Syllabus for Fisheries: Vocational in Zoology

Programme/Class: Vocational Course	**Year:** First/Second/Third	**Semester:** Any semester
Subject: Zoology		
Course Code: B050VFT	**Course Title:** Fisheries	

Course Outcomes:

At the completion of the course, students will be able to:

- Understand fisheries sector and its contribution in nutrition and socio-economic growth.
- Know different types of fisheries practiced in Indian subcontinent.
- Be familiar with major fisheries resources of India.
- Gain basic knowledge of prawn and pearl culture.
- Learn elementary idea of fish by products and their uses.
- Practice methods of processing and preservation of fishes for profitable outcome of fisheries.

Credits:1	**Core:** ElectiveVocational Course
Max. Marks:	**Min. Passing Marks:** as per rules

Total No. of Lectures – Tutorials – Practical (in Hours per week): L-T-P: 1-0-0

Unit	Topics	No. of Lectures (15)
I	**Introduction to Fisheries**	**02**
	Definition, aim and scopes of Fisheries	
	Types of fisheries: Culture and capture fisheries; Finfish and shellfish fisheries	
II	**Indian fisheries**	**01**
	Types of culturable fish species: Indian Major Carps, Exotic carps	
III	**Fish culture**	**03**
	Different types of fish ponds: spawning/breeding, hatching, nursing, rearing and stocking ponds	
	Composite fish culture	
	Induced breeding: an overview	
IV	**Overview of Integrated fish farming**	**02**
V	**Prawn fisheries**	**02**
	Types of prawn fisheries and culturable species	
	Culture of freshwater prawns	
VI	**Pearl Culture: an overview**	**01**
VII	**Preservation and Processing of Fish**	**02**
	Refrigeration, Drying, Salting, Smoking and Canning	
VIII	**By-products of Fisheries Industry**	**02**
	Body and liver oils, Fish meal, Fish flour, Bone meal, Fish Glue and Isinglass	

Suggested Readings:

- Khanna and Singh: Textbook of Fish Biology and Fisheries (2003 Narendra Publication House)

- Srivastava: A Textbook of Fishery Science and Indian Fisheries. (1985, Kitab Mahal)
- Hora and Pillay: Handbook on Fish Culture in the Indo-Pacific Region. (1962, Fisheries Division)
- Pillay: Aquaculture: Principles and Practices. Fishing New Books (2005, First Indian reprint)
- Shukla and Upadhyaya: Economic Zoology

This course can be opted as an Elective Vocational Course by the students of Science/Art/Commerce.

The eligibility for opting this course is 10+2 from Science/Art/Commerce.

Programme/Class: Vocational Course	**Year:** First/Second/Third	**Semester:** Any semester
Subject: Zoology		
Course Code:B050VFP	**Course Title:**Fish and FisheriesLab	

Course Outcomes:

At the completion of the course, students will be able to:

- Collect and identify different groups of finfishes and shellfishes.
- Perform water quality analysis of pond water for suitability of fish culture.
- Know different types of fisheries practiced in Indian subcontinent.
- Be familiar with taxonomic method of identification of different fish species. .
- Demonstrate the processing and preservation of fishes for profitable outcome of fisheries.

Credits: 2	**Core:** ElectiveVocational Course
Max. Marks:	**Min. Passing Marks:** as per rules

Total No. of Lectures – Tutorials – Practical (in Hours per week): L-T-P: 0-0-4

Unit	Topics	No. of Practical (60)
I	• Study of museum specimens of economically important finfishes – Major carps, exotic carps;and shellfishes – crustaceans and molluscs. • Study of museum specimens of predatory fishes. • Study of museum specimens of weed fishes and larvivorous fishes.	**12**
II	Analysis of following physico-chemical characteristics of water and soil of different ponds: • Determination of pH • Estimation of free carbon dioxide (acidity) • Determination of phenolphthalein alkalinity • Determination of methyl orange alkalinity • Estimation of dissolved oxygen content • Determination of turbidity of pond water • Determination of Carbonate and Nitrate content of pond soil	**20**
III	• Determination of hepatosomatic index (HSI) of fish. • Determination of gonadosomatic index (GSI) of fishes. • Determination of length-weight relationship of locally available fishes.	**12**
IV	• Survey of local fish market, and collection of available fishes. • Identification ofsome important fish species through taxonomic identification keys. • Preservation of fishes by chilling and refrigeration methods. • Preservation of fishes by salting method. • Fish culture, Pearl culture, biofloc through site visit and virtual lab	**16**

Suggested Readings:

- Srivastava: Fishes of U.P. and Bihar
- Khanna and Singh: Textbook of Fish Biology and Fisheries (2003 Narendra Publication House)
- Srivastava: A Textbook of Fishery Science and Indian Fisheries. (1985, Kitab Mahal)
- Hora and Pillay: Handbook on Fish Culture in the Indo-Pacific Region. (1962, Fisheries Division)
- Pillay: Aquaculture: Principles and Practices. Fishing New Books (2005, First Indian reprint)

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Suggested continuous evaluation method