5261 – MARINE PRODUCTS TECHNOLOGY

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
					Theory		Practical Ex.	Total
Lectures	Practical	Credits						
3	2	5	25	25-	3 Hrs	100	-	150

Pre-requisite	Source
Nil	FOD

Semester	Theory	Test	Total	TW	PR	Gr Total
	75	25	100	50	–	150

Rationale:

COURSE CONTENTS	Hrs	Mks
1. INTRODUCTION / FISHERY RESOURCES		
Survey of important commercial species of India	3	3
2. CHEMICAL COMPOSITION AND SPOILAGE OF FISH		
Classification of fish on the basis of fat content (lean fish, semi-fatty fish and fatty fish); Chemical composition of above types of fish; Nutritional value of fish with reference to quality of fish protein.	2	4
Outline of sequence of changes leading to the spoilage and end products of spoilage in marine fish and fresh water fish. Subjective method of evaluation of freshness of fish. Objective method of evaluation of freshness of fish. (Determination of TVB and TMA).	4	5
3. HANDLING AND TRANSPORTATION OF FISH		
Handling and transportation of fish after landing.	3	5

4. HEAT PROCESSING OF FISH		
Canning of fish in oil (e.g. canning of sardines and mackerels). Canning of prawns in brine. Spoilage of canned fish and prawns (visual defects in stored cans and products, honey combing and formation of struvite crystals). Quality control and quality standards in canned fish and prawns.	5	15
5. COLD STORAGE & FREEZING OF FISH		
Process of freezing and frozen storage of fish (whole fish and fish fillet). Process of freezing and frozen storage of prawns. Changes in fish during freezing and frozen storage (desiccation drip loss, rancidity, protein denaturation). Measures to minimise changes during freezing and frozen storage of fish. Quality control and quality standards of frozen fish and prawns (for export). Procedure for evaluation of bacteriological quality of frozen fish and prawns (for export).	6	15
6. SALT CURING & DRYING OF FISH		
Quality requirements for salt for curing of fish. Methods of salt curing of fish (pickle cure, brine cure and kench cure). Process of sun drying of salted fish. Process of mechanical dehydration of salted fish. Comparison of sun drying and mechanical dehydration (Advantages and limitations of both methods). Microbiological spoilage of salt cured fish and measure to prevent spoilage.	3	12
7. FISH PRODUCTS AND BY-PRODUCTS		
Specialised fish products and by-products of sea-food processing industry	3	4
Process of production of fish sausage; Process of production of fish fingers; Production of fish pickle & prawn pickle; Production of fish flakes; Production of fish fingers.		
Definition of fish protein concentrate; Types of fish protein concentrate and quality standards of each; Principle of process of production of fish protein concentrate.	2	5
By-products of seafood processing industry – uses of fishmeal, fish oil, chitin, gelatin and isinglass.	1	2
8. PACKAGING MATERIALS AND CONTAINERS	8	12
Packaging materials required. Properties and criteria for the selection of the packaging materials for the following marine products –Fresh and frozen marine products. Dried, salted and other types of seafood products. Canned fish. Fish paste and fish sausage.		
Containers required for Bulk packaging of marine products, testing of packaging materials		
9. MICROBIOLOGICAL ANALYSIS OF FROZEN SEA-FOOD	4	9
Vibrio – Vibrio parahacnidyticus, vibrio cholerae. Foods to be examined – Oysters and foods other than oysters e.g. fish, squid, prawns, muscles, etc. Sampling Methods – preparation of food samples, isolation, identification and confirmation.		
Isolation and detection of Salmonella and Shigella in frozen seafood. Examination of shellfish, prawns, squid and other seafood. Sampling Methods – preparation of food samples, isolation – enrichment media and selective media, identification and confirmation.	4	9
Total	48	100

PRACTICALS

1. Study of morphological characteristics of typical fish.
2. Preparation of specialised fish products such as fish pickle, prawn pickle, fish flakes, fish fingers, etc.
3. Evaluation of bacteriological quality of frozen fish – Isolation and detection of- Salmonella, Shigella, Vibrio.
4. Visit to seafood freezing unit.

Reservation Roster for Direct Recruitment

Name of Cadre/Post: **No. of Post:** **Method of Recruitment:**

Reservation brought forward from previous years			Rectt. Year	Particulars of recruitment made					Reservation carried forward			Signature of appointing authority	Remarks
SC	ST	OBC		Sl. No. of Post	Unreserved or reserved for SCs/STs/OBCs according to the roster applicable.	Name	Date of appointment	Whether belongs to SC/ST/OBC if not say neither	SC	ST	OBC		
1	2	3	4	5	6	7	8	9	10	11	12	13	14

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