

GANPAT UNIVERSITY									
FACULTY OF MANAGEMENT STUDIES									
Programme	MBA				Branch/Spec.	Innovation, Entrepreneurship and Venture Development (Minor Specialization - Agribusiness and Food Innovation)			
Semester	IV				Version	2.0.0.0			
Effective from Academic Year			2026-27		Effective for the Batch admitted in			January 2026	
Course Code	IVA05FPQ		Course Name		Food Processing Technology and Quality Management Systems				
Teaching Scheme					Examination Scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	0	0	0	4	Theory	60	40	100
Hours	4	0	0	0	60	Practical			
Pre-requisites									
Course Outcomes									
On successful completion of the course, the students will be able to:									
CO1	To understand the food processing industry, the methods used for processing of food products, technical terminology involved in processing industry.								
CO2	To learn the concept of Quality, parameters of quality assurance and management systems of food at various stages of processing.								
CO3	To explore the evaluation methods of processed food adopted by manufacturers								
CO4	To learn food law, which are near to mandatory to adopt by food processors and marketers reflecting the quality parameters.								
CO5	To learn the principles and regulations involved in food labelling, packaging, material used in processed food industry and the to understand the food retail market, value chain and its effectiveness.								
Theory Syllabus									
Unit	Content								Hrs.
1	Scope and importance of food processing. National and international perspectives. Principles and methods of food preservation-freezing, heating, dehydration, canning, additives, fermentation, irradiation, extrusion cooking, hydrostatic pressure cooking, dielectric heating, microwave processing, aseptic processing, hurdle technology, Juices and concentrates/membrane technology. Storage of food, modified atmosphere packaging. Refrigeration, freezing and drying of food, minimal processing, radiation processing.								10
2	Objectives, importance and functions of quality control. Methods of quality, concepts of rheology, assessment of food materials-fruits, vegetables, cereals, dairy products, meat, poultry, egg and processed food products. Sampling and specification of raw materials and finished products, statistical quality control. Sensory evaluation-introduction, panel screening, selection methods. Interaction and thresholds. Sensory and instrumental analysis in quality control								10
3	Food Regulations, Law, and Standards (1): Overview of Food Laws and Regulatory Framework: Evolution and importance of food laws in India and globally, Objectives of food regulation: consumer protection, food safety, fair trade, and public health, Institutional framework for food regulation – national and international levels, Key stakeholders: regulators, food business operators (FBOs), certification agencies, and consumers. Food Safety and Standards Authority of India (FSSAI): Structure, powers, and functions of FSSAI, FSSAI Act, 2006 and related rules and regulations, Licensing and registration of food								15

	businesses, Product approval, food labelling, packaging, and advertising regulations, Food fortification, nutraceuticals, and novel foods under FSSAI regulations, Compliance mechanisms, inspections, penalties, and recall procedures, Role of Food Safety Officers and State Food Authorities. International Food Regulations and Standards: Role and structure of Codex Alimentarius Commission (CODEX), Codex standards, guidelines, and codes of practice, Relationship between CODEX and WTO (SPS and TBT Agreements), Equivalence and harmonization of global food standards, Regional and country-specific standards (US-FDA, EFSA, FSANZ, etc.). Food Quality and Safety Management Systems: Introduction to HACCP (Hazard Analysis and Critical Control Point) – principles and implementation, ISO 22000:2018 – Food Safety Management Systems (FSMS), Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP), Total Quality Management (TQM) in food industries, Food traceability systems and digital compliance tracking.	
4	Food Regulations, Law, and Standards (2): Food Policy and Governance: National Food Policy and Food Safety Policy Framework, Linkages between agriculture, processing, and public health policies, Sustainable food systems, environmental compliance, and circular economy in food processing, Government initiatives for promoting food processing and exports (PMFME, Mega Food Parks, etc.). Food Export and Import Regulations: Export inspection, certification, and documentation requirements, Role of the Export Inspection Council (EIC) and APEDA, Export Quality Control and Inspection Act, 1963, International market access requirements and compliance, Import regulations, sampling, and border inspection systems, Case studies of Indian food exports: success factors and compliance challenges. Emerging Issues and Global Best Practices, Recent updates in FSSAI and global standards, Digital food safety management – blockchain, AI, and IoT in compliance monitoring, Food fraud prevention and authenticity testing, Ethical, legal, and environmental issues in food quality governance	15
5	Food Labelling, Packaging and Retailing: Importance of food labelling, law of food labelling for domestic and international marketing of food products. Types of Packaging Material, Advantages and disadvantages of different types of food packaging material, Recent trends in Food Packaging. Packaging materials used for and criteria for selection of packaging materials: fruit products, vegetable products, fish and fish products, meat and meat products, beverage carbonated, Milk and milk products, tea, coffee, alcoholic beverages, confectionery-fat and oil, frozen products, bakery products, food grains, storage and handling packaging materials. Food Retailing- Value Chain in Food Retailing, Principal trends in food wholesaling and retailing, food wholesaling, food retailing, the changing nature of food stores, various retailing formats, competition and pricing in food retailing, market implications of new retail developments, value chain and value additions across the chain in food retail, food service marketing	10

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Practical, assignments and tutorials are based on above syllabus.

Text Books

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| 1 | Arsdel W.B., Copley, M.J. and Morgen, A.I. 1973. Food Dehydration, 2nd Edn. (2 vol. Set). AVI, Westport. |
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Reference Books

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| 1 | Bender, A.E. 1978. Food Processing and Nutrition. Academic Press, London. |
| 2 | Fellows, P. and Ellis H. 1990. Food Processing Technology: Principles and Practice, New York. |
| 3 | Jelen, P. 1985. Introduction to Food Processing. Prentice Hall, Reston Virginia, USA. |
| 4 | Lewis, M.J. 1990. Physical Properties of Food and Food Processing Systems. Woodhead, UK. |
| 5 | Wildey, R.C. Ed. 1994. Minimally Processed Refrigerated Fruits and Vegetables. Chapman and Hall, London. |
| 6 | Amerine, M.A. Pangborn, R.M., and Rosseler, E.B. 1965. Principles of Sensory Evaluation of Food. Academic Press, New York. |

7	Birk, G.G., Herman, J.G. and Parker, K.J. Ed. -1977. Sensory Properties of Foods. Applied Science, London.
8	Charalambous, G. and Inglett, G. 1981. The Quality of Foods and Beverages. (2 vol. set). Academic Press, New York.
9	Mathlouthi M., Food Packaging and Preservation, Blackie Academic & professional
10	Krammer, A. and Twigg, B.A. 1970. Quality Control for the Food Industry. 3rd Edn. AVI, Westport.
11	Pattee, H.E. Ed. 1985. Evaluation of Quality of Fruits and Vegetables. AVI, Westport. Ranganna, S. 1986.
12	Handbook of Analysis and Quality Control for Fruits and Vegetable Products. Tata McGraw Hill, New Delhi.
13	Tannenbaum, S.R. Ed. 1979. Nutritional and Safety Aspects of Food Processing, Marcel Dekker, New York.
ICT/MOOCs Reference	
1	Coursera: Food Safety and Quality Management – University of Wageningen
2	Udemy: Food Safety & Quality Management System (HACCP & ISO 22000)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	P S O 1	P S O 2	P S O 3	P S O 4
CO1	2	3	–	–	–	–	2	1	1	2	3	2	–
CO2	3	3	2	–	–	3	2	2	2	2	3	3	3
CO3	3	3	–	–	–	2	2	2	2	2	3	3	2
CO4	2	3	–	–	–	3	2	1	2	2	3	2	3
CO5	3	3	2	2	–	2	3	2	3	3	3	3	2