



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-V

Subject: Processing of Meat and Poultry Products – BETFT15313

Type of course: Professional Core

Prerequisite: Basic knowledge of food science, microbiology, and biochemistry.

Rationale:

The growing demand for safe, high-quality, and value-added meat and poultry products has made processing technology a crucial component of the food industry. Meat is highly perishable due to its biochemical composition, making proper processing, preservation, and handling essential to ensure safety and shelf life. This course introduces students to scientific principles and modern technologies used in meat and poultry processing, including slaughtering, preservation, product development, packaging, and quality control. Emphasis is placed on hygiene, food safety standards, and regulatory compliance. The course emphasizes both theoretical understanding and practical insights to meet industrial requirements and innovate in value-added meat products.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
3	0	2	4	60	30	10	20	30	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.



Course Content:

Unit No.	Course content	Hrs.	% Weightage
1	Introduction to Meat and Poultry Processing : Structure and composition of meat , Classification of meat and poultry species, Post-mortem changes: rigor mortis, aging, tenderization ,Nutritional value of meat and poultry ,Scope and status of meat industry (India & global) and Hygiene and sanitation practices in meat processing plants	10	22%
2	Slaughtering and Primary Processing : Ante-mortem and post-mortem inspection ,Slaughtering methods (traditional and modern) ,Dressing, evisceration, and carcass fabrication ,Poultry processing: stunning, bleeding, defeathering, evisceration ,By-products utilization (blood, hides, offal) and Waste management in slaughterhouses	10	22%
3	Preservation and Processing Techniques : Chilling and freezing of meat ,Thermal processing (cooking, pasteurization, sterilization) ,Curing, smoking, drying, and dehydration ,Fermentation of meat products ,Use of preservatives and additives and Modified atmosphere packaging (MAP) for meat products .	16	36%
4	Value-Added Meat and Poultry Products : Comminuted meat products: sausages, nuggets, patties ,Restructured and emulsified products ,Ready-to-eat and ready-to-cook meat products ,Packaging techniques for meat products ,Quality control: physicochemical and microbiological analysis and Food safety standards (FSSAI, HACCP, ISO)	9	20%

List of Practical

Sr. No.	Title	Hours
1	Study of different meat and poultry cuts	2
2	Determination of pH of meat	2
3	Moisture content estimation	2
4	Protein estimation	4
5	Fat estimation	4
6	Post-mortem changes observation	2
7	Preparation of meat products (sausages/nuggets)	4
8	Curing and smoking of meat	4



9	Microbial analysis of meat	4
10	Adulteration detection in meat	2
	Total	30

Continuous Assessment:

Sr No	Active Learn	Marks
1.	Meat Composition Analysis Report: Analyze the composition and nutritional value of different meat types and submit a comparative report. then upload as a PDF to the GMIU Web Portal.	5
2.	Slaughterhouse Process Flowchart: Prepare a detailed flowchart of slaughtering and primary meat processing operations and submit the brochure in PDF format on GMIU Web Portal.	5
3.	Preservation Technique Study: Study and document one preservation method (curing/freezing/smoking) with process steps and advantages and upload it as PDF to the GMIU Web Portal.	10
4.	Value-Added Product Development Plan : Design a concept for a value-added meat product including ingredients, processing steps, and packaging and upload it as PDF to the GMIU Web Portal.	5
5.	Food Safety Audit Report : Prepare a checklist based on HACCP principles for a meat processing unit and then upload as a PDF to the GMIU Web Portal.	5
Total		30

Suggested Specification Table with Marks (Theory): 60**Distribution of Theory Marks (Revised Bloom's Taxonomy)**

Distribution of Theory Marks(Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	20%	40%	30%	10%	-	-



Course Outcomes:

After completion of the course, students will be able to:	
CO1	Understand the composition, structure, and post-mortem changes in meat..
CO2	Apply appropriate slaughtering and primary processing techniques.
CO3	Evaluate preservation methods and processing technologies for meat safety.
CO4	Develop value-added meat products and implement quality and safety standards.

Instructional Method:

- The course delivery method will depend upon the content and student requirements.
- In addition to conventional teaching methods, instructors may use demonstrations, videos, case studies, industry visits, and virtual labs.
- 10% of content will be delivered using flipped classroom approach .
- Students will use supplementary resources such as NPTEL/SWAYAM courses and industry videos.
- Internal evaluation will be based on Active Learning Assignments

Reference Books:

1. Lawrie's Meat Science by R. A. Lawrie and David Ledward. Woodhead Publishing.
2. Meat Processing: Improving Quality edited by Joseph P. Kerry, John F. Kerry and David Ledward. Woodhead Publishing.
3. Processed Meats by A. M. Pearson and T. A. Gillett. Springer.
4. Handbook of Meat Processing edited by Fidel Toldrá. Wiley-Blackwell.
5. Principles of Meat Science by J. C. Forrest, E. D. Aberle, H. B. Hedrick, M. D. Judge and R. A. Merkel. W. H. Freeman.

