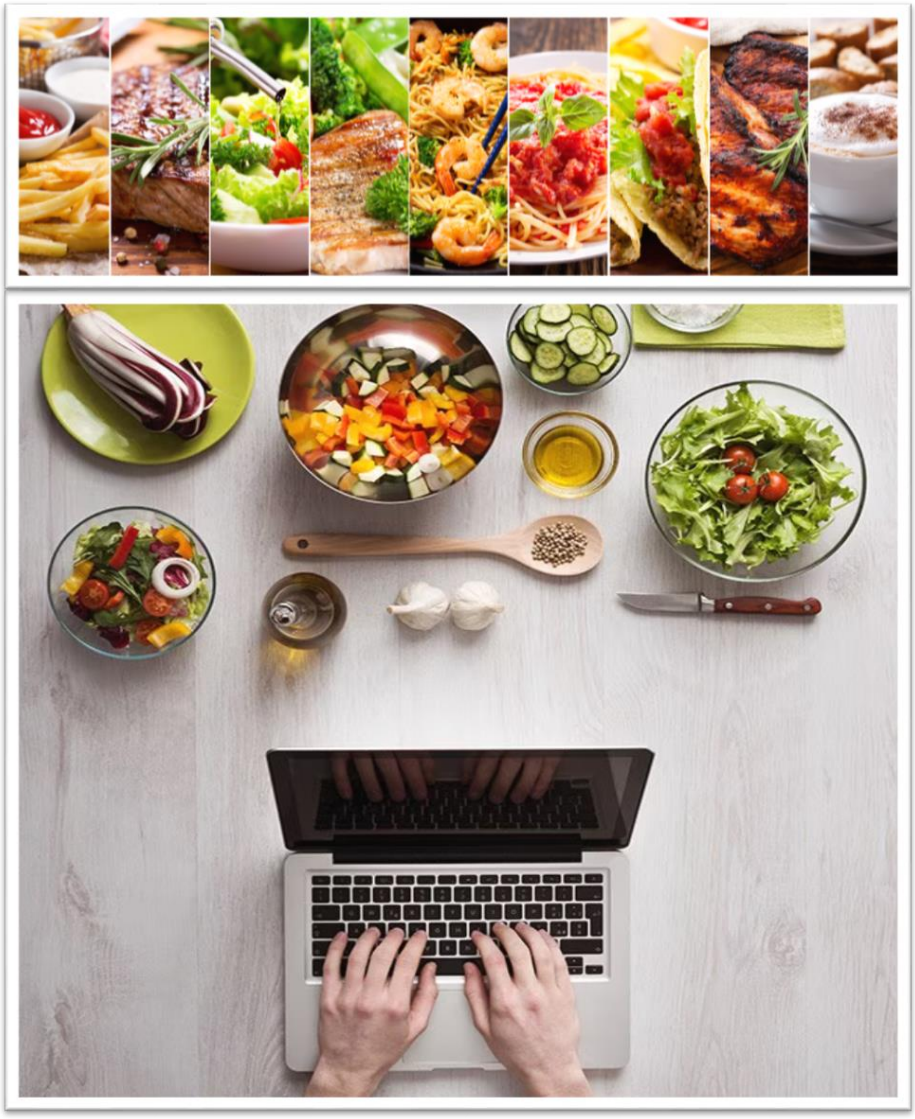
# Kerala University of Fisheries and Ocean Studies

# (KUFOS)

## Panangad, Kochi-682506, Kerala



# PG Diploma Course in Food Business Management

## Syllabus 2024

# Kerala University of Fisheries and Ocean Studies

# (KUFOS)

# Panangad, Kochi-682506, Kerala

## PG Diploma Course in Food Business Management

## SYLLABUS

## 2024

**Regulations, Eligibility, Scheme and Syllabus for PG Diploma in Food Business Management (Effective from 2024 onwards)**

All the general rules and regulations laid down by the Kerala University of Fisheries and Ocean Studies PG Diploma shall be applicable.

## Scope of the programme

The food sector plays an essential role in the economic growth of the country and provides a major contribution in the world market. The Indian food business is expected to show remarkable growth in the coming years. After an unprecedented event in the history of mankind with COVID-19, and with significant consumer interest and pressure, the food industry is facing a considerable demand with emphasis driven towards reduced wastage, sustainability and eco-friendly production, processing, preservation and distribution. In this context a strong skill, knowledge and commitment is expected from the personnel engaged in this sector. With this in view, the University has proposed the ***PG Diploma course in Food Business Management*** (**PGDip in Food Business Management**), which will cater to the immediate needs of the industry and will contribute to the success of the budding entrepreneurs in this sector. The course also emphasizes on the complexities of international trade, focusing on export/ import regulations, food safety standards, logistics, tariffs and market entry strategies to equip students with the skills needed for global food business operations.

### Eligibility criteria

Undergraduate/ Postgraduate qualification in any subject with preferences to Food Science and Technology/ Food Technology/ Fisheries/ Dairy Science/ Management (as detailed in the prospectus)

## Programme and scheme of examination

1. The PG Diploma in Food Business Management shall have two semesters with 7 core papers in first semester and dissertation study in the second semester.
2. The continuous assessment will be made in first and second semesters by the coordinating departments
3. Dissertation evaluation will be made at the end of second semester that shall carry 20 credits.

## Evaluation and grading

The evaluation of the first semester courses will be continuous, based on the following components:

| Component | Weightage |
|---|---|
| Assignment | 20 |
| Seminar | 20 |
| Attendance | 10 |

| | |
|---|---|
| Internal assessment | 50 |
| **Total** | **100** |

The continuous assessment marks will be published before the end of the course.

The dissertation will be evaluated based on the following components:

| **Component** | **Weightage** |
|---|---|
| Methodology/ Scheme | 20 |
| Contents | 40 |
| Presentation and Viva | 20 |
| General outlook | 20 |
| **Total** | **100** |

**Objectives of the programme**

- To equip students with comprehensive knowledge of the food industry, from production and processing to distribution, marketing, and retail; thus, develop a strategic understanding of the entire food value chain and how to manage its complexities efficiently.
- To focus on the global food trade landscape, including the study of international regulations**,** food safety standards**,** logistics**,** tariffs and customs procedures, and prepare students to successfully manage food exports and imports and navigate the challenges of global markets
- To prepare graduates to start and manage food businesses, while also promoting sustainable and ethical practices in food production and consumption.

**Expected Learning Outcome of the programme**

- Identify the importance of food processing and plant operations, and preservation in a business scenario with consumer preferences and quality in consideration
- Identify market opportunities and create food business plans
- Develop food business, management and entrepreneurial skills including finance, human resource management, marketing, promotion, etc.
- Implement sustainable and innovative food business management skills

**Duration of course-** one academic year (or two semesters)

**Total number of seats-** 20

**Syllabus of the PG Diploma in Food Business Management (with effect from the academic year 2025)**

**Course structure, Scheme and Syllabus**

| **Semester 1** | | | | |
|---|---|---|---|---|
| Course | **Code** | **Course** | **L (hrs)** | **Credit** |
| Core | DFBM01 | Introduction to Food Science | 2 | 2 |
| Core | DFBM02 | Food Processing and Plant Operations | 3 | 3 |
| Core | DFBM03 | Food Additives and Product Development | 3 | 3 |
| Core | DFBM04 | Food Quality Assurance | 2 | 2 |
| Core | DFBM05 | Business Management Skills for Food Business | 3 | 3 |
| Core | DFBM06 | Operations and Supply Chain Management for Food Enterprises | 2 | 2 |
| Core | DFBM07 | Strategic Management and Entrepreneurship in Food Business | 3 | 3 |
| Core | DFBM08 | Export-Import Management of Food Business | 2 | 2 |
| **Total credits** | | | | **20** |
| **Semester 2** | | | | |
| Core | DFBM08 | Dissertation study | | 20 |
| **Total credits for PG Diploma in Food Business Management** | | | | **40** |

## Syllabus

## Semester 1 courses

**DFBM01 Introduction to Food Science 2**

**Module 1 6h**

Introduction to Food Processing; Evolution of food processing techniques; Current trends and innovations in the global and Indian food industry; Types of food processing companies (multinationals, SMEs); Key sectors: dairy, cereals, fruits and vegetables, meat, seafood, and bakery; Major players and market trends in the food business sector; Economic significance of food processing; Food export and import regulations; Value addition through food processing

**Module 2 6h**

Thermal Processing Technologies; Methods: pasteurisation, sterilisation, canning; Business considerations: cost, equipment, scalability; Impact on shelf life and consumer preferences; Non-Thermal Processing-Technologies: High Pressure Processing (HPP), pulsed electric fields, irradiation; Regulatory issues; Advances in packaging for processed foods (smart packaging, biodegradable materials); Storage requirements: cold chain, warehousing

**Module 3 6h**

Food Safety and Quality Control; Importance of food safety in business operations; Key regulations: FSSAI, Codex, ISO, and HACCP; Certification and compliance for food businesses; Quality Assurance in Food Processing; Quality control in raw materials and finished products; Managing quality in large-scale production; Ethics and Consumer Trust in Food Processing; Ethical sourcing and transparency in food production; Role of certifications (organic, fair trade) in business growth

**Module 4 8h**

New Product Development in Processed Foods; Process innovation: developing marketable processed foods; Consumer trends: convenience, health, and sustainability; Stages of product development from concept to launch; Market Segmentation for Processed Foods;

Understanding consumer demographics and behaviour; Branding and positioning of processed food products; Export regulations; Opportunities for processed foods in international markets

**Module 5** **6h**

Green technologies and sustainable practices in food businesses; Energy-efficient processing and waste reduction; Food waste and by-product utilisation; Business models for waste valorization (e.g., biofuels, animal feed); Legal and environmental implications of food waste

**References**:


1. Smith, J. S., & Hui, Y. H. (Eds.). (2004). *Food Processing: Principles and Applications*. Blackwell Publishing.
2. Fellows, P. (2009). *Food Processing Technology: Principles and Practice*. Woodhead Publishing.
3. Bhat, R., Alias, A. K., & Paliyath, G. (2012). *Progress in Food Preservation*. John Wiley & Sons.

**Module 1** **8h**

Scope and Significance of Food Processing; Definition and objectives; Importance in global food security; Food loss and waste reduction; Types of Food Processing:Primary, secondary, and tertiary processing; Traditional vs. modern methods; Trends in Food Processing Industry; Growth drivers and challenges; Regulations and Standards in Food Processing

**Module 2** **11h**

Thermal Processing: Pasteurization, sterilisation, and UHT processing; Canning: principles and operations; Non-Thermal Processing- High-pressure processing (HPP), Pulsed electric fields (PEF) and ultrasound processing; Drying and Dehydration Techniques; Freeze drying, spray drying, and hot air drying; Freezing and Chilling-Freezing curves; Thawing methods, and cryogenics; Fermentation and Enzyme Technology; Role of microbes in food fermentation; Industrial enzyme applications in food processing; Applications in food preservation; Effects on product quality

**Module 3** **10h**

Food Processing Plant Layout and Design; Types of plant layouts (process, product, fixed position); Factors affecting layout design; Process Flow Diagrams and Material Balance; Understanding process flow in food plants; Mass and energy balance calculations; Plant Utilities; Steam generation and usage in processing; Water treatment, refrigeration, and compressed air systems; Maintenance Practices in Food Plants; Preventive vs. predictive maintenance; Equipment reliability and lifecycle management; Safety in Plant Operations; Occupational health and safety standards; Emergency protocols and risk management

**Module 4** **8h**

Principles of Food Packaging; Packaging materials and their properties; Functions and significance of packaging; Types of Packaging; Aseptic, modified atmosphere, vacuum, and active packaging; Sustainable and biodegradable packaging materials; Storage and Warehousing in Food Industry; Ambient, chilled, and frozen storage systems; Inventory management and warehousing technologies; Global and national packaging regulations and Environmental impact; Packaging waste management

**Module 5** **11h**

Principles of Quality Control in Food Processing; Quality attributes in food (physical, chemical, and microbial); Sampling techniques and testing methods; Food Safety Management Systems (FSMS); HACCP, ISO 22000, and BRC standards; Implementation and monitoring of FSMS in plants; Traceability in Food Processing; Importance and methods of traceability; Role of blockchain in food traceability systems; Waste Management in Food Plants; Solid, liquid, and gaseous waste disposal; Byproduct utilisation and zero-waste processing; Audits and Certifications in Food Industry; Third-party audits and certifications (FSSC, SQF); Preparation for audits and compliance. Case studies and lab visits.

Reference


1. Berk, Z. (2018). Food Process Engineering and Technology. Academic Press
2. Das, H. (2005). Food Processing Operations Analysis, Asian Books
3. Heldman, D. R. (2012). Food Process Engineering. Springer Science & Business Media.


**DFBM03** **Food Additives and Product Development** **3**

**Module 1** **8h**

Introduction to Food Additives; Definition and classification; Historical development of food additives; Importance in food science; Types and Functions of Food Additives (Preservatives, Flavorings, Colorings, Emulsifiers, Thickeners); Chemistry of Food Additives; Chemical structures and properties; Interactions with food matrices

**Module 2** **10h**

Flavour technology; Flavouring agents; Flavour enhancers; Quality control of flavourings; Flavours used in various food sectors (dairy, beverages, confectionaries, bakery); Regulations and toxicology

**Module 3** **11h**

Regulatory Framework; Overview of FDA and EFSA regulations; GRAS status; Labelling laws; Safety Assessments and Toxicology; Toxicological testing methods; Risk assessment; Acceptable Daily Intake (ADI); Product Development Process; Stages of food product development; Role of additives in formulation

**Module 4** **11h**

Sensory Evaluation Techniques; Sensory analysis methods; Consumer testing and feedback; Market Trends and Consumer Preferences; Current trends in food products; Consumer attitudes towards additives; Advances in natural and synthetic additives; Future trends in food technology

**Module 5** **8h**

Formulating food products; Evaluating product prototypes; Ethical Considerations in Food Production; Transparency in labelling; Consumer trust and ethics, FSSAI permitted additives. Case studies and visits to industry

Reference


1. Attokaran Mathew (2011). Natural food flavours and colourants. Blackwell Publishing Ltd. and Institute of Food Technologists.
2. Msagati T. A. (2012). The chemistry of food additives and preservatives. John Wiley & Sons
3. Wood, R., Foster, L., Adamant, A., and Key P. (2004). Analytical methods for food additives. Elsevier publications.


**DFBM04** **Food Quality Assurance** **2**

**Module 1** **8h**

Introduction to Food Quality Assurance; Definition and Importance of Food Quality Assurance; Overview of Quality Management Systems (QMS); Key Components of Food Quality Assurance Programs; Introduction to Quality Control vs. Quality Assurance

**Module 2** **10h**

Quality Control Techniques; Statistical Process Control (SPC); Hazard Analysis Critical Control Points (HACCP); Total Quality Management (TQM); Implementing Quality Control Tools

**Module 3** **10h**

Regulatory Standards and Compliance; Overview of Food Safety Regulations (FDA, USDA, EFSA); Good Manufacturing Practices (GMP); Role of Codex Alimentarius; Certification and Auditing Processes;

**Module 4** **10h**

Quality Assurance in Food Production; Implementing Quality Assurance Systems in Food Processing; Importance of Traceability and Documentation; Sensory Evaluation in Quality Assurance; Continuous Improvement and Corrective Actions

**Module 5** **10h**

Case Studies and Future Trends in Food Quality Assurance; Analysis of Real-World Case Studies; Emerging Technologies in Quality Assurance (Blockchain, IoT); Challenges and Opportunities in the Food Industry; Future Trends in Food Quality Assurance Practices

References


1. Heywood, D. (2016). Food Quality Assurance: Principles and Practices. Wiley-Blackwell.
2. Pomeranz, Y., & Meloan, C.E. (1996). Food Analysis: Theory and Practice. Chapman & Hall.
3. Luning, P.A., & Marcelis, W.J. (2009). Food Quality Management: Technological and Managerial Principles and Practices. Wageningen Academic Publishers.


**DFBM05** **Business Management Skills for Food Business** **3**

**Module 1** **8h**

Introduction to Food Marketing; Basics of Food Marketing; Overview of key marketing concepts and their application in the food sector; Understanding Consumer Behavior; Factors influencing consumer choices, including trends and preferences in food products; Branding and Digital Marketing; Fundamentals of building food brands and leveraging digital marketing tools like social media

**Module 2** **10h**

Financial Management Essentials; Understanding Financial Statements; Basic concepts of income statements and balance sheets for food businesses; Costing and Pricing; Introduction to managing costs and setting prices for food products and services; Budgeting; Basics of preparing and managing budgets in food enterprises

**Module 3** **10h**

Fundamentals of Human Resource Management; Hiring and Workforce Management; Overview of recruitment, staffing, and employee management in food businesses; Employee Training and Motivation; Simple strategies for training staff and keeping them motivated in food operations; Workplace Safety and Labor Laws; Introduction to key labour laws and ensuring a safe work environment

**Module 4** **10h**

Integrating Marketing, Finance, and HR; Interconnected Roles of Marketing, Finance, and HR; How marketing, finance, and HR departments work together to achieve business goals; Managing Customer Relationships and Employee Performance; Basics of improving customer engagement and monitoring employee performance.

**Module 5** **8h**

Case Studies and Practical Applications; Case Studies of Food Businesses; Overview of practical examples showing how marketing, finance, and HR practices are applied (Group Assignment and Simple group project to develop a business plan covering marketing, finance, and HR)

References


1. Bernard Davis, Andrew Lockwood, Peter Alcott, Ioannis S. Pantelidis (2021). Food and Beverage Management, 5th Edition, Routledge Publishers.
2. Zach W. Lyons, David P. Lemley (2017). Food Business Management: Principles and Practices, 1st Edition, Routledge Publishers.
3. D. K. Aggarwal (2020). Essentials of Food Business Management, 1st Edition, CBS Publishers & Distributors.


**DFBM06 Operations and Supply Chain Management for Food Enterprises 2**

**Module 1** **6h**

Introduction to Food Operations; Basics of Operations Management; Overview of key operations concepts in food production and processing; Food Safety and Quality Control; Importance of maintaining food safety and ensuring quality in operations.

**Module 2** **9h**

Supply Chain Management Basics; Introduction to Supply Chain Management; Basic concepts of supply chain management in food enterprises; Inventory Management; Simple techniques for managing inventory and reducing waste

**Module 3** **11h**

Procurement and Sourcing; Supplier Selection and Sourcing; Basics of choosing suppliers and managing procurement; Cost Management in Procurement; Introduction to controlling procurement costs.

**Module 4** **12h**

Distribution and Logistics; Logistics Management; Overview of transportation and distribution of food products; Cold Chain Management; Basics of handling perishable goods using cold chain logistics; AI and marketing; Current online marketing trends, ghost marketing and others in food sector

**Module 5** **10h**

Case Studies and Practical Application; Case Studies of Food Supply Chains; Examples of how real-world food businesses manage their supply chains (Group Project and Simple group project to design a basic supply chain for a food product)

References


1. Madeleine Pullman, Zhaohui Wu (2021). Food Supply Chain Management: Economic, Social, and Environmental Perspectives. 2nd Edition, Routledge Publishers.
2. Colin Simons (2020). Supply Chain Management for the Food Industry, 1st Edition, Springer Publishers.
3. John Mangan, Chandra Lalwani (2019). Food Logistics: Supply Chain Management for the Food Industry. 1st Edition, Kogan Page Publishers.


**DFBM07 Strategic Management and Entrepreneurship in Food Business 3**

**Module 1** **10h**

Introduction to Strategic Management; Basics of Strategic Management; Overview of strategic planning and decision-making in food businesses; External Environment Analysis; Introduction to analysing industry trends, competition, and market opportunities.

**Module 2** **10h**

Business Models in Food Enterprises; Types of Food Business Models; Overview of common business models in the food industry (e.g., restaurants, food processing, retail); Business Model Innovation; Basics of innovating and adapting business models for competitive advantage.

**Module 3** **9h**

Entrepreneurship in the Food Sector; Introduction to Entrepreneurship; Overview of entrepreneurship, focusing on starting and managing food businesses; Identifying and Evaluating Business Opportunities; Basics of identifying market gaps and evaluating potential food business opportunities.

**Module 4** **11h**

Strategic Growth and Scaling; Growth Strategies for Food Enterprises; Key strategies for expanding a food business, including partnerships and franchising; Managing Business Risks; Simple techniques for managing risks in food entrepreneurship and scaling operations.

**Module 5** **8h**

Case Studies and Practical Application; Food Business Case Studies; Analysis of successful food business ventures and their strategies; Group Project; Simple group project to develop a basic strategic plan for a food startup.

References


1. Azhar Kazmi, Adela Kazmi (2021). Strategic Management and Business Policy: Globalisation, Innovation, and Sustainability, 5th Edition, McGraw Hill Education India Publishers
2. Poornima M. Charantimath (2018). Entrepreneurship Development and Small Business Enterprises, 3rd Edition, Pearson Education India Publishers
3. Seema Bathla, Amita Shah (2020). Food Processing and Entrepreneurship in India: Opportunities and Challenges. 1st Edition, Springer Publishers.


**DFBM08** **Export-Import Management of Food Business** **2**

**Module 1** **6h**

Fundamentals of Export-Import in the Food Sector, Introduction to Export-Import and its Importance in Food Business, Key Concepts: INCOTERMS, Tariffs, and Duties, Overview of Export-Import Trade Landscape in India and Global Market Trends, Identifying Opportunities and Challenges in Food Trade

**Module 2** **11h**

Regulatory Environment and Compliance, Indian Food Export-Import Regulations and Key Regulatory Bodies (APEDA, FSSAI, DGFT), International Standards and Agreements (WTO, FTAs, Codex Alimentarius), Required Licenses and Permits for Food Export-Import, Compliance for Food Products: Sanitary and Phytosanitary (SPS) Standards, Labeling, and Quality Control

**Module 3** **12h**

Export-Import Procedures and Documentation, Core Documentation: Commercial Invoice, Bill of Lading, Certificate of Origin, and Phytosanitary Certificates, Key Steps in the Export-Import Process, including Permits and Clearances, Common Documentation Challenges and Solutions (Practical Session: Preparing and Filing Documentation for a Sample Product)

**Module 4** **10h**

Logistics and Supply Chain Management for Food Products, Modes of Transport and Criteria for Selection (Air, Sea, and Land) in Food Export-Import, Cold Chain Management for Perishable Foods, Role of Logistics Partners: Freight Forwarders, Customs Brokers, and Transporters, Packaging and Labeling Standards for Export Markets

**Module 5** **9h**

Market Entry Strategies, Pricing, and Payment Mechanisms, Market Selection and Entry Strategies (Direct and Indirect Exports, Online Marketplaces), Pricing Strategies for International Markets and Cost Components, Payment Terms and Risk Management (Letters of Credit, Open Account, Advance Payments), Case Studies (Success Stories and Challenges in Exporting Indian Food Products)

References


1. Joshi, R. M. (2014). International Business (2nd ed.). Oxford University Press.
2. Cherunilam, F. (2020). International Trade and Export Management (4th ed.). Himalaya Publishing House.
3. Mittal, A. (2018). Export-Import Management (1st ed.). Sage Publications


## Course coordinators:

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|---|---|
| Department of Food Science and Technology<br>Faculty of Ocean Science and Technology<br>Kerala University of Fisheries and Ocean Studies<br>Panangad P.O., Madavana, Kochi | Department of Management Studies<br>Faculty of Fisheries Management<br>Kerala University of Fisheries and Ocean Studies<br>Panangad P.O., Madavana, Kochi |


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