

BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA
COLLEGE OF FISHERIES, KISHANGANJ

M.F.Sc. Programme

DEPARTMENT OF FISH PROCESSING TECHNOLOGY

SEMESTER LECTURE PLAN

Course Code: FPT 504

Course Title: Fish Quality Assurance, Management and Certification

Credits: 2+1

Course Instructor: Dr. Abhishek Thakur

Designation: Assistant Professor

Department: Fish Processing Technology

A. THEORY LECTURE PLAN

Week	Theory Class I	Theory Class II
1	Introduction to fish quality assurance, quality management, objectives, importance, and applications in the fish trade.	Hazards in fish and fishery products: physical, chemical, and biological hazards; sources, effects, and preventive measures.
2	Total Quality Management (TQM): principles, elements, and applications in fish processing and marketing.	Quality dimensions and quality-affecting parameters in fish and fishery products; factors affecting quality during harvesting, handling, processing, and storage.
3	Quality assessment of fish and fishery products: physical and instrumental methods.	Organoleptic and sensory evaluation of fishery products; sensory attributes, grading, and interpretation of results.
4	Chemical assessment of fish quality: pH, TVB-N, TMA, peroxide value, and other relevant indices.	Microbiological quality assessment: indicator organisms, spoilage microorganisms, pathogens, and microbiological standards.
5	Quality standards for fresh, chilled, frozen, canned, cured, and other processed fishery products.	Quality defects in fishery products, their causes, prevention, and corrective measures.
6	Fish inspection and quality assurance systems in India: objectives, procedures, and regulatory framework.	Traceability and authenticity of fish and fishery products; identification, record keeping, and product tracking.
7	Factory sanitation and hygienization: principles, cleaning, disinfection, and hygienic handling.	National and international sanitation requirements; Sanitation Standard Operating Procedures (SSOPs).

8	Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) in seafood processing plants.	Development and implementation of SSOPs, personnel hygiene, pest control, water quality, and environmental sanitation.
9	Hazard Analysis and Critical Control Point (HACCP): principles, terminology, and applications in seafood industries.	HACCP plan development, hazard analysis, identification of critical control points, critical limits, monitoring, and corrective actions.
10	Quality problems in fishery products and preventive and corrective control measures.	Quality management systems: documentation, verification, validation, internal audits, and continuous improvement.
11	ISO 9000 series: principles of quality management, requirements, and applications in fish processing industries.	Process validation, quality audits, non-conformities, corrective actions, and management review.
12	Food laws and regulatory framework in India; introduction to the Food Safety and Standards Authority of India (FSSAI).	FSSAI regulations and applicable national standards for fish and fishery products.
13	Export Inspection Council (EIC) and Export Inspection Agencies (EIAs): roles in inspection, approval, and export certification.	Inspection and certification of export-oriented fish processing units, including applicable approval and monitoring requirements.
14	Role of the Marine Products Export Development Authority (MPEDA) in seafood exports, quality improvement, and export promotion.	Bureau of Indian Standards (BIS): relevant standards and their application to fish and fishery products.
15	National requirements for fishing vessels, pre-processing establishments, processing plants, and traceability systems.	Export certification procedures, establishment approval, documentation, and requirements for maintaining export eligibility.
16	Codex Alimentarius: principles, standards, and guidelines relevant to fish and fishery products.	United States Food and Drug Administration (USFDA): seafood safety requirements and the Seafood HACCP framework.
17	European Union regulations relevant to fish and fishery products: hygiene, official controls, traceability, and export eligibility.	Comparison of major seafood regulatory requirements in India, the EU, and the United States.

18	ISO 22000 food safety management systems: principles, implementation, documentation, and certification.	British Retail Consortium (BRC) Global Standards: requirements, certification, audits, and applications in seafood processing.
19	Statistical Quality Control (SQC): process monitoring, control charts, variable charts, and attribute charts.	Acceptance sampling: sampling schedules, sampling by attributes, and single and double sampling plans.
20	Integrated quality management, certification, traceability, audit readiness, and practical case studies from seafood industries.	Comprehensive revision of quality assurance, national and international standards, HACCP, certification, and examination preparation.

B. PRACTICAL LECTURE PLAN

Week	Experiment/Practical Exercise
1	Identification of physical, chemical, and biological hazards in selected fish and fishery products.
2	Sensory evaluation of fresh fish and preparation of a quality grading sheet.
3	Physical and chemical quality assessment of fish using suitable laboratory methods.
4	Microbiological quality assessment of fish and fishery products using appropriate laboratory procedures and available facilities.
5	Preparation of a HACCP worksheet and plan form for chilled fish.
6	Preparation of a HACCP worksheet and plan form for frozen fish.
7	Preparation of a HACCP worksheet and plan form for canned fish.
8	Preparation of a HACCP worksheet and plan form for pasteurized fish products.
9	Preparation of HACCP documentation, including process flow diagrams, hazard analysis, monitoring records, and corrective action records.
10	Preparation of a checklist for hygienic activities and SSOP implementation in a fish processing plant.
11	Evaluation of sanitary conditions in a fish processing unit using a structured inspection checklist.
12	Preparation of a quality assurance and plant certification checklist for a seafood processing establishment.
13	Preparation of a sample traceability system for a fishery product, including lot identification and record keeping.
14	Statistical Quality Control: preparation and interpretation of process control charts for variables.

15	Preparation and interpretation of attribute control charts for quality monitoring.
16	Preparation of a sampling schedule and introduction to acceptance sampling.
17	Numerical exercises on single and double sampling plans and sampling by attributes.
18	Sensory evaluation of selected fishery products using an appropriate scoring or hedonic method.
19	Preparation of a mock audit checklist for GMP, GHP, SSOP, and HACCP compliance.
20	Integrated practical revision, interpretation of quality assessment results, practical record verification, and viva voce preparation.
