GENERIC ELECTIVE COURSE
GE FT07- Processing of Meat and Marine Foods

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibiliy criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Processing of Meat and Marine Foods	4	3	0	1	XII with PCM/PCB	NIL

Learning Objectives
The Learning Objectives of this course are as follows
1. To understand aspects of Indian Meat industry, meat quality and slaughter processes
2. To acquire the knowledge of fish preservation and value-added fish products

Learning outcomes
The Learning Outcomes of this course are as follows:
1. Understand the need and importance of meat and marine industry.
2. Comprehend meat and marine processing & technology.
3. Acquire knowledge about meat and fish by-products
4. Understand preservation of fish

SYLLABUS
THEORY
(Credits 3; Hours 45)

Unit I: Meat quality, slaughter process and by-products.   15 Hours
- Status of livestock population in India, development of meat industry in India.
- Colour and texture of meat (Water holding capacity, Emulsification capacity of meat).
- Slaughter, antemortem and postmortem examination of Sheep/Goat.
- Classification of meat byproducts and uses

Unit II: Fish quality and Low Temperature Preservation   15 Hours

- Status of fishery industry in India.
- Fish: characteristics and structure of fish muscle, Effect of method of catching and handling on the quality of fish, post mortem changes, rigor mortis, autolytic changes, changes in fish proteins on storage, spoilage of fish, packaging of fish, contaminants and naturally occurring toxicants in fish

- Relationship between chilling and storage life, MAP, general aspects of freezing, freezing systems (air blast freezing, plate or contact freezing spray or immersion freezing, freezing on board, onshore processing, changes in quality in chilled and frozen storage, thawing.

Unit III: Processing of Meat and Fish   15 Hours

Canning of Meat, Sausage classification and manufacture, Retort pouch meat,Traditional Meat products of India

- Salting of fish, salting methods (brining, pickling, kench curing, gaspe curing), Salted fish products- pindang, fishwood.
- Drying and Smoking: Smoke production, smoke components, quality, safety and nutritive value of smoked fish, processing and equipment, pre-smoking processes, smoking process control.
- Principles of canning of fish, canning of (Tuna, Mackerel, Sardine).
- Basic concepts of Surimi and fish mince products.

PRACTICAL
1 Credit (30 Hrs)

- Analysis of frozen meat / meat emulsion product.

- Cut out analysis of canned meat/retort pouches (Internal parameters) .

- Cut out analysis of canned meat/retort pouches (External parameters).

- Cut out analysis of canned fish (Sardine/Mackerel/Tuna) (Internal parameters).

- Cut out analysis of canned fish (Sardine/Mackerel/Tuna) (External parameters).

- Estimation of moisture content in meat.

- Preparation of Meat/fish product (Ideation/development of product).

- Subjective evaluation of Fresh Fish.

- Quality assessment of market sample of processed fish products.

Essential Readings (Theory)

1. Hall, G.M. (1997). Fish Processing Technology. 2nd ed., Blackie Academic and Professional, an imprint of Chapman & Hall., NY.
2. Sen, D.P. (2005). Advances in Fish Processing Technology, Allied Publishers Pvt. Limited.
3. Lawrie, R. A. (2017). Lawrie's meat science. 8th ed. England: Woodhead Publishing Ltd.
4. Martin, R.E., Collete, R.L. and Slavin, J.W. (1998). Fish Inspection, Quality Control

and HACCP: A Global Focus.1st ed. (Eds), CRC Press,

5. Borda, D., Nicolau. A. I. and Raspor, P. (2017). Trends in Fish Processing Technology (Contemporary Food Engineering Series). 1st edition, Taylor & Francis.
6. Hall GM, Fish Processing Technology, VCH Publishers Inc., NY, 1992.
7. Lawrie R A, Lawrie's Meat Science, 5th Ed, Woodhead Publisher, England, 1998