COURSE OUTCOME OF INDUSTRIAL FISH AND FISHERIES

SEMESTER - I

Course code	***Course Name***	***Course out Comes***
CC 1	Taxonomy ,Classification of fishes.	• This course has been designed to understand identification and classification of commercially important fishes and other aquatic vertibrates by the students • The course objectives are to provide the students with an introductory knowledge of fish classification. • The students will be required to identify common species available in and around their region using morphological keys.

CC 2	Capture fisheries.	• Students will be gain background knowledge in the estuaries fishery. • students with learn the knowledge on major fisheries of India. Students will be also become aware of the environmental variables which are affecting the production and energy flow through the food chain. • To gain knowledge about Principles of conservation and management. To understand the concept of maximum sustainable yield and maximum economic yield, biological symptoms of under fishing, over fishing.

SEMESTER - II

Course code	***Course Name***	***Course out Comes***
CC 3	Fish anatomy and Biology.	• To understand the internal and external anatomy of a fish in detail. • To identify the different parts of a fish and describe the function of each part. • To understand the internal organs and

		their functions. • Determine the basic concept of food and feeding habits, age and growth to indicate the events in the life history of fish.
CC 4	Aquaculture practices	• Aquaculture provides a source of income for people in low-and middle-income countries. • Aquaculture also provides the opportunity to increase the availability and consumption of nutritious food and improve gender equality in accessing and benefiting from these economic resources. • Aquaculture can also be defined as the breeding growing, and

		harvesting of fish and other aquatic plants ,also known as farming in water .it is an environmental source of food and commercial product which held to improve healthier habitats and used to reconstruct population of endangered aquatic species .

SEMESTER - III

Course code	***Course Name***	***Course out Comes***
CC 5	Fish Genetics, endocrinology and Reproduction.	• Gain skill in the evaluation of various breeding strategies. • Understand the genetic approaches and technologies currently applied in aquaculture. • Estimate and evaluate the functions of reproduction and endocrine glands. • In the field of fisheries and aquaculture genetics is already enabling new genomic approaches to tackling keychallenges relating to sustainable exploitation ,food security ,welfare ,and governance of our oceans , Hormones are used in fish farming to increase fish production when one sex of species has the capacity to grow bigger and faster than the others sex. • The technique to increase fish production based on sexual dimorphism mostly uses estrogens and androgens .
CC 6	Fish breeding and Hatchery Management .	• Acquire and apply knowledge on breeding ponds hatcheries of finfish and shellfish. • Investigate and apply hatchery technology for better management practices. • Fish hatcheries use aquaculture to raise threatened, endangered , or risk species in a safe captive environment for eventual release in to a natural setting.

		• This work along with habitat restoration ,and other federal protections ,can help boost and support will populations of fish and aquatic wildlife.
CC7	Fish Pathology.	• students are able to gain the knowledge on different types of fungal, viral, bacterial disease in fin fishes and how to manage fish diseases. • Knowledge on major shrimp viral, bacterial, protozoans diseases of shell fish. • Knowledge of nutritional disease and its preventive measures. • Getting an overview of fish health management in aquaculture system and knowing methods of isolation and feed management. • Its studies fish defensive mechanism against diseases and its treatment.

SEC – 1B	Software for Fisheries data Analysis and Management.	Students will be able to :- Apply algorithmic, mathematical and scientific reasoning to a variety of computational problems deign, correctly implement and document solutions to significant computational problems,

SEMESTER - IV

Course code	***Course Name***	***Course out Comes***
CC 8	Fish immunology and microbiology	• The aim of the course is to develop knowledge among students about the fish's immune system, its interactionwith fish pathogens and responses to simulation and vaccines certain crustaceans will also be included. • This knowledge is developed through lectures ,group work ,written assignment submission and through laboratory courses.
CC 9	Aquatic ecology & environment Management.	• Function of ecosystem, importance and conservation of different ecological niches. • perform experimental analysis and its usefulness to environment. • Know the basic concepts of biological productivity of both flora and fauna. • Aquatic ecology examine the interaction between thephysical chemical & biological components of

		aquatic ecosystem. • The assessment and maintenance of the health of aquatic ecosystems is of paramount importance to societal welfare.
CC10	Fish Nutrition ,Bio-Chemistry and feed technology	• Gain knowledge of feed manufacture and storage methods of feed. • To know about the nutrients • To understand the function and sources of nutrients. • Discuss the health benefits of fish • Students will have knowledge of nutrients to design andplan for preparing a balanced diet for human. • Knowledge of chemical composition of fish is vital to develop processing technology for fish and fish products(both in commercial and industrial level) in order to compare its value with other foods as a source of porter,in fortification for product development and nutritional enrichment.
SEC-2A	Environmental impacts of fisheries industries.	• The objective of this study is to investigate the impactsof the environmental and socio economic risks on the fisheries in the Mediterranean region from economicpoints of view.

Semester - V

Course code	***Course Name***	***Course out Comes***
CC-11	Fisheries statistics economics and marketing	• Improved decision making about things like fisheries production methods, fisheries input levels and resource conservation etc. • Students should have the skills to fit into a business, agency or academic environment and use economic concepts to quantify and analyze issues related to their employer's issues. • Fishery statistics are the primary means to measure the performance of a fishery within the social, economic, biological and environmental framework in which it is conducted. • Fisheries economics system covers the entire chain humanactivities, its driving forces and its effects, from marine environment to consumers, including backward and forward linkages and substitute products.

Course code	***Course Name***	***Course out Comes***
CC-12	Fisheries extension ,co-operative and computer application	• Improving fishing ,fish farming and fish processing methods, increasing production efficiency and income ,and improving their socio-economic conditions. • co-operative fishery program largely aims at providing livelihood to more and more people in coastal areas through smooth fishing business. Intensification of fish production through introduction of mechanized boats. Supply of mechanized boats on credit to members of co-operative. • correctly implement and document solution to significant computational problems.
DSE-1	Post harvest technology.	• Through understand on principles of profession, precautions in handling and types of preservatives in fish processing. • To understand the processing and storage, utilization and distribution of fishery products. • To understand the different types of fishery by products. • To gain the knowledge on hoe to transport of seed, brood stock and outlets for aquaculture products. • Preserving techniques are needed to prevent fish spoilage andlengthen shelf life. They are designed to inhibit the activity spoilage bacteria and the metabolic changes that result in the loss of fish quality.
DSE-2	Quality assurance	• Good hygienic practice in the handling, manufacturing and transportation of fish and fish products, and adequate refrigeration throughout, can greatlyreduce out breaks of fish borne illnesses. • Measures that ensure high standards of quality and safety by implication will alsoreduce postharvest losses. • study about HACCP quality control and management of fishand fisheries products . • study the rule of micro organisms in spoilage and their effects on human health.

Semester - VI

Course code	***Course Name***	***Course out Comes***
CC-13	Fishing crafts and Gears	• Basic geometric concepts and important of fishing crafts and gears. • Explain the significance of fish operation system. • Know the apply of modern fishing equipment. • To know the structure of various commercial fishing gears and crafts. • The Use of crafts and Gears in fishing technology plays very important Role and help enhancing the production commercial bases.

		The success of fishing largely depends on to how and which types of nets are used to capture the fish .

Course code	***Course Name***	***Course out Comes***
CC-14	Training /dissertation project work	As an entrepreneurs, after completing the professional degree in IFF candidate can start their own enterprise .can be developed are -→ornamental fish culture and breeding, aquaculture, hatchery and seeds production , fish disease diagnostic centre etc. *improve critical thinking . *contributes to improve understanding of concepts . *Team building . *Project based learning for improve problem solving skill.

DSE-3	Fish microbiology and public health Fishery	• Microbes play and important role in the degradation of fish products, thus better knowledge of the microbiological conditions throughout the fish production chain may help to optimise product quality and resource utilisation .

DSE-4	Entrepreneurship development.	• To understand entrepreneurship development programs, venture capital, contract farming & Joint venture , Public-Private partnership & overview of fisheries input industry. • To understand the government schemes and incentives for promotion of entrepreneurship. • Clarity about the business idea, Market potential for the product or service. Skill in preparing business plan. Conducting project feasibility study.