Code		(VCA5CMT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Demonstrate sustainable development of various levels of aquaculture planning.	PO1/ PSO2	R,U
CO-2	Define the role and performance of FFDA and BFFDA	PO1/PSO 2	U
CO-3	Ability to illustrate project and project appraisal applying relevant project management techniques	PO2/PSO4	U
CO-4	Define critically analyzing aquaculture and rural development programmes in the fisheries sector.	PO1/PSO2	U, An
CO-5	Know the role and relevance of Panchayati Raj institutions in aquaculture development	PO1/PSO4	U

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: AQUACULTURE DEVELOPMENT PLANNING AND MANAGEMENT

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	2	-	-
CO2	1	-	-	-	-	2	-	-
CO3	1	-	-	-	-	-	-	2
CO4	1	-	-	-	-	2	-	-
CO5	1	-	-	-	-	-	-	1
AVG CO	1	-	-	-	-	2	-	1.5

B.Voc. Commercial Aquaculture

Course Title		MARICULTURE	
Code		VCA5CMT0320	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Recognize and know the major candidate species for mariculture and their techniques.	PO1/PSO1, 2,	U
CO-2	Demonstrate about steps and procedures involved in the culture of various marine fishes, crustaceans, molluscs, aquatic plants and invertebrates.	PO1/PSO1, 2,	U
CO-3	Illustrate about the artificial breeding technique in fin fishes and crustaceans	PO1/PSO1, 2,	U
CO-4	Awareness on broodstock maintenance, hatchery technology, induced breeding technology and larval rearing of various finfishes and crustaceans.	PO1/PSO1, 2	U
CO-5	Know the different finfishes cultured around the world.	PO1/PSO1, 2	U

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: MARICULTURE

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	-	2	2	-	-
CO2	2	-	-	-	2	2	-	-
CO3	1	-	-	-	2	2	-	-
CO4	1	-	-	-	2	2	-	-
CO5	1	-	-	-	2	2	-	-
AVG CO	1	-	-	-	2	2	-	-

B.Voc. Commercial Aquaculture

Course Title		Value Added Fishery Products	
Code		(VCA5CRT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the principles and significance of value addition in the seafood industry	PO1,4/PSO2	U
CO-2	Give an outline on the preparation of fish mince-based products with special emphasis on surimi production.	PO1,4/PSO2	U, AP
CO-3	Illustrate the preparation of a number of other value added products such as pickles, wafers, chutney powders, steaks, cutlets etc. from fish or shrimp.	PO1,4/ PSO2	U, AP
CO-4	Know the preparation of by-products like chitin, chitosan, fish silage, fish meal, fish oil etc. for commercial gain.	PO1,4/ PSO2	U/AP
CO-5	Sufficient knowledge on spoilage and quality evaluation in thermally processed products	PO1,4/ PSO2	U

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: VALUE ADDED FISHERY PRODUCTS

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	2	-	2	-	-
CO2	1	-	-	2	-	2	-	-
CO3	2	-	-	2	-	2	-	-
CO4	1	-	-	1	-	2	-	-
CO5	1	-	-	1	-	2	-	-
AVG CO	1	-	-	1.6	-	2	-	-

B.Voc. Commercial Aquaculture

Course Title		Microbiology and Pathology in Aquaculture	
Code		(VCA5CRT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Knowledge on the key concepts of microbiology through historical context and developing their own idea in creative rethinking of learned facts.	PO1/PSO2	U
CO-2	Plan and design fish ponds through introduction of culture beneficial bacteria to improve the water quality and reducing capital running costs.	PO2/PSO2	R,U
CO-3	Identify and classify different pathogens so as to provide remedial measures for treatment	PO2/PSO2	R,U
CO-4	Develop ability for revamping risk related consequences in bio security policy according to the situation of environmental health protocols.	PO3/PSO1	U, An
CO-5	Develop disease management strategies for better survivability of the cultured organisms.	PO1/PSO1	

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: MICROBIOLOGY AND PATHOLOGY IN AQUACULTURE

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	2	-	-
CO2	-	1	-	-	-	2	-	-
CO3	-	2	-	-	-	2	-	-
CO4	-	-	1	-	2	-	-	-
CO5	1	-	-	-	1	-	-	-
AVG CO	1	1.5	1	-	1.5	2	-	-

B.Voc. Commercial Aquaculture

Course Title		Value Addition, Microbiology and Pathology	
Code		(VCA5CRP0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Build the knowledge of value addition and the product trends in recent markets for developing their own generated advance products.	PO1/PSO2	U
CO-2	Recognize the food borne pathogens that can harm the products through the microbiological examinations.	PO1/PSO2	U
CO-3	Gain knowledge on the shellfish and fin fish disease and prophylactic solutions.	PO1/PSO2	R
CO-4	Justify instrumentation techniques of microbiology labs enabling them to assist in food processing disease diagnosis centers.	PO1/PSO2	An
CO-5	Expertise on the preparation of value added fishery products	PO1/PSO2	U

SEMESTER 5

CO-PO-PSO MAPPING- COURSE NAME: VALUE ADDITION, MICROBIOLOGY AND PATHOLOGY

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	2	-	-
CO2	1	-	-	-	-	2	-	-
CO3	1	-	-	-	-	2	-	-
CO4	1	-	-	-	-	2	-	-
CO5	1	-	-	-	-	2	-	-
AVG CO	1	-	-	-	-	2	-	-

B.Voc. Commercial Aquaculture

Course Title		ON THE JOB TRAINING	
Code		(VCA5OJT0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Create awareness on the basic ideas in fish diseases, their prophylactic measures and different microbiological techniques in aquaculture	PO1,2, 4/ PSO1, 4	U
CO-2	Ability to understand the principles and importance of value addition in the seafood industry.	PO1/ PSO1,2	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: ON THE JOB TRAINING

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	2	-	1	2	-	-	-
CO2	1	-	-	-	2	2	-	-
AVG CO	1.5	2	-	1	2	-	-	-

B.Voc. Commercial Aquaculture

Course Title		CORPORATE READINESS PROGRAM	
Code		VCA6CMT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Make use of SWOC test for self analysis	PO1/PSO4	U
CO-2	Adapting to new business correspondence, communication and presentation skill	PO1/PSO4	U
CO-3	Develop abilities for interview and Group discussion skills	PO1/PSO4	U
CO-4	Develop unique abilities for planning and networking	PO1/PSO4	U
CO-5	Ability to discern job related issue and recommend solutions.	PO1/PSO4	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: CORPORATE READINESS PROGRAM

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	-	-	-	1
CO2	1	-	-	-	-	-	-	2
CO3	1	-	-	-	-	-	-	2
CO4	1	-	-	-	-	-	-	1
CO5	1	-	-	-	-	-	-	1
AVG CO	1	-	-	-	-	-	-	1.4

B.Voc. Commercial Aquaculture

Course Title		Marketing Management	
Code		(VCA6CMT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Summarize of the fundamental marketing concept	PO4/PSO4	R, U
CO-2	Get a skill to illustrate consumer and market data to make decisions.	PO2,4/ PSO4	U
CO-3	Interpret the concept of social responsiveness and its benefits	PO2,4/PSO4	U
CO-4	Show how to solve issues related to marketing of fishery products.	PO4/PSO4	R
CO-5	Recognize the emerging trends in marketing	PO4/PSO4	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: MARKETING MANAGEMENT

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	-	-	-	2	-	-	-	2
CO2	-	1	-	1	-	-	-	2
CO3	-	1	-	1	-	-	-	2
CO4	-	-	-	1	-	-	-	2
CO5	-	-	-	2	-	-	-	2
AVG CO	-	1	-	1.4	-	-	-	2

B.Voc. Commercial Aquaculture

Course Title		Aquaculture engineering	
Code		VCA6CRT0120	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Expertise the technologies used in the aquaculture industry for the design of fish farms.	PO1, 4/ PSO1, 4	AP
CO-2	Illustrate the design and construct recirculatory aquaculture systems.	PO1,4 4/ PSO1, 4	AP
CO-3	Make use of different types of filtration and aeration devices in aquaculture.	PO1, 4/ PSO1,4	AP
CO-4	Demonstrate the engineering aspects of fish and shrimp hatchery along with farm machinery operations and maintenance.	PO1, 4/ PSO1, 4	U
CO-5	In depth Knowledge on different feeding systems and methods	PO1, 4/ PSO1, 4	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: AQUACULTURE ENGINEERING

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	2	2	-	-	2
CO2	1	-	-	2	2	-	-	2
CO3	2	-	-	2	2	-	-	2
CO4	2	-	-	2	2	-	-	2
CO5	2	-	-	2	2	-	-	2
AVG CO	1.8	-	-	2	2	-	-	2

B.Voc. Commercial Aquaculture

Course Title		Fisheries Governance and Socio-Economics	
Code		(VCA6CRT0220)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Provide an outline about the economic principles applicable in fisheries	PO1/ PSO3,4	U
CO-2	Find out the cooperative societies and their role in promoting the development of the fisheries sector	PO1/ PSO3, 4	U
CO-3	List out the central and state legislative provisions relating to aquaculture including Indian Fisheries Act	PO1,3/ PSO4	U
CO-4	Know the concepts and theories of business applicable in fisheries industry	PO1/PSO4	U
CO-5	Interpret the theories of production, demand, supply and return in terms of fishery industry	PO1/ PSO4	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: FISHERIES GOVERNANCE AND SOCIO-ECONOMICS

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	2	-	-	-	1	2
CO2	1	-	-	-	-	-	2	2
CO3	1	-	1	-	-	-	-	2
CO4	1	-	-	-	-	-	-	2
CO5	2	-	-	2	2	-	-	2
AVG CO	1.2	-	1.5	2	2	-	1.5	2

B.Voc. Commercial Aquaculture

Course Title		Aquaculture Engineering and Fisheries Governance and Socio-Economics	
Code		(VCA6CRP0120)	
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Familiarize with the different instruments used in aquaculture farms.	PO1/PSO1	U
CO-2	Recognize the operations of accessories used in culture systems	PO1,4/PSO1	U
CO-3	Explain the designing of pump house, pump installation and computation of water requirement.	PO1/ PSO1	U
CO-4	Summarise the computation of various resource efficiency measures and estimation of socio-economic growth of the fisher folks.	PO1/ PSO4	U
CO-5	Gain knowledge on licensing/registration of vessels and gears.	PO1/ PSO4	

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: FISHERIES GOVERNANCE AND SOCIO-ECONOMICS

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	-	-	-	2	-	1	-
CO2	2	-	-	1	2	-	-	
CO3	1	-	1	-	-	-	-	2
CO4	1	-	-	-	-	-	-	2
CO5	2	-	-	2	2	-	-	2
AVG CO	1.2	-	1.5	2	2	-	1.5	2

B.Voc. Commercial Aquaculture

Course Title	INTERNSHIP 3 / PROJECT 1		
Code	(VCA6CPR0120)		
CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Knowledge on the major components of fish and shrimp farms	PO1,4/PSO1, 4	U
CO-2	Explain the technical aspects of a shrimp or fish farm	PO1,4/PSO1	U
CO-3	Gain knowledge on fresh water and marine ecosystem	PO1/ PSO1	U

SEMESTER 6

CO-PO-PSO MAPPING- COURSE NAME: INTERNSHIP 3 / PROJECT 1

	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	-	-	1	2	-	-	1
CO2	1	-	-	1	2	-	-	-
CO3	1	-	-	-	2	-	-	-
AVG CO	1.33	-	-	1	2	-	-	1



St. Albert's College (Autonomous)

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