

**B.sc. FISHERIES BIOLOGY SYLLABUS UNDER CBCS
(With effect from 2016-2017)
VI-SEMESTER
PAPER VII- FISH PROCESSING TECHNOLOGY (Theory)**

Max Marks:75

UNIT-I Process Bio chemistry and Microbiology

- 1.1 Major and minor constituents of fish ,their distribution and function-moisture, Protein ,Lipids, Carbohydrates, vitamins and minerals .**
- 1.2 Post-mortem biochemical changes in fish – rigor mortis, autolysis ,auto-Oxidation and Their significance.**
- 1.3 Oxidative deterioration ; Toxins and toxic Substances in fish.**
- 1.4 Biochemical and microbial Spoilage of fish; Factors affecting Spoilage fish.**
- 1.5 Role of bacteria and moulds in fish Preservation**
- 1.6 Pathogenic Organisms encountered in fish Products, fecal indicator Organisms.**

UNIT-II Handling and Fish Preservation

- 2.1 Handling ,storage and transport of fresh fish , sanitary and Phyto- sanitary Requirements For maintenance of quality.**
- 2.2 Principles of fish Preservation; preservation of fish by curing ,drying . salting and Smoking; Chilling and freezing of fish; canning of fish and fish Products.**
- 2.3 Modern techniques employed in fish Preservation ; Accelerated Freeze Drying (AFD) ,Irradiation.**
- 2.4 Fishery by –Products and Waste utilization.**

UNIT-III Quality Management and certification

- 3.1 HACCP (Hazard Analysis and Critical Control Points) and Good Manufacturing Practices:**
- 3.2 HACCP Principles ,Practical aspects of planning and implementation,**
- 3.3 Verification ,validation and Audit.**
- 3.4 National and international Standards –ISO 9000 Series,2000 Series of Quality Assurance System codex Alimentarius Commission , Food Safety and Standards Act of India 2006.**

REFERENCE BOOKS

1. Adcock D, Bradfield R, Halborg A & Ross C. 1995. *Marketing Principles and Practice*. Pitman Publ.
2. Allen, et al.(Eds). 1984. *Bio-Economics of Aquaculture*. Elsevier Publication
3. Chaston I. 1984. *Business Management in Fisheries and Aquaculture*, Fishing News Books.
4. Hopher B and Pruginin Y. 1989. *Commercial Fish Farming*. Wiley-Interscience.
5. Ian C. 1984. *Marketing in Fisheries and Aquaculture*. Fishing News Books.
6. Kumar D. 1996. *Aquaculture Extension Services Review: India*. FAO Fisheries Circular No. 906, Rome.
7. Meade JW. 1989. *Aquaculture Management* Van Nostrand, New York.
8. Pillay TVR. 1990. *Aquaculture Principles and Practices*. Fishing News Books Ltd. London
9. Ray GL. 2006. *Extension, Communication and Management*. 6th Ed. Kalyani Publ. Delhi.
10. Shang YC. 1990. *Aquaculture Economic Analysis - An Introduction*. World Aquaculture Society, USA.

Practicals-30 Marks

1. Estimation of costs and returns of different aquaculture systems – planning and budgeting – linear programming production function analysis – cost function analysis – financial and farm business analysis – risk programming – case studies.
2. Visit to fish farms, prawn farms and hatcheries – discussion on socio economic issues in aquaculture development.
3. Data collection on cost and returns of different fishing methods (instead of economics of capture fisheries);
4. Structural Change in the seafood export of India-Estimation of DRC, NPC for selected groups of exports.

Sadia Begum