

# Vidyasagar University

## *Curriculum for Industrial Fish & Fisheries (Major)* [Choice Based Credit System]

### Semester-VI

Course	Course Code	Name of the Subjects	Course Type/ Nature	Teaching Scheme in hour per week			Credit	Marks
				L	T	P		
CC- 13		C13T: Fishing Crafts and Gears	Core Course-13	4	0	0	6	75
		C13T: Practical		0	0	4		
CC- 14		C14P: Training / Dissertation / Project work	Core Course-14	1	0	5	6	75
DSE-3		DSE3T: Fish microbiology and Public health fishery	Discipline Specific Elective - 3(Theory)	4	0	0	6	75
		DSE3P: Practical	Discipline Specific Elective - 3 (Practical)	0	0	4		
DSE-4		DSE4T: Entrepreneurship Development	Discipline Specific Elective - 4 (Theory)	4	0	0	6	75
		DSE4P: Practical	Discipline Specific Elective - 4 (Practical)	0	0	4		
Semester Total							24	300

**L**= Lecture, **T**= Tutorial, **P** = Practical, **CC** - Core Course, **TBD** - To be decided,  
**DSE**: Discipline Specific Elective.

## **SEMESTER- VI**

### **List of Core Course (CC)**

**CC-13: Fishing Crafts and Gears**

**CC-14: Training / Dissertation / Project work**

### **Discipline Specific Electives (DSE)**

**DSE-3: Fish Microbiology and Public health fishery**

**DSE-4: Entrepreneurship Development**

## **Core Course (CC)**

### **CC-13: Fishing Crafts and Gears**

**Credits 06**

#### **C13T: Fishing Crafts and Gears**

**Credits 04**

#### **Course Contents:**

Definition and classification of fishing crafts based on fabrication dimension, nature of fishing, depth of operation. History & development of mechanization of fishing crafts. Traditional and mechanised fishing crafts of West Bengal. Boat building materials: Choice of construction materials: Wood, properties, advantages and disadvantages. Deck fitting. Maintenance off fishing vessels. Fouling and boring organisms; seasoning and preservation of wood. Design and constructional of fishing boat: Offset tables; Mould lofting; Backbone assembly of wooden boat. Constructional details of Steel, FRP, Ferro Cement and Aluminium boats. Introduction of Outboard and inboard engines. Development fishing gears and Fishing Technology: Evolution of Fishing gears; Mechanization of Fishing; Basic classification of fishing gears- Principle, Subsidiary and Auxiliary gears. Classification of fishing gears. Gear building materials, Natural materials and Synthetic netting materials and their classification. Types and important synthetic materials used in fishing gears. Different types of fibres- continuous fibre; monofilament, staple and split fibers and production of single yarns. Floats – buoys – its materials, types their properties; Classification of floats: based on shape and materials; calculation of buoyancy. Sinkers – types, materials, properties- negative buoyancy. Factors to be considered while designing /selection of fishing gears.

#### **C13P: Fishing Crafts and Gears (Practical)**

**Credits 02**

#### **Course Contents:**

1. Studies on traditional fishing crafts operated in inland and marine fishing.
2. Identification of wooden boat; General view of boat. Types of marine engines and their installation.
3. Study of net making tools; Knots and hitches used in net making. Methods of net making: Hand braiding- Chain mesh method and loop methods of net making.
4. Methods of net mounting: receiving, stapling and norselling. Mending and net shooter techniques.
5. Survey of fishing gears; Trawl; gillnet; long line and purse seine fishing gears. Rigging of trawl, purse seine, gillnet and hook & line.
6. Commercial fishing techniques: Bottom trawling; purse seining; gillnetting and line fishing. Cast net fishing and trap fishing.
7. Visit to boat building yard and dry dock/Fish landing centre

**CC-14: Training / Dissertation / Project work**

**Credits 06**

**C14P: Training / Dissertation / Project work**

**Credits 06**

**Practical Activities and Report preparation: (50 Marks)**

Students have to select a topic related to any aspect of Fisheries Science for Hands-on training/ Project work. Each student or a batch of students shall visit to the aqua farm, hatchery, ornamental fish culture unit, etc. – whichever is accessible to the college for training/ project purpose. The following are the few identified areas from which the candidate may choose a topic.

1. Ornamental fish culture
2. Seed Production in hatcheries
3. Trade and Export Management in Fisheries
4. Aqua farming (Fish and shell fish)
5. Any survey work related to fisheries

Or any topic selected by the student under the supervision of the faculties.

**Viva-Voce: (25 Marks)**

*(Report to be evaluated by two examiners (one internal and one external)).*

**Discipline Specific Elective (DSE)**

**DSE-3: Fish Microbiology and Public health fishery**

**Credits 06**

**DSE3T: Fish Microbiology and Public health fishery**

**Credits 04**

**Course Contents:**

Introduction to fish microbiology, primary source and role of microbes in fish spoilage. Microbial growth and its measurement. Types of media used for isolation and enumeration of microorganisms from fish and fishery products. Methods for identification of microbes (morphological, cultural, biochemical and molecular approach) in fish and fishery products. Methods of control of microbial growth (physical and chemical) in fish and fishery products. Microbial diversity in processed fishery products, their characteristics and significance. Microbiological and post mortem examination of fin fishes and shell fish. Microflora in food processing facility. Role and significance of microorganisms in food. Microbes and their role in food spoilage. Botulism and their impact on human health. Sanitary control of processing industry and standards of sanitation and hygiene. Methods for assuring quality of fresh and processed fish and fishery products. Microbiological standards and criteria of processed fishery products. Food borne pathogens, food poisoning, bacterial food infections and intoxication related to public health.

### **DSE3P: Fish Microbiology and Public health fishery Credits 02**

#### **Course Contents:**

1. Quality assessment of fresh and spoiled fish
2. Organoleptic test of fresh fish
3. Assessment of microflora present in fish
4. Isolation and identification of fish spoilage causing microbes
5. Culture of different microbes collected from fresh and spoiled fish
6. Identifications of food borne pathogens
7. Assessment of quality standards of fishery products in relation to public health.

### **DSE-4: Entrepreneurship Development**

**Credits 06**

#### **DSE4T: Entrepreneurship Development**

**Credits 04**

#### **Course Contents:**

Concept of entrepreneurship; entrepreneurial and managerial characteristics; managing an enterprise; motivation and entrepreneurship development; entrepreneurship development programs; Generation, incubation and commercialization of ideas and innovations. Importance of planning, monitoring, evaluation and follow up; managing competition. Government schemes and incentives for promotion of entrepreneurship. Preparation of enterprise budget for integrated fish farming. Fiscal and monetary policies and its impact on entrepreneurship. Infrastructural and other financial requirement for fishery entrepreneurship Government policy on Small and Medium Enterprises (SMEs) / SSIs. Venture capital. Contract farming and joint ventures, public-private partnerships. Overview of fisheries inputs industry. Characteristics of Indian fisheries processing and export industry.

### **DSE4P: Entrepreneurship Development**

**Credits 02**

#### **Course Contents:**

1. Developing questionnaire and conducting market surveys, analysis of primary and secondary market data.
2. Exercises on equilibrium price for fish and fishery products; estimation of demand and supply using simple regression

3. Demand and supply functions of fish market – determination of equilibrium price for fish and fisheries products, calculation of price, income and cross elasticity.
4. Production function – production with one or two variable inputs. Shifting demand and surplus curve and its importance in fish price.
5. Economic analysis on cost, return and breakeven of any two production units like fish farm / shrimp farm / seed production unit / fish processing plant / export unit.
6. International Law of the Seas and international commissions on fisheries and their impact.

.....