Course Code: 547V04 **Duration: 30 Hrs**

SEA FOOD PROCESSING & VALUE-ADDED PRODUCTS

Course Objectives:

- To understand the fish handling during transportation
- To identify the Post mortem changes
- To explore about different fish preservation techniques to reduce post-harvest loss
- To understand canning and irradiation techniques
- To explore different area for fish value addition for better utilization of by-catch and low value fish

UNIT - I Fish Handling - Transportation - on board and on shore – manufacture and quality of ice for fish storage. Transportation of fish - Refrigerated Sea water - Insulated containers for fresh fish transportation.

UNIT - II Fish Spoilage - Post mortem changes-rigor mortis-autolysis-autooxidation and their role. Chemical changes (Lipid, protein and nucleotide)-Bacterial load, sensory changes, texture, taste and odour. Factors affecting quality of fish.

UNIT - III Processing And Packaging - Salting, sun drying, smoking, marinading and fermentation. Freezing, antibiotics and chemicals usage and cryoprotectants. Duration of Storage period -quality and shelf life. Hygienic practice in processing plants. HACCP. Packaging and packaging materials - vacuum packaging, MAP - Packing of fresh and frozen fish – transportation and cold chain-packaging for local consumption and export.

UNIT - IV Canning And Irradiation - General steps in canning-principles-can materials-preparation of raw materials, packing, precooking, exhausting, seaming, retorting, labelling, cooling, labelling and storage. Spoilage of canned foods and preventive measures. Irradiation-Radiation sources and units, dose level-effects of irradiation on protein, vitamin and lipids.

UNIT - V Fish By Products And Value-Added Products - Fish meal, oil, chitin, chitosan and gelatin etc. Seaweed uses: agar agar, algin, carrageenan. Seafood quality: Quality assessment in fish and fishery products - Quality standards - good manufacturing practices-Codex alimentaris, USFDA and EU regulation for export trade. Role of MPEDA.

References:

- Balachandran. (2002). *Post - Harvest Technology of Fish and Fish Products*. Daya Publishing House.
- Connell, J. J. (1999). *Control of fish quality*. Wiley-Blackwell.
- Gopakumar, K. (2013). *Fish packaging technology.* Concept Publishing Company, Delhi.
- Less Bratt (2010). *Fish Canning Handbook.* Wiley-Blackwell.
- Nambudiri, D. D. (2006). *Technology of Fishery Products*. Fishing Chimes.
- Sinha, P. (2011). *Fish Processing and Preservation*. APHA Publishing Corporation.

Course outcomes

After completion of the course, students will be able to

1. select the appropriate fish handling method to reduce spoilage in fish and minimize post-harvest loss.
2. develop the skill to differentiate fresh and spoiled seafood
3. develop skills on various seafood processing techniques.
4. critically evaluate the Canning and irradiation techniques
5. prepare value added seafood products.