

Name of the Programme: M.Sc. Zoology

Course Code: ZOO-632

Title of the Course: Fish Processing

Number of Credits: 02

Effective from AY: 2023-24

Pre-requisites for the Course:	Basic knowledge of Fish Biology, Fishery sciences.	
Course Objectives:	<ol style="list-style-type: none">1. To build skill-based knowledge for the learners on different aspects of fish processing technologies related to the production of value-added quality fish products and their preservation2. To develop knowledge about post-harvest management of fish.3. To elaborate on the various aspects of fish preservation and processing	
Content:	<p>Module 1</p> <p>Module 1: Post-Harvest Technology: Principles and importance of fish preservation. Fish spoilage-post mortem changes and rigor mortis, post rigor spoilage. Methods of fish preservation-Icing, Freezing, Cold storage, Drying, Salting, Smoking, Canning, and Fish Pickling.</p> <p>Fish products and By-product: Fish Oil, Fish liver oil, Fish meal, Fish manure, Fish flour, fish glue and isinglass, chitin, pearl essence fish silage Perishability of seafood – Microbial spoilage of fish and shellfish. Spoilage microflora. Fish products (frozen food items)</p> <p>Intrinsic and extrinsic factors affecting spoilage. Microflora is associated with body parts. Foodborne pathogens. Sources of contamination. Seafood biotoxins</p> <p>Module 2</p> <p>Quality Assurance of Fishery Products: Quality control: basic concepts, quality, and quality control. Sanitation procedures in seafood processing plants. Waste management in fish processing industries. Quality analysis – organoleptic, physical, chemical,</p>	<p>15 hours</p> <p>15 hours</p>

	<p>microbiological, and instrumental methods.</p> <p>Quality standards in India and major importing countries like the USA, Japan, and the EU. Export of fishery products from India –</p> <p>major countries, important products, export documents, and procedures. Traceability, Quality certifications, Eco-labeling.</p>	
Pedagogy:	Lectures/Tutorials/Videos/Assignments/Group discussion/Self-study.	
References/ Readings:	<ol style="list-style-type: none"> 1. K.P. Biswas, Fish Processing and Preservation, Daya Pub. House, 2004 2. T.K. Govindan, Fish Processing Technology, Oxford & IBH Pub. Co.,1985 3. K.C. Badapanda. Fish processing and preservation technology, Narendra Publishing House, 2013. 4. R. Fernandes, Microbiology Handbook: Fish and Seafood. Food Research Association,2009. 5. W. Harry, S. Paul, and J. J. Lee, Microbes in Action: A Laboratory Manual of Microbiology,1990. 6. Pawar and Diganawala, General Microbiology – Vol. I and Vol. II. Himalaya Publishing House, 2010. 	
Course Outcomes:	<p>The learner will</p> <ol style="list-style-type: none"> 1. Identify the main microbes concerned with fish processing 2. Justify how to preserve and process fishery products and their value additions. 3. Develop the ability to understand the concept and definition of packaging of fish and fishery products. 4. Demonstrate the importance of quality control in fish farm 	