MES ASMABI COLLEGE, P. VEMBALLUR

COURSE OUTCOMES (COs) OF B.Sc. PROGRAMME IN AQUACULTURE

I. THEORY COURSES

COURSE CODE & COURSE NAME	**ACQ1 B01- BIOLOGY OF FISHES**	
COURSE OUTCOMES (COs)	CO.1.	Study Basics of animal biology and fish taxonomy.
	CO.2.	Remember types of feeds and feeding strategies in finfishes and shellfishes.
	CO.3.	Study types of fins in fishes and their role in swimming.
	CO.4.	Understand the Structure and role of sense organs in fishes, crustaceans and mollusks.
	CO.5.	Analyse gut content either by volumetric or gravimetric method for feed related studies.
	CO.6.	Determine the age of fish using either scales or otolith.
	CO.7.	Know the reproductive biology including anatomical supplementation.
	CO.8.	Understand the Physiology of digestion, excretion and osmoregulation.
	CO.9.	Understand the Physiology of circulation, respiration and endocrine system.
	CO 10.	Aware of Migration, biological clock and different types of rhythms in fishes.

COURSE CODE & COURSE NAME	**AQC2 B03- FRESHWATER AQUACULTURE**	
COURSE OUTCOMES	CO.1.	Understand the basics of agriculture, aquaculture and fisheries.
	CO.2.	Aware of Aquaculture scenario in Indian and global context.
	CO.3.	List the Types of aquaculture systems and criteria for selecting species for culture.
	CO.4.	Study the Ecological concepts like productivity, carrying capacity, food chain and food web.
	CO.5.	Study the Ecological cycles of Nitrogen, Phosphorous and Carbon.

(COs)	CO.6.	Formulate Pond fertilization and biological food production processes.
	CO.7.	Manage the nursery, rearing and stocking ponds of cultivable fishes.
	CO.8.	Manage the Culture of air breathing fishes, prawns and mollusks.
	CO.9.	Acquire knowledge on Integrated farming in aquaculture and concept of sustainability.
	CO 10.	List the Organizations involved in R&D in aquaculture.

COURSE CODE & COURSE NAME	AQC3 B05- FISHERIES & POPULATION DYNAMICS	
COURSE OUTCOMES (COs)	CO.1.	Acquire knowledge on Riverine ecology and its capture fishery including scope for culture and river systems in India.
	CO.2.	Understand Cold water fisheries and its status in India.
	CO.3.	Understand Reservoir ecology, classification and fisheries in India.
	CO.4.	Understand Estuarine ecology and its fisheries in India.
	CO.5.	Remember and list Marine pelagic fishery resources of India.
	CO.6.	Study Marine demersal resources of India.
	CO.7.	Understand Deep sea fishery and policy adopted by Govt. of India.
	CO.8.	Study Population dynamics in fishery science.
	CO.9.	List Conservation and regulatory measures in fisheries, internationally and nationally.
	CO 10.	Remember Organizations concerned with marine fisheries in Kerala, India and world.

COURSE CODE & COURSE NAME	A11 – BIODIVERSITY- SCOPE AND RELEVANCE	
COURSE OUTCOMES (COs)	CO.1.	Define biodiversity and its components.
	CO.2.	List Biodiversity Hot Spots in India.
	CO.3.	Understand the importance of Biodiversity.
	CO.4.	Memorize the magnitude of floral and faunal diversity.
	CO.5.	Undestand the values and uses of Biodiversity.

	CO.6.	Prepare inventories of Biodiversity.
	CO.7.	Understand the significance of Biodiversity conservation.
	CO.8.	Prepare plans for biodiversity conservation.
COURSE CODE & COURSE NAME	**A12 – RESEARCH METHODOLOGY**	
COURSE OUTCOMES (COs)	CO.1.	Understand the scope of research.
	CO.2.	Study the terms and concepts associated with Research.
	CO.3.	Study the methods of data collection.
	CO.4.	Analyse the collected data.
	CO.5.	Prepare manuscripts.
	CO.6.	Know the types of publications.
	CO.7.	Prepare review papers and journal articles.
	CO.8.	Study the methods of data presentation, interpretation and charting.
	CO.9.	Study the methods of statistical analysis.
	CO 10.	Undertake independent research.

COURSE CODE & COURSE NAME	**AQC4 B07 – BRACKISHWATER AQUACULTURE & MARICULTURE**	
COURSE OUTCOMES (COs)	CO.1.	Know Basic biology of the fish species used for costal aquaculture and mariculture.
	CO.2.	List various aspects of brackish water aquaculture practices.
	CO.3.	Understand Basic ideas about various mariculture practices in India and abroad.
	CO.4.	Know Ecofriendly and sustainable aquaculture incorporating CRZ and AAI.
	CO.5.	Picturise Traditional brackishwater fish cultivation practices in Indian states.
	CO.6.	Understand Crustacean culture in brackishwater, both commercial and experimental basis.
	CO.7.	Analyze the Problems faced during culturing in open waters and their solutions.
	CO.8.	Understand Cultivation technology including nursery rearing of some brackishwater finfishes.
	CO.9.	Give Ample technical guidance to construct an ideal brackish water farm.
	CO 10.	Understand artificial pearl production, current status and future prospects.

COURSE CODE & COURSE NAME	A13 – Natural Resources Mangement.	
COURSE OUTCOMES (COs)	CO.1.	Define natural Resources.
	CO.2.	Differentiate between conventional and non-conventional resources.
	CO.3.	Define all types of resources.
	CO.4.	Map the resources distribution.
	CO.5.	Know the significance of resources.
	CO.6.	Understand various types of energy.
	CO.7.	List the relevance of resources conservation.
	CO.8.	Study the methods of resource conservation.

COURSE CODE & COURSE NAME	A14 – INTELLECTUAL PROPERTY RIGHTS	
COURSE OUTCOMES (COs)	CO.1.	Understand the Relevance of IPR in modern society.
	CO.2.	Study the Genesis and development of IPR both in India and abroad.
	CO.3.	Understand Better exposure on patent system in India including filing.
	CO.4.	Have an insight into copyright and rights covered.
	CO.5.	List the Types of trademarks and its registration.
	CO.6.	Study Geographical indications in IPR.
	CO.7.	Study Industrial designs and its protection.
	CO.8.	Know the Role of IPR in protecting biotechnological inventions.
	CO.9.	List the International organizations associated with IPR.
	CO 10.	Acquire knowledge on Protection of plant breeders' right and IPR.

COURSE CODE & COURSE NAME	AQC5 B09 – HATCHERY TECHNOLOGY OF AQUATIC ORGANISMS	
COURSE OUTCOMES (COs)	CO.1.	Create basic knowledge on the operation of commercial hatcheries.
	CO.2.	Understand Current methodology and various techniques of commercial seed production.
	CO.3.	Design, development and operation of carp hatchery including hypophysation.
	CO.4.	List Economically important species for aquaculture, current status and future prospects.
	CO.5.	Acquire Knowledge on new techniques for seed production like carp, crustaceans and molluscs.
	CO.6.	Analyse the importance of Quarantine and disease management in fish hatcheries.
	CO.7.	Categorize Types of feed in hatchery operation and their production.
	CO.8.	Establish a fish hatchery, backyard or commercial.
	CO.9.	Understand the Types of quality assessment methods in hatchery operation.
	CO 10.	List Different types of chemicals used in transportation including packing.

COURSE CODE & COURSE NAME	AQC5 B10 – FISH PROCESSING TECHNOLOGY & QUALITY CONTROL	
COURSE OUTCOMES (COs)	CO.1.	Understand Spoilage of fish and post harvest handling.
	CO.2.	Know the Use of refrigerated and chilled seawater for preservation.
	CO.3.	Study the Principles of freezing and canning of fish products.
	CO.4.	Acquire Knowledge on various preservation techniques.
	CO.5.	Understand the Importance of quality assurance in seafood industry like HACCP.
	CO.6.	Remember the Principles of Drying, Smoking and Freeze-drying in seafood industry.
	CO.7.	Study the Modern methods of preservation.
	CO.8.	Analyze the Risk factors and avoidance of hazards in seafood industry.
	CO.9.	List the Quality standards in India and major importing countries like USA, Japan and EU.
	CO 10.	Picturise Packing and export of seafood from India.

COURSE CODE & COURSE NAME	AQC5 B11 – FISHING METHODS, FISHERY BYPRODUCTS & VALUE ADDED FISHERY PRODUCTS	
COURSE OUTCOMES (COs)	CO.1.	List Different types of fishing crafts in Indian and world fisheries.
	CO.2.	List Different types of boat building materials.
	CO.3.	Understand Various types of gears used in fishery.
	CO.4.	Understand Active and passive fishing gears.
	CO.5.	Study the Destructive fishing methods in world fisheries.
	CO.6.	Understand Fish aggregating devices and its application.
	CO.7.	Study Fish finding devices and conservation methods.
	CO.8.	List the roles of FAO and CCRF
	CO.9.	List Different types of fishery byproducts.
	CO 10.	Specify Value addition in fishery products.

COURSE CODE & COURSE NAME	AQC5 B12 – BREEDING & REARING OF AQUARIUM FISHES	
COURSE OUTCOMES (COs)	CO.1.	Create Awareness on the potential ornamental fishes and their breeding habits
	CO.2.	Theorize Nutritional requirement of aquarium fish and its management.
	CO.3.	Understand Traditional and commercial production of ornamental fishes.
	CO.4.	Create an idea about indigenous ornamental fishes.
	CO.5.	Familiarize with equipment used in aquariums.
	CO.6.	Acquire Knowledge on novel designs of aquarium keeping and maintenance.
	CO.7.	Analyze the Importance of water quality and other parameters in aquarium keeping.
	CO.8.	Give the Principle of management of diseases in aquarium fishes.
	CO.9.	Create Knowledge on mass production of aquarium plants.
	CO 10.	Study marine ornamental fishes and their breeding strategies.

COURSE CODE & COURSE NAME	AQC5 B13 – AQUACULTURE ENGINEERING & BIOSTATISTICS	
COURSE OUTCOMES (COs)	CO.1.	Familiarize with engineering aspects of aqua farms and hatcheries.
	CO.2.	Derive Knowledge on statistics as applied to biology.
	CO.3.	Create knowledge on different aspects of designing culture systems.
	CO.4.	Understand the Principles of design and construction of different farms.
	CO.5.	Create Knowledge on surveying related to aquaculture.
	CO.6.	Aware of equipment used in aqua farms, its maintenance and operation.
	CO.7.	Design commercial farms and hatcheries.
	CO.8.	Develop and analyze different methods of biological data collection.
	CO.9.	Analyze biological data and to derive conclusions.
	CO 10.	Test the significance of results obtained.

COURSE CODE & COURSE NAME	AQC6 B17 – FISH GENETICS, BIOTECHNOLOGY & BIOINFORMATICS	
COURSE OUTCOMES (COs)	CO.1.	Develop basic idea about the principles of genetics and depict the hereditary mechanism in cultured species
	CO.2.	Acquaint with the state of the art techniques in biotechnology as applied to aquaculture industry.
	CO.3.	Familiarize yourself with biological databases.
	CO.4.	Understand Principles and procedures on genetic selection of fish.
	CO.5.	Understand Biotechnological approach in genetic studies in fishes.
	CO.6.	Study the new techniques of gene manipulation.
	CO.7.	Acquire Knowledge on biotechnological tools in aquaculture.
	CO.8.	Apply selective hybridization in fishes.
	CO.9.	Study the the aspects like sex reversal to improve yield in aquaculture.
	CO 10.	Understand the Role of genetics in species identification.

COURSE CODE & COURSE NAME	AQC6 B18 – FISH PATHOLOGY & HEALTH MANAGEMENT	
COURSE OUTCOMES (COs)	CO.1.	List Different types of Protozoan diseases in fishes and their management.
	CO.2.	List Different types of Fungal diseases in fishes and their management.
	CO.3.	Understand Different types of Bacterial diseases in fishes and their management.
	CO.4.	Understand Different types of Viral diseases in fishes and their management.
	CO.5.	Correlate Nutritional deficiency diseases and their management.
	CO.6.	Study fish immunology and fish vaccination.
	CO.7.	Aware of Genetically and environmentally induced diseases in fish.
	CO.8.	Understand Different types of diagnostic tools in fish disease management.
	CO.9.	Understand the Role of prophylaxis in fish disease management.
	CO 10.	Understand the Probiotics in fish disease management.

COURSE CODE & COURSE NAME	AQC6 B19 – FISHERY MICROBIOLOGY	
COURSE OUTCOMES (COs)	CO.1.	Remember History and contributions of microbiology.
	CO.2.	Study various microbes like virus, bacteria, fungus etc.
	CO.3.	Study the Application of light and electron microscopy in microbiology.
	CO.4.	Differentiate Prokaryotic and eukaryotic cells and their distribution.
	CO.5.	Study Strategies of reproduction in microbes.
	CO.6.	Understand Isolation and culture techniques of bacteria.
	CO.7.	Know the Role of aquatic microbes in pond productivity.
	CO.8.	List Health significant bacteria in seafood.
	CO.9.	Correlate Food spoilage and its management.
	CO 10.	Theorize Biogeochemical cycles – N, P and S cycles.

COURSE CODE & COURSE NAME	AQC6 B20 – FISHERIES ECONOMICS, BUSINESS ADMINISTRATION, EXTENSION & TOURISM	
COURSE OUTCOMES (COs)	CO.1.	Get an overall idea of economic principles applicable in fisheries.
	CO.2.	Theorize production, demand, supply and return in terms of fishery industry.
	CO.3.	Classify companies and its management.
	CO.4.	Conceptualize business applicable in fisheries industry.
	CO.5.	Study the Management strategies in marketing, finance, production, administration and industrial relations.
	CO.6.	List the Types of market and fish marketing.
	CO.7.	Analyze the economics of business organizations.
	CO.8.	Understand Cost and earnings from aquaculture systems.
	CO.9.	List Co-operative societies and their role in fisheries sector.
	CO 10.	Study the Extension and role of tourism for promoting economic growth in fisheries sector.

II. OPEN COURSES FOR OTHER STREAMS (SEMESTER-V) & CORE ELECTIVE COURSES (SEMESTER-VI)

COURSE CODE & COURSE NAME	AQC5 D01 –ORNAMENTAL FISH CULTURE	
COURSE OUTCOMES (COs)	CO.1.	Get an overview on the common ornamental fishes and their breeding habits.
	CO.2.	Understand breeding and rearing of ornamental fishes.
	CO.3.	Study aquarium setting and aquarium accessories involved.
	CO.4.	Equip to independently operate a ornamental fish breeding unit.
	CO.5.	Know the materials used in aquarium industry.
	CO.6.	Get an extra income through part time business as aquarium fish breeders and exporters.
	CO.7.	Aware of the occurrence of major ornamental fish diseases and its management.
	CO.8.	Aware of novel diagnostic tools in fish diseases.
	CO.9.	Understand the export value of ornamental fishes.
	CO 10.	Prepare of live and artificial feeds for ornamental fishes.

COURSE CODE & COURSE NAME	AQC5 D02 – VALUE ADDED FISHERY PRODUCTS	
COURSE OUTCOMES (COs)	CO.1.	Generating knowledge on different fish based value added products.
	CO.2.	Knowledge on various processes involved in fish and shell fish value addition.
	CO.3.	Awareness on by-products originating from fishes and their importance.
	CO.4.	Studies on fish mince based products and coated fishery products.
	CO.5.	To make an extra income through production of value added products.
	CO.6.	Principles, practices and significance of value addition in fish products.
	CO.7.	Knowledge on the equipments used for the production of different value added fishery products.
	CO.8.	An outlook regarding quality evaluation of the products.
	CO.9.	To prepare various products from fishes, packing and quality evaluation.
	CO 10.	Causes of spoilage of fish and its prevention.

COURSE CODE & COURSE NAME	AQC5 D03 – FISH PRESERVATION TECHNIQUES	
COURSE OUTCOMES (COs)	CO.1.	Post harvest fish handling techniques.
	CO.2.	Drying, smoking, canning and freeze-drying of fishery products.
	CO.3.	Knowledge about the storage and marketing of fishery products.
	CO.4.	Knowledge about advanced preservation techniques.
	CO.5.	Various opportunities related to seafood industry.
	CO.6.	Studies on advanced techniques used in processing industry.
	CO.7.	Basic requirements needed onboard for handling, storing and preserving fish.
	CO.8.	Knowledge on the major spoilage causing organisms in seafood and quality control.
	CO.9.	Information on waste management of fish or shellfish waste by converting them into valuable by products.
	CO 10.	Knowledge on the need of basic requirements in fish outlets to retain quality of the fish or shellfish

COURSE CODE & COURSE NAME	AQC6 B24 (E01) – FISH BIOCHEMISTRY & NUTRITION	
COURSE OUTCOMES (COs)	CO.1.	Manage feed and feeding in aquaculture farms.
	CO.2.	Acquire knowledge on feeding physiology, feed composition.
	CO.3.	Acquire Knowledge on aqua-feed production technology.
	CO.4.	Correlate Nutritional requirements of fish and production and supply of balanced diet.
	CO.5.	List different feed components and its physiological significance.
	CO.6.	Study the anti-nutritional factors present in feeds and its elimination.
	CO.7.	Understand the advanced techniques in feed preparation.
	CO.8.	Analyze Rationing and feeding strategy for optimum utilization of feed and better output.
	CO.9.	Theorize the Importance of live feeds in fish nutrition.
	CO 10.	Estimate feed capacity and animal capacity for better production, e.g. FCR.

COURSE CODE & COURSE NAME	AQC6 B24 (E02) – LIMNOLOGY & OCEANOGRAPHY	
COURSE OUTCOMES (COs)	CO.1.	Development of awareness on marine and freshwater systems.
	CO.2.	Exposure on common phyto and zooplanktons and benthos in freshwater.
	CO.3.	Ecological subdivisions of sea, temperature and salinity distributions in sea.
	CO.4.	Sound in sea- SOFAR channel and shadow zone.
	CO.5.	Currents in oceans and their effects.
	CO.6.	Concepts of watermass and thermocline.
	CO.7.	Generation and types of waves.
	CO.8.	Oceanographic instruments and their operation.
	CO.9.	Exploration and exploitation of major wealth from ocean.
	CO 10.	Fisheries oceanography, application of GIS in fisheries and Coastal Zone Management.

COURSE CODE & COURSE NAME	AQC6 B23 (E03) – ENDOCRINOLOGY & REPRODUCTIVE BIOLOGY	
COURSE OUTCOMES (COs)	CO.1.	Major endocrine glands and functions in fish and shellfish.
	CO.2.	Reproductive biology of fish and shellfish.
	CO.3.	Anatomical exploration of sex organs in fish and shellfish.
	CO.4.	Principles and practice of induced breeding.
	CO.5.	Sex reversal and sexual dimorphism in fishes.
	CO.6.	Control of reproduction by hormones.
	CO.7.	Parental care in fishes.
	CO.8.	Fecundity in finfishes and shellfishes.
	CO.9.	Behavioral changes during reproduction in fishes.
	CO 10.	Eyestalk ablation as a technique of induced breeding in crustaceans and use of gonadotropic hormones in finfish.

III. PRACTICALS (CORE)

COURSE CODE & COURSE NAME	AQC1 B02 (P) – BIOLOGY OF FISHES	
COURSE OUTCOMES (COs)	CO.1.	Prepare biological specimens.
	CO.2.	Measure Morphometrics of fish.
	CO.3.	Separate and mount fish scales and age related assessments.
	CO.4.	Dissect and label digestive system of fish and shrimp.
	CO.5.	Cut and display fins in fish and relate the same to swimming behavior.
	CO.6.	Mount appendages of prawn and comparative study on their functions individually.
	CO.7.	Analyze gut contents and correlate the same to the feeding behavior in fishes.
	CO.8.	Determine ova diameter and assess the reproductive status of female fish.
	CO.9.	Estimate gonado-somatic index to find out ripeness of fish.
	CO 10.	Analyze Length-weight of fish and detail its application in fishery science.

COURSE CODE & COURSE NAME	AQC2 B02 (P) – WATER & SOIL QUALITY PARAMETERS	
COURSE OUTCOMES (COs)	CO.1.	Analyze and soil water quality parameters
	CO.2.	Prepare reagents.
	CO.3.	Use Refractometer
	CO.4.	Use pH meter, Ph Universal Indicator etc. for pH determination.
	CO.5.	Do Titrimetric experiments to determine alkalinity and dissolved oxygen.
	CO.6.	Calculate lime requirements in ponds.
	CO.7.	Do Water transparency tests using Secchi disc and turbidometer.
	CO.8.	Estimate primary productivity by dissolved oxygen method.
	CO.9.	Analyze the grain size of different soil types.
	CO 10.	Estimate organic carbon content in pond soil.

COURSE CODE & COURSE NAME	AQC3 B06 (P) –TAXONOMY, FISHERIES & FISHING TECHNOLOGY	
COURSE OUTCOMES (COs)	CO.1.	Identify fishes upto species level.
	CO.2.	Identify and classify commercially important prawns and mollusks.
	CO.3.	Analyze different fish catch data and statistical derivation of their results and expression.
	CO.4.	Study different fishing gears.
	CO.5.	Do Deck arrangements and mechanical supports for fishing in different fishing vessels.
	CO.6.	Identify and classify fishing accessories.
	CO.7.	Study live and artificial baits.
	CO.8.	Study modern fishing gears and synthetic fibres.
	CO.9.	Identify and classify fish hooks and knots.
	CO 10.	Identify fish detection devices.

COURSE CODE & COURSE NAME	AQC4 B08 (P) – AQUAFARM MANAGEMENT	
COURSE OUTCOMES (COs)	CO.1.	Identify cultivable finfishes and shellfishes.
	CO.2.	Collect and identify different phyto and zooplanktons from ponds.
	CO.3.	Prepare ive feeds of varied kinds.
	CO.4.	Construct, set and maintain aquaria.
	CO.5.	Do Eradication methods of weeds, insects and predatory fishes from ponds.
	CO.6.	Do Preparation of different artificial pellet feeds for fishes.
	CO.7.	Calculation of earthwork in aquaculture ponds.
	CO.8.	Study various equipments/instruments in farm and hatchery.
	CO.9.	Identify different larval stages of shrimps.
	CO 10.	Use haemocytometer in enumeration of micro algae.

COURSE CODE & COURSE NAME	AQC5 B14 (P) – BREEDING & REARING OF AQUARIUM FISHES	
COURSE OUTCOMES (COs)	CO.1.	Acquire knowledge on ornamental fish production and aquarium keeping.
	CO.2.	Develop entrepreneurship on ornamental fish breeding and rearing.
	CO.3.	Get hands on exposure to students on various aspects of ornamental fish farming.
	CO.4.	Identify commonly used aquarium fishes.
	CO.5.	Construct aquariums with innovative designs.
	CO.6.	Use different accessories for typical aquaria - marine and freshwater.
	CO.7.	Detect, diagnose and treat aquarium fish diseases.
	CO.8.	Develop ability to breed fishes in controlled environment.
	CO.9.	Develop knowledge in maintaining marine aquarium.
	CO 10.	Set and maintain ornamental fish farms.

COURSE CODE & COURSE NAME	AQC5 B15 (P) – FISH PROCESSING TECHNOLOGY	
COURSE OUTCOMES (COs)	CO.1.	Get Basic idea on the fish processing techniques and quality control,
	CO.2.	Connect with present day technologies involved in fish processing.
	CO.3.	Study quality requirements in seafood industry.
	CO.4.	Determine the moisture content in products.
	CO.5.	Familiarize with the freezing equipments and their working.
	CO.6.	Do filleting - fishes of different types.
	CO.7.	Develop innovative fishery products.
	CO.8.	Develop entrepreneurship skills by developing innovative strategies related to fish products.
	CO.9.	Evaluate quality of fish through organoleptic evaluation.
	CO 10.	Convert low valued fishes into high market valued items.

COURSE CODE & COURSE NAME	AQC6 B21 (P) - BIOSTATITICS & COMPUTER APPLICATIONS	
COURSE OUTCOMES (COs)	CO.1.	Study the components of computer.
	CO.2.	Formating word document using mail merge.
	CO.3.	Study essential computer software and its use.
	CO.4.	Do Fisheries data collection from public domain and its study.
	CO.5.	Do Statistical analysis using MS excel.
	CO.6.	Do Data analysis by ANOVA, t-test Chi-square test and F-test.
	CO.7.	Do Correlation and regression analysis of fishery data by computer program or software.
	CO.8.	Do Graphical representations of the data analysis by computer.
	CO.9.	Visit and study different fishery related websites like FISHBASE.
	CO 10.	Analyze biological data using statistical tools and its representation using appropriate computer tool.

COURSE CODE & COURSE NAME	AQC6 B22 (P) – FISHERY MICROBIOLOGY & PATHOLOGY	
COURSE OUTCOMES (COs)	CO.1.	Do Studies for identifying a diseased fish from a healthy one.
	CO.2.	Analyze clinical symptoms, reporting and making inferences.
	CO.3.	Carry out Different types of sterilization techniques.
	CO.4.	Do Gram staining of bacteria.
	CO.5.	Study light microscopy.
	CO.6.	Do Different types of bacterial inoculation and cultivating techniques.
	CO.7.	Do Bacterial media preparation for various bacteria.
	CO.8.	Identify common fish parasites.
	CO.9.	Enumerate bacteria by TPC.
	CO 10.	Maintain and follow protocols in a microbiology lab.