

**A.S. D GOVT.DEGREE COLLEGE FOR WOMEN (A), KAKINADA**

**DEPARTMENT OF ZOOLOGY & AQUACULTURE TECHNOLOGY**

**2021-2022**

**Aquaculture Technology Courses offered**

<b>Year</b>	<b>Semester</b>	<b>TITLE</b>	<b>Course type (T/L/P)</b>	
I	I	<b>Basic Principles Of Aquaculture</b>	<b>T</b>	
		<b>Basic Principles Of Aquaculture Practical</b>	<b>P</b>	
	II	<b>Biology Of Fin Fish And Shell Fish</b>	<b>T</b>	
		<b>Biology Of Fin Fish And Shell Fish Practical</b>	<b>P</b>	
II	III	<b>Fish Nutrition And Feed Technology</b>	<b>T</b>	
		<b>Fish Nutrition And Feed Technology Practical</b>	<b>P</b>	
	IV	<b>Fresh Water And Brackish Water Aquaculture</b>	<b>T</b>	
		<b>Fresh Water And Brackish Water Aquaculture Practical</b>	<b>P</b>	
		<b>Fish Health Management &amp; Fisheries Economics</b>	<b>T</b>	
		<b>Fish Health Management &amp; Fisheries Economics Practical</b>	<b>P</b>	
	III	V	<b>Fish Health Management</b>	<b>T</b>
			<b>Fish Health Management Practical</b>	<b>P</b>
<b>Fisheries Extension Economics And Marketing</b>			<b>T</b>	
<b>Fisheries Extension Economics And Marketing Practical</b>			<b>P</b>	
VI		<b>Ornamental Fishery(Elective-I)</b>	<b>T</b>	

	<b>Ornamental Fishery Practical</b>	<b>P</b>
	<b>Fishery Processing Technology</b>	<b>T</b>
	<b>Fishery Processing Technology Practical(Ia)</b>	<b>P</b>
	<b>Fishery Microbiology And Fishery By Products</b>	<b>T</b>
	<b>Fishery Microbiology And Fishery By Products Practical (Ib)</b>	<b>P</b>
	<b>Quality Control In processing plants</b>	<b>T</b>
	<b>Quality Control In processing plants Project(Ic)</b>	<b>P</b>

### **COURSE OUTCOMES (CO's)**

#### **SEMESTER-I**

##### **BASIC PRINCIPLES OF AQUACULTURE**

**CO1:** Students can able to create different aquaculture systems.

**CO2:** They can evaluate the concept of ecology and pond eco-system.

**CO3:** They analyze the classification of fish ponds

**CO4:** Students can easily understand the preparation of pond and Field visit to hatchery

#### **SEMESTER-II**

##### **BIOLOGY OF FIN FISH & SHELLFISH**

**CO1:** Students are able to understand the classification of cultivable fin and shell fish.

**CO2:** Students can analyze the food and feeding growth of fish

**CO3:** Students can evaluate reproductive biology.

**CO4:** Students can easily understand development of fishes, hormones and growth

#### **SEMESTER-III**

##### **FISH NUTRITION & FEED TECHNOLOGY**

**CO1:** Students can understand the nutritional requirements of cultivable fish.

**CO2:** Create the knowledge in feed preparation and feeding habits.

**CO3:** Students are able to evaluate fish feed manufacture and storage.

**CO4:** Students analyze the estimation of protein content in aquaculture feeds

#### **SEMESTER-IV\_ PAPER-IV**

##### **FRESH WATER & BRACKISH WATER AQUACULTURE**

**CO1:** Students can understand the present status of freshwater aquaculture and their role in world economy and food production.

**CO2:** Create knowledge in life history stages of freshwater fish and prawn.

**CO3:** Students gain analytical and technical knowledge of prawn hatchery technology and brackish water species.

**CO4:** They evaluate the carp and prawn culture and composite fish culture systems.

#### **SEMESTER-IV PAPER-V**

##### **FISH HEALTH MANGEMENT & FISHERIES ECONOMICS**

**CO1:** To understand the diseases of fin fish

**CO2**To understand the diseases of shell fish.

**CO3**To understand the fish health management strategies.

**CO4** To understand the different fisheries economic policies.

**CO5**To understand the various schemes for the welfare of fishermen community

#### **SEMESTER-V**

##### **FISH HEALTH MANAGEMENT: (paper-V)**

**CO1:** To gain knowledge about economics of fisheries.

**CO2:** To know about the changes in cell structure caused due to various diseases in fishes

**CO3:** To know about the fin fish diseases. To know about the shell fish diseases.

**CO 4:** To gain knowledge about using diagnostic tools to diagnose diseases in fishes

#### **SEMESTER-V**

##### **FISHERIESEXTENSION, ECONOMICS & MARKETING: (paper-VI)**

**CO1:** To gain knowledge about economics of fisheries.

**CO2:** To improve the knowledge about fish marketing process. To know about the economic status of fisher men.

**CO3:** To improve knowledge about fisheries extension methods. To know about welfare programmes of fisher men.

## **SEMESTER-VI**

### **ORNAMENTAL FISHERIES: (Elective paper-I)**

**CO1:** knowledge on the ornamental fish breeding will be learnt by the student

**CO2:** Learn about Management practices of ornamental fishes will be learnt.

**CO3:** Able to gain knowledge on the aquarium maintenance and accessories.

## **SEMESTER-VI**

### **FISHERY ENGINEERING: Elective paper-II**

**CO1:** student gain knowledge on the fishing crafts.

**CO2:** To learn about fishing accessories, netting materials–

Natural and synthetic fishing gear materials and yarn numbering system.

**CO4:** student can understand about Turtle exclusion devices By-catch reduction devices Destructive and prohibited fishing practices

**CO5:** Student learn about General maintenance of freezing plant and cold storage ice plant

## **SEMESTER-VI**

### **FISH PROCESS TECHNOLOGY: (Cluster-I)**

**CO2:** Students can understand the Fundamental principles involved in chilling and freezing of fish and fishery products. Various freezing methods.

**CO3:** Student learn about Packing and storage of dried products. Spoilage of dried products. Preventive measures. Standards for dry fish products. Cold smoking. Principles of freeze-drying.

**CO4:** student gain knowledge on Packing requirements for frozen and cured products. Statutory requirements for packing.

## **SEMESTER-VI**

### **FISHERY MICRO BIOLOGY AND FISHERY BY-PRODUCTS: (Cluster-II)**

**CO 1:** Student learn about General characteristics of bacteria, fungi, viruses, algae and protozoans. Ultrastructure of prokaryotic cell–structure and function of bacterial cell wall, plasma membrane, capsule, flagella and endospore. Structure of fungi and yeast cell.

**CO 3 :** Students can understand the Fish Microbiology: Fish as an excellent medium for growth of microorganisms.

**CO 4 :** student gain knowledge on Fishery By- Products: Fishmeal, fish protein concentrate, sharkfin rays, fish maws, isinglass, fish liver oil, fish body oil, fish hydrolysates, chitin, chitosan, glucosamine hydrochloride,

## **SEMESTER-VI**

### **QUALITY CONTROL IN PROCESSING PLANTS: (Cluster-III)**

**CO 1:** Quality management, total quality concept and application in fish trade. Quality assessment of fish and fishery products

**CO 3:** Students can understand the water quality in fishery industry, product quality, water analysis, treatments, chlorination, ozonisation, UV radiation, reverse osmosis, techniques to remove pesticides and heavy metals.

**CO 4:** student gain knowledge on Fish processing units

**CO 5:** Student learn about Hazards in fish foods .Laboratory techniques for detection and identification of food poisoning bacteria.